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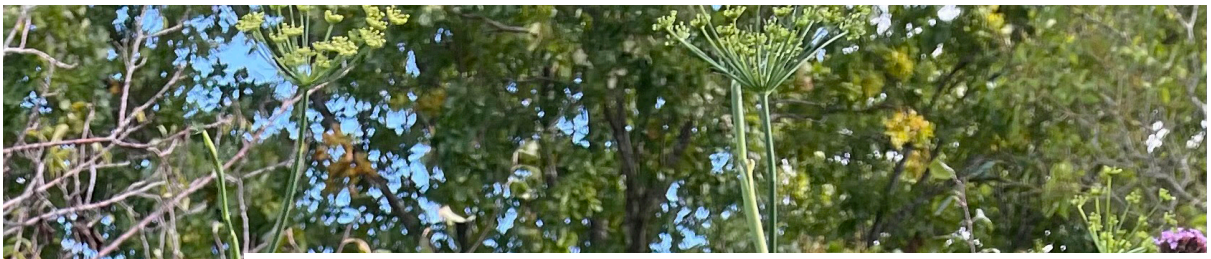

Perspectives on Evidence-Based Practice and Depression Guideline Adoption

Investigating Attitudes and Perceived Barriers among Child and Adolescent Mental Health Clinicians

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Anna Santesson

LUND
UNIVERSITY

DOCTORAL DISSERTATION

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Abstract:

Background: Mental health conditions significantly impact many young individuals globally, creating a high and growing disease burden. Adherence to evidence-based practice (EBP) and guidelines can yield better outcomes than usual care but faces adoption barriers. Clinician attitudes are crucial for adoption but vary among individuals and organisations. This thesis examines attitudes towards adopting EBP and a multi-professional depression guideline in Child and Adolescent Mental Health Services (CAMHS) across Sweden. It also cross-validates two implementation instruments: the Evidence-Based Practice Attitude Scale (EBPAS) and the Barriers and Facilitators Assessment Instrument (BFAI).

Methods: The instruments were translated, adapted, and completed by 800 CAMHS clinicians (response rate=60%). Psychometric properties were tested for item performance, reliability, and dimensionality, and compared with the original versions. EBPAS scores and predictors of attitudes were examined. Barriers were analysed at determinant and domain levels, along with potential differences between professions.

Results: The Swedish versions of EBPAS and BFAI showed reliability and dimensionality similar to the original versions. Relationships between BFAI and EBPAS scales were weak. Clinicians generally had positive attitudes towards EBP and the depression guideline adoption. Attitudes about the utility of psychiatric diagnosis were the strongest predictors of EBP adoption attitudes, while perceived barriers to guideline adoption varied between professions.

Conclusions: The Swedish EBPAS is reliable for measuring EBP adoption attitudes, though further revisions may be needed. The Swedish BFAI is promising for exploring guideline adoption barriers in CAMHS, with further testing recommended. Addressing both broad EBP attitudes and specific guideline views may be essential for prioritising among and overcoming adoption barriers and improving outcomes in CAMHS. Clinician optimism is a good starting point for future implementation efforts, which may benefit from being tailored to meet the needs of different clinicians.

Key words: Mental health, depression, evidence-based practice, guidelines, multi-professional, EBP, attitudes, adoption, implementation, barriers, EBPAS, BFAI, CAMHS, validity, reliability

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Till min mamma

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Thesis at a glance

Paper	Aim	Method	Result	Conclusion
I	Cross-validating the EBPAS	11 CAMHS n=570 EBPAS	The reliabilities were on par or slightly better, and the factor structure closely mimicked the English version.	The Swedish EBPAS is valid and reliable for measuring general and specific attitudes towards EBP adoption, with some caution for the Appeal and Divergence scales.
II	Cross-validating the BFAI	10 CAMHS n=440 BFAI EBPAS	Items met developers' criteria; and reliabilities were adequate. Correlations between BFAI scales were generally moderate, but weak between BFAI and EBPAS scales.	The Swedish BFAI showed promising psychometric properties; single items can be used to tailor local strategies in implementation programs. The BFAI scales may also be suitable for research on guideline implementation challenges.
III	Investigating EBP adoption attitudes	16 CAMHS n=800 EBPAS ORC	Clinicians generally showed positive EBP adoption attitudes.Clinician and organisational characteristics were related to at least one attitudinal dimension, with perceived utility of diagnosis being the strongest predictor.	Clinicians generally valued and were willing to adopt EBPs, with relatively consistent positivity across groups. Differences in attitudes suggest that implementation efforts may need fine-tuning during training, particularly for attitudes towards diagnosis.
IV	Investigating barriers to depression CPG adoption	10 CAMHS n=440 BFAI	Clinicians generally had positive attitudes towards depression CPG adoption; less so about its fit with patient subgroups and about sufficient support. Psychiatrists were the most positive, and counsellors the least.	Clinicians favored guideline adoption but believed that adaptations for certain patient groups and more support were needed. Strategies may benefit for being tailored to meet the needs of the various professional groups.

Note: CAMHS= Child and Adolescent Mental Health Services, CPG= Clinical Practice Guideline, EBP= Evidence-Based Practice, EBPAS= Evidence-Based Attitude Scale, BFAI=Barriers and Facilitators Assessment Instrument, ORC= Organizational Readiness for Change Instrument. In Papers I and III, EBP is the innovation, while in Papers II and IV, a depression CPG is the innovation.

Table of Contents

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Tack alla!

Halmstad november 2024

Abbreviations

BFAI	Barriers And Facilitators Assessment Instrument
BUP	Barn- och Ungdomspsykiatri
CAMHS	Child And Adolescent Mental Health Service
CAP	Child and Adolescent Psychiatry
CFA	Confirmatory Factor Analysis
CPG	Clinical Practice Guideline
CYP	Children and Young People
DF	Determinant Frameworks
DOI	Diffusion of Innovations
EBA	Evidence -Based Assessment
EBI	Evidence-Based Intervention
EBM	Evidence-Based Medicine
EBP	Evidence-Based Practice
EBPAS	Evidence-Based Practice Attitude Scale
EBT	Evidence-Based Treatments
EFA	Exploratory Factor Analyses
EPIS	Exploration, Preparation, Implementation, and Sustainment
GLM	Generalised Linear Modelling
G&W	Grol and Wensing
ICC	Intraclass Correlation Coefficient
N/A	Not Applicable
NBHW	Swedish National Board of Health and Welfare
ORC	Organizational Readiness for Change Instrument
PCA	Principal Component Analysis
PCIS	Perceived Characteristics of Intervention Scale
SACAP	Swedish Association of Child and Adolescent Psychiatry
TPB	Theory of Planned Behaviour
TMF	Theories, models, and frameworks

Populärvetenskaplig sammanfattning

Syfte

Huvudsyftet med avhandlingen var att undersöka personalens attityder till att arbeta evidensbaserat och deras syn på förutsättningar för att införa en depressionsriktlinje inom Barn- och ungdomspsykiatrin (BUP). Vi ville också undersöka om det fanns några skillnader beroende på faktorer som belysts i tidigare forskning. Ett annat huvudsyfte var att översätta, anpassa och testa två implementeringsinstrument. Vi ville undersöka om attityder till evidensbaserad praktik (EBP) och uppfattningar om hinder för riktlinjeimplementering kan mätas på ett säkert och tillförlitligt sätt inom BUP i Sverige och bidra till att validera instrumenten.

Inledning

Psykiska tillstånd respektive depression hos unga är allvarliga och växande folkhälsoproblem, men vården är sällan bästa möjliga trots att stora summor läggs för att ta fram forskningsbaserade behandlingsmetoder och riktlinjer. Det är det svårt att implementera nya behandlingsmetoder med forskningsstöd, trots att följsamhet visat sig förbättra måendet och prognosen jämfört med vanlig vård.

Personalen är nyckelspelare vid införandet av nya terapimetoder och riktlinjer eftersom de behöver ändra arbetssätt och har unik kunskap om lokala förutsättningar. Trots det saknas stora och representativa studier som belyser deras perspektiv.

Det finns en del forskning som belyser attityder till att arbeta evidensbaserat. Studierna talar för att personalens attityder har betydelse för om de faktiskt ändrar arbetssätt och att det finns skillnader i attityder mellan länder, organisationer och utifrån personalens bakgrund. Det är svårt att dra säkra slutsatser om det också gäller BUP i Sverige, eftersom de flesta studier är från USA, har begränsad geografisk räckvidd, studerar få yrkesgrupper eller annan verksamhet än BUP.

De flesta studier har använt skalan EBPAS (Evidence-Based Practice Attitude Scale) för att mäta attityder till att anamma evidensbaserat arbetssätt. Den består av 15 frågor fördelat på fyra delskalor 1) Krav (Requirement), 2) Attraktiv (Appeal),

3) Öppenhet (Openness) respektive 4) Skiljaktighet (Divergence) och en helskala (EBPAS total). Delskalorna mäter benägenheten att använda obligatoriska EBP, metoder som de själva och viktiga andra uppfattar som tilltalande, öppenhet mot nya och manualbaserade metoder, respektive hur mycket det egna arbetssättet skiljer sig från forskningsbaserade metoder och hur mycket de värdesätter forskning eller att följa en manual. Helskalan mäter allmän attityd till att arbeta evidensbaserat. EBPAS har visat sig ha bra skalegenskaper, men hade inte tidigare använts i Sverige. Det fanns heller ingen svensk översättning av EBPAS när vi startade studien. Och det saknades svenska studier som belyser personalens attityder till EBP.

Kliniska riktlinjer har potential att öka förutsättningarna för att evidensbaserade behandlingsmetoder används. Studier från sjukvården i stort har dock visat att riktlinjer inte införs ordentligt. Det beror sannolikt på att man inte identifierat och åtgärdat viktiga hinder. Hindren kan finnas i metoden (riktlinjen), hos användaren (sjukvårdspersonalen), hos patienten och i. kontext (organisationen). På BUP arbetar personal med olika yrkesbakgrund och man använder multiprofessionella riktlinjer, något som ofta gör implementeringen svårare. Trots det vet man väldigt lite om personalens syn på hinder och underlättande faktorer. Det behövs också mer kunskap om hur olika hinder är kopplade till varandra och om det finns skillnader i syn på hinder. Tidigare implementeringsstudier från BUP om depressionsriktlinjer har visat att personalen var pessimistiska till införandet. De tyckte att riktlinjerna inte riktigt passade BUP och BUP:s patienter. Resultaten varierade dock. Möjliga orsaker till variationen är att studierna var små, retrospektiva och i intervjuform, något som gör det svårare att dra säkra slutsatser. De kunde inte heller undersöka om olika yrkesgrupper hade olika syn på hinder och underlättande faktorer. De få studier som har undersökt detta inom sjukvården och vuxenpsykiatrin visade skillnader beroende på kön, ålder och erfarenhet och att läkare var mer positiva. Studierna använde inte validerade instrument, något som försvårar möjligheten att dra säkra slutsatser och att göra jämförelser.

Barrier and Facilitator Assessment Instrument (BFAI), har använts i flera riktlinjestudier. Det är ett flexibelt instrument med upp till 27 frågor fördelat på fyra olika skalor som mäter hinder som rör 1) Riktlinjen (Innovation), 2) Sjukvårdspersonalen (Care Provider) 3) Patienterna och 4) Miljön (Context). En helskala har också använts och har visat sig ha en koppling till användning av riktlinjer. Preliminära resultat visar på goda egenskaper hos de enskilda frågorna och acceptabla skalegenskaper. BFAI hade inte heller tidigare använts i Sverige eller inom BUP och det saknades en svensk översättning.

Metoder

Studierna är en del av ett större forskningsprogram där alla BUP-kliniker i hela landet bjöds in att delta i implementeringsprojektet Deplyftet. Drygt hälften (16/31) av alla BUP-klinker, fördelat över landet, deltog. Designen är en tvärsnittsstudie där en enkät skickades ut till totalt 1350 BUP-personal och besvarades av 812 personer (60% svarsfrekvens) under perioden 2014–2018.

Vi började med att översätta och testa instrumenten enligt särskilda riktlinjer. Vi jämförde instrumentens egenskaper med originalversionernas. Därefter undersökte vi personalens attityder till att använda EBP och riktlinjen. För EBP attityder tittade vi främst på resultaten som medelvärden för EBPAS helskala och de olika delskalorna. Vi jämförde resultaten med amerikanska normer och undersökte om attityder skilde sig åt beroende på kön, ålder, erfarenhet, utbildningsnivå, yrke, attityd till diagnos, om kliniken var en universitetsklinik eller inte, och klinikens förändringsberedskap. Vi undersökte bakgrundsfaktorernas betydelse en och en och tillsammans, där vi kontrollerade för de andra faktorerna. För synen på hinder för riktlinjeimplementering använde vi BFAI. Vi undersökte hindrande och underlättande faktorer på fråge- (determinanter) och skalnivå (domäner). Vi jämförde resultaten från olika personalgrupper.

Resultat

Instrumentegenskaper

Den svenska versionen av EBPAS hade goda skalegenskaper som följde originalversionen. De flesta frågor bidrog till sina delskalor och till helskalan. Krav och Öppenhet hade bäst egenskaper medan Attraktion och Skiljaktighet hade något sämre, eftersom Attraktion inte skilde sig tillräckligt mycket från helskalan och frågorna i Skiljaktighet inte passade så bra ihop med varandra och med övriga frågor i EBPAS.

Frågorna i svenska versionen av BFAI var bra formulerade och uppfyllde utvecklarnas riktmärken. De fyra skalorna visade sig vara pålitliga och mätte det de avsåg att mäta. Patient- och Riktlinjeskalorna fungerade bäst, medan Kontextskalan hade vissa problem, en fråga hängde inte ihop med de andra och själva kontextskalan hängde inte så bra ihop med de andra BFAI-skalorna. BFAI- och EBPAS-skalorna följde varandra till viss del. Ju mer mottaglig personalen var för evidensbaserat arbetssätt desto färre hinder såg de för att införa riktlinjen.

Attityder till evidensbaserat arbetssätt och att införa riktlinjen

BUP-personalen var positiv till att använda evidensbaserade arbetsmetoder, till och med mer positiva än sina amerikanska kollegor. De var redo att arbeta evidensbaserat när metoden var tilltalande (Attraktiv), de var öppna för nya och forskningsbaserade behandlingar (Öppenhet), och de upplevde relativt liten skillnad gentemot sin nuvarande praktik (Skiljaktighet). De var också positiva till, men något mindre benägna att använda, obligatoriska evidensbaserade metoder (Krav). Våra resultat liknade dem som rapporterats i USA och Norge.

I likhet med tidigare studier, fanns det skillnader mellan kvinnor och män, unga och gamla, oerfarna och erfarna, kort och lång utbildningsnivå, universitetsklinik och annan klinik och hur redo kliniken var för förändring. Men personalen var förvånansvärt överens och faktorerna kunde bara förklara en mindre del av attitydskillnaderna. I ljuset av det, hade uppfattningen om hur användbara diagnoser är inom BUP störst betydelse för skillnader i attityder. Vår studie är den första att visa denna koppling, som kan bero på att de flesta evidensbaserade metoder inom BUP är diagnosbaserade. Framtida forskning får undersöka om vår tolkning stämmer eller om BUP-personal är positiv till diagnoser eftersom evidensbaserade metoder har bättre resultat.

Personalen var också positiv till införandet av riktlinjen, till skillnad från fynden i tidigare studier. I vår studie var personalen mest positiva till själva riktlinjen och sin egen förmåga att följa den. De såg dock utmaningar att följa riktlinjen med vissa patientgrupper och med stödet för riktlinjen på den egna kliniken. De behövde också mer kunskap, utbildning och träning för att kunna följa riktlinjen. Allt detta ligger i linje med tidigare studier. Det som mest underlättade införandet rörde dem själva, det vill säga deras egen förändringsbenägenhet, den egna viljan att arbeta strukturerat och om de var involverade i implementeringen. Det gick inte att jämföra våra resultat med tidigare studier eftersom det inte finns några.

Vi kunde jämföra olika yrkesgruppers syn på hinder och underlättande faktorer eftersom vår undersökning var stor. Läkare var i allmänhet mest positiva och socionomer minst positiva till förutsättningarna för implementeringen av riktlinjen, men skillnaderna var små till måttligt stora. Jämfört med övriga yrkesgrupper såg läkare framför allt färre hinder som gällde deras egen möjlighet att följa riktlinjen. De såg också färre hinder i själva riktlinjen och att följa riktlinjen i arbetet med patienterna. Det fanns också skillnader, om än små, i uppfattning om enskilda hinder och underlättande faktorer. Läkarna var mer medvetna om riktlinjen, uppgav mindre behov av träning och kände sig mer involverade.

Slutsats och betydelse

Våra resultat visar att man inte kan förlita sig på resultat från andra länder vid införandet av en ny metod, eftersom personalens syn på hur väl metoden passar med patienterna och den unika vårdkontexten kan skilja sig åt. Resultaten tyder också på att det är en fördel att både undersöka attityder till EBP-användning och hinder och underlättande faktorer för att införa den specifika metoden som ska användas. Våra resultat stödjer användningen av de svenska versionerna av EBPAS och BFAI. Våra fynd bidrar till implementeringsforskningen eftersom vi undersökte instrument och attityder i en stor och landsomfattande studie.

Personalens optimism är en bra utgångspunkt för framtida implementeringsinsatser. Personalen i våra studier hade en positiv syn på att arbeta evidensbaserat, även jämfört med USA. Det är positivt eftersom man i andra studier funnit en koppling mellan attityder och senare EBP användning. Vår studie är den första att visa att attityder till diagnoser och attityder till att arbeta evidensbaserat hade en koppling, som också var den starkaste, men det fanns också andra skillnader i attityder, i linje med tidigare forskning.

BUP-personalen såg också positivt på möjligheten att införa depressionsriktlinjen. Vår studie är först på BUP att redovisa hinder före en implementering, att undersöka förhållandet mellan attityder till evidensbaserade metoder och depressionsriktlinjer och att göra jämförelser mellan olika yrkesgrupper med validerade instrument.

För att bli en naturlig del av kliniken behöver evidensbaserade behandlingsmetoder och riktlinjer sannolikt anpassas för att passa bättre med mer sårbara patienters behov. De som planerar införandet av en ny metod kan också, förutom att diskutera nyttan av diagnoser, behöva ta hänsyn till andra faktorer som rör personalen och miljön, när de utformar sina implementeringsinsatser.

När en ny riktlinje ska införas på kliniken bör personalen få utbildning och träning som med fördel kan anpassas något till de olika yrkesgruppernas behov. Resultaten talar dock för att riktlinjerna kan behöva anpassas för att passa alla personal- och patientgrupper för att framgångsrikt implementeras. Ansvariga för utveckling av metoder kan behöva göra mer aktiva insatser för att för att nå alla personalgrupper redan under utvecklingsstadiet av metoden för att inhämta deras synpunkter om vilka anpassningar som behöver göras för att passa alla BUP-patienter.

Råd för att införa evidensbaserade metoder och riktlinjer:

- Gör personalen delaktig och be dem dela med sig av sina farhågor och attityder till att arbeta evidensbaserat respektive sina tankar om förutsättningarna för att införa riktlinjen.
- EBPAS och BFAI kan användas för att mäta attityder och uppfattningar, och belysa skillnader mellan olika personalgrupper. Komplettera gärna med intervjuer för att få djupare insikter.
- Diskutera resultaten från EBPAS och BFAI för att förstå hur personalens attityder kan påverka implementeringen och hur metoderna kan behöva anpassas.
- Informera om metodens respektive riktlinjens viktigaste delar och tänk på att alla inte har samma kännedom, kunskap eller färdigheter.
- Ge tid för att prata om hur evidensbaserade metoder och riktlinjen fungerar med olika patientgrupper och hur de kan anpassas.
- Diskutera för och nackdelar med psykiatriska diagnoser och hur det påverkar attityder till evidensbaserad praktik.
- Erbjud utbildning och praktisk träning som passar olika personalgruppers behov.

List of papers

Research Articles in this Thesis

The current thesis is based on the following four papers, which will be referred to in the text by their roman numbers.

I. Santesson AHE, Bäckström M, Holmberg R, Perrin S, Jarbin H: 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 Med Res Methodology.* 2020, 20(1):254.

II. Santesson AHE, Jarbin H, Holmberg R, Gustafsson P, Perrin S, Bäckström M: The Swedish version of the Barrier and Facilitator Assessment Instrument: translation, adaptation, and initial psychometric testing in a large and nationwide sample, *Submitted.*

III. Santesson AHE, Holmberg R, Bäckström M, Gustafsson P, Jarbin H, Perrin S: Clinician attitudes towards adoption of evidence-based practice: a nationwide multi-professional cross-sectional study of child and adolescent mental health services in Sweden. *BMC Health Services Research* 2024, 24(1):1432.

IV. Santesson AHE, Holmberg R, Bäckström M, Gustafsson P, Perrin S, Jarbin H: Multilevel barriers to guideline implementation: a nationwide multi-professional cross-sectional study within child and adolescent psychiatry. *Child and Adolescent Psychiatry and Mental Health* 2024, 18(1):115.

Related Publication and Manuscript

The following publication and manuscript, which I co-authored, are related to the research presented in this thesis and provide additional context and findings relevant to the studies discussed. Paper V is a study protocol for an implementation study using the translated, adapted, and validated instruments from Papers I and II in a different health context. Paper VI investigated current care compared to quality indicators from the depression guideline during the pre-implementation phase in a subsample of the CAMHS that participated in the studies underlying this thesis.

V. Ekelöf, K.; Sæther, E.; Santesson, A; Wilander, M.; Patriksson, K.; Hesselman, S.; Thies-Lagergren, L.; Rabe, H.; Andersson, O. A hybrid type I, multi-centre randomized controlled trial to study the implementation of a method for Sustained cord circulation And VEntilation (the SAVE-method) of late preterm and term neonates: A study protocol. BMC Pregnancy Childbirth 2022, 22, 593.

VI. Remvall S, Santesson AHE, Bäckström M, Hofvander, B, Jarbin, H, Diagnostic Assessments of Depression in Child and Adolescent Psychiatry: Exploration of Quality Indicators – Occurrences, Correlations and Predictors in a Nationwide Swedish Outpatient Cross-Sectional Medical Record Review. *Submitted*.

Tables and Figures

Tables

Figures

Prologue

When we initiated this research project, I had a decade of experience in Child and Adolescent Psychiatry (CAP), including four years as a specialist. My introduction to Evidence-Based Medicine (EBM) occurred in the late nineties during my initial resident training in general surgery. Within the surgical field, EBM was met with curiosity and enthusiasm, as guidelines and decision support aids were commonplace. Research was an expected part of training for all residents and in 1998, I began my research training. During my second parental leave, my husband, who was studying to become a social worker, noticed that I preferred reading his assigned readings over my own research materials. This realisation prompted me to reflect on my experiences and my newfound interest in child development, behavioural change, and systems theory. As consequence, I transitioned to my new resident training program in CAP and encountered a different world. Research faced scepticism, where the very foundation of research—assessing and following up—was not only deemed impossible but also unnecessary.

As a new child psychiatry resident, I also faced a lack of clinical practice guidelines (CPGs) and decision aids. I relied on various books that discussed psychological theories related to causes, providing conflicting advice based on viewpoints of authorities within different therapy schools rather than research. While this theoretical foundation was essential for understanding the complexity of the field, it also added to my confusion, and I still needed practically evidence-based recommendations on how to assess and treat my patients. Additionally, my work within CAP involved collaborating closely with clinicians from various professions. I observed that patient conceptualisation and treatment planning often depended more on the treating professional than on the patient's condition. During my family therapy training in Lund, Kjell Hansson's discussion of Evidence-Based Practice (EBP) provided a sense of relief. He emphasised that research within Child and Adolescent Mental Health Services (CAMHS) was not impossible, stating, 'It's simply a matter of measuring symptoms before and after treatment'. At that time, symptoms were not routinely asked about within CAMHS, and only a few patients had received a psychiatric diagnosis.

A couple of years later, the Swedish National Board of Health and Welfare (NBHW) released its first guideline for depression and anxiety, prioritising different interventions against each other. This sparked a heated debate but also demonstrated

that evidence-based approaches and guidelines were both possible and desirable within CAMHS. During my specialist training, I authored local guidelines based on the NBHW's recommendations and those from other countries, but the uptake was disappointingly low. Nevertheless, I continued this practice after becoming a specialist and transitioning to another county (Halland). In this county, the leadership was supportive of guidelines and actually acted as pioneers in monitoring patient care—a significantly better starting point for guideline adoption compared to my previous workplace. We made considerable progress in the depression guideline development process, trying to involve important stakeholders such as leaders and frontline clinicians, although it might not have scored highly in an AGREE assessment (a tool for ensuring methodological quality of clinical practice guidelines, more on that later). While we did face some resistance, it paled in comparison to the opposition at the national level against the NBWH guideline or those at my previous workplace. Surprisingly, a significant portion of those who were most vocal had not even read the draft version.

In 2011, we released the guideline, which later served as a template for Swedish Association of Child and Adolescent Psychiatry´s (SACAP) guideline on depression (the focus of this dissertation). We organised a regional educational day and presented our implementation effort at the 2013 SACAP congress. Our goal was to make depression care more evidence-based and aligned with guidelines. However, when we subsequently assessed the results, we found that although there was improvement, adherence varied and fell short of our high, somewhat naive expectations. We pondered: What hindered the guideline uptake? What were the general opinions of CAMHS clinicians? How could we involve them? Could we truly make our implementation efforts evidence-based? This was the starting point for the Deplyftet implementation and research program and my resumed doctoral studies- a ten-year long journey.

Introduction

Despite significant resources spent on researching effective interventions, the underuse of affordable care and overuse of ineffective care remain global problems, causing suffering, disability, and loss of lives, as well as unnecessary costs and resource wastage in health systems (1, 2). This issue is particularly acute in children and young people (CYP), where mental health conditions are the leading cause of disability, linked to high rates of school failure, and poor social functioning, leading to long-term disadvantage and dysfunction into adulthood (3-5). Despite this, many young people suffering from these conditions still do not have access to the best available care, in line with evidence-based practices (EBPs) and guidelines (6-9).

This thesis examines factors affecting the implementation of EBPs and a clinical practice guideline (CPG) for depression in child and adolescent mental health services (CAMHS). For an overview, see ‘Thesis at a Glance’, at the beginning of this thesis, and for key implementation concepts, some of them slightly modified to suit the purpose of this thesis, see the info box (10-12). This thesis focuses on frontline clinicians’ perspectives, including their attitudes towards EBP adoption, perceived barriers to guideline implementation, and the interaction between these attitudes and various professional and organisational factors. Additionally, it addresses measurement issues. The cases and their conceptualisation are discussed in detail in the 'Cases and Conceptualisation' section.

Key concepts used in this thesis

Innovation	New ways of working aimed at improving health or service outcomes.
Adopter	The intented user (healthcare clinician or organisation).
End-user	The target group (patient).
Context	The physical and social setting.

The Evidence Moment

EBP originated in the medical field, known as Evidence-Based Medicine (EBM), a paradigm that started in the 1990s as a new approach to teaching the practice of medicine (13). The concept and impetus for EBM emerged from a growing recognition of the limitations in traditional clinical practices, affecting both patient care quality, and costs. Historically, clinical practice was often regarded as the 'art of medicine', and expert opinions, experience, and authoritative judgement were the foundation for decision-making (13). EBM represents a deliberate effort to introduce a systematic and stepwise approach in clinical decision-making regarding patient assessment, treatment, and outcome monitoring, to deal with the inherited uncertainty of such decisions.

> 'Evidence-based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients'. (14).

The initial focus was on critical appraisal of research findings, using an evidence hierarchy, which led to debate on the trustworthiness and practicality of the use of evidence in patient care. To overcome this obstacle, evidence-based healthcare was reframed and presented as an approach that tied together and utilised research and expertise to formulate best practice, as opposed to relying solely on research findings. To practice EBM is to integrate 'individual clinical expertise and best available external evidence from systematic research….and neither alone is enough'(14).

Evidence-based clinical decisions-models also emphasise the role of patient preferences as an equally important component that may in some decisions override the other two components, namely clinical expertise and research evidence (15, 16).

Evidence-Based Practice

The concept of EBM quickly spread beyond physicians to other healthcare professionals. As a result, terms like EBP emerged to encompass a wide range of clinical applications reflecting the benefit of entire healthcare teams, and organisations adopting a shared evidence-based approach and the definition of EBP was somewhat modified by the Institute of Medicine (17).

> 'Evidence-based practice is the integration of the best available research evidence with clinical expertise and patient's unique values and preferences'(17).

EBP is a broad concept that includes, but is not limited to, the application of evidence-based treatments (EBTs), interventions (EBIs) and assessments (EBAs) (18).

Figure 1. Evidence-Based Practice Model, adapted from the Institute of Medicine.

Critical Perspectives

Critics argue that EBP overly prioritises experimental evidence, devaluing clinical experience and patient needs (19). Treatments proven beneficial in randomised controlled trials (RCTs), which are highly regarded in the 'hierarchy of evidence' may not suit the diverse and complex reality of clinical practice. For example, it is unclear whether results from clinical studies can inform decisions about real world patients or apply to those who are often excluded from trials due to complexity and comorbidity. This raises concerns about quality, equity, and public health, given RCTs' impact on resource allocation (20).

Guidelines as Tools for Implementing EBP

Healthcare professionals may struggle with interpreting and staying up to date on the extensive scientific literature that is published (21). Guidelines serve as a bridge between science and clinical practice by consolidating current knowledge (22). Although guidelines can originate from various sources, with different focuses, and goals, their overarching purpose is to reduce disease burden and mortality while improving quality of life, as well as healthcare accessibility, appropriateness, equity, patient-centredness, and safety (23). Additionally, guidelines aim to eliminate ineffective care and reduce unwarranted variation (24). Beyond enhancing patient and service outcomes, guidelines can also serve as a basis for interdisciplinary education, collaboration and coordination of care as well as providing an information resource for individual patients (22, 23, 25).

> ‘Clinical practice guidelines are statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options ‘(22).

Clinical practice guidelines provide evidence-based recommendations to healthcare professionals for managing specific medical conditions (22, 23). The recommendations ideally encompass clear statements on expected practice, information on benefits and harms of alternative treatment options, guidance on specific tasks, and standards for auditing individual and/or organisational performance (22, 24).

Critical Perspectives

At their best, CPGs are an essential part of the EBP toolkit, offering a readily accessible source of rigorously synthesized and interpreted evidence, authored by experts, clinicians, and patient representatives (23). However, guidelines come with inherited risks, including quality concerns and the potential for misuse as rigid instructions or standards that are management-driven rather than patient-centred (26). This misuse might threaten professional autonomy and professional collaboration and overlook individual patient needs (20, 23). To reduce these risks, it is essential to use a rigorous methodology when developing guidelines, and to provide healthcare professionals with guidance and training on how to evaluate and interpret guideline recommendations and their underlying evidence (22, 23, 27-29).

Implementation

Already at the launch of the EBM paradigm, methods for overcoming barriers to its dissemination and integration into clinical practice were discussed (13, 30). Furthermore, the evidence movement, EBP and CPG highlighted the slow and inconsistent uptake of effective healthcare across patients, healthcare services and systems (10, 20). By emphasizing the use of best available evidence in clinical decision-making, the evidence movement also raised the bar for what is considered acceptable practice, making the gap between best practice and usual care even wider. In addition, CPGs and associated quality indicators started to be used as benchmarks, closely monitored by healthcare organisation and inspectorates to ensure compliance and quality (22-24). These factors created a drive to understand what hinders and facilitates uptake of best care as suggested by EBP and CPGs (31).

> ‘Implementation is the process of putting to use or integrating evidence-based interventions within a setting’(11).

Implementation forms a part of a continuum that includes diffusion, dissemination, and implementation (10, 32). Diffusion refers to the spontaneous, untargeted, and unplanned propagation of new practices (11). Dissemination, on the other hand, involves the deliberate distribution of new practices to the intended audience through strategic planning. Lastly, implementation involves the procedure of applying or integrating EBIs within a specific setting, while implementations research is the study of this process.

> 'Implementation science is the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and hence, to improve the quality and effectiveness of health services and care'(33).

Theoretical Perspectives on Implementation

Within the field of implementation and implementation as a research field, various theories, models, and frameworks (TMFs) aim to: a) guide the translation of research into practice, b) understand factors influencing outcomes, and c) evaluate implementation (12). The TMFs chosen for this thesis and the rationale for choice are summarised in Table 1 and will be described in detail in the following text (34).

Table 1. Theories and Frameworks Used and Rationale for Choice

	Case 1 (EBP)	Case 2 (Depression CPG)
Theory	Theory of Planned Behaviour	Diffusion of Innovations Theory
Rationale	Common in EBP implementation Common in behavioural healthcare	Common in CPG implementation Common in healtcare Inspired Determinant Frameworks.
Framework	EPIS	Grol and Wensing
Rationale	Common in EBP implementation Common in CAMHS Adopter and organisational level Have an instrument	Common in CPG implementation Common in healthcare Simplier than CFIR Adopter level Have an instrument
Outcomes*	Acceptability, Adoption, Appropriateness	Acceptability, Adoption, Appropriateness Determinants for adoption
Rationale	Early outcomes at adopter level Measured with EBPAS	Early outcomes at adopter level Measured with BFAI

Note: EPIS Framework of contextual levels and factors, EBP= Evidence-Based Practice, CPG= Clinical Practice Guideline, CFIR=Consolidated Framework of Implementation Research, EBPAS= Evidence-Based Attitude Scale, BFAI=Barrier and Facilitators Assessment Instrument, *Outcomes according to Proctor

Factors Influencing Implementation

Implementation is often seen as a multidimensional phenomenon, with multiple interacting influences at various levels (12, 27). Determinant Frameworks (DFs)

provide a structure for categorising important influences although they do not directly address how change occurs (12). However, they can be linked to classic theories describing change mechanisms. In addition, implementation theories have been developed trying to integrate these aspects from an implementation perspective.

Theories

A wide range of classic theories frow various fields are underpinning the field of implementation science (12, 25). Classic theories related to individual behaviour change can enhance our understanding of individual adoption, theories related to social interaction can help understanding team process, and organisational theories can aid understanding of the integration of innovations within an organisation, given that implementation is a process of behaviour change under organisational constraints at its core (30, 35).

The Theory of Diffusion of Innovations

The Diffusion of Innovations Theory (DOI), developed by Everett Rogers, is one of the most influential theories in implementation science (30, 36). This theory is frequently used in health guideline implementation projects and was therefore chosen to guide the interpretation of Case 2 in this thesis (Table 1) (10, 30, 37, 38). It introduces important concepts and terms and covers several levels of change, for that reason it is presented first. DOI outlines the factors and processes that influence the spread and adoption of new interventions (36).

Key Components of Diffusion of Innovations Theory (36)

Attributes of Innovations	Adopter´s perceptions of an innovation's characteristics.
Adopter	Someone who is about to decide whether to try an innovation or not.
Innovativeness of Adopters	Potential Adopter´s Openness toward new ideas or methods.
Individual Adoption Process	A change process of several stages.
Social System	A set of Interrelated units that are engaged in joint problem solving to accomplish a common goal.
Diffusion System	Exchange of Information within and across an organisation.

The attributes of innovations serve as a prerequisite for the decision to try a new practice (36). These attributes include their relative advantage, compatibility, complexity, trialability, observability, and, sometimes, reinvention (adaptation). Relative advantage and compatibility are particularly important in influencing the individual adoption rate. The concept of innovation attributes has influenced several DFs, including those used in this thesis, as well as Proctor's evaluation framework, and is described in more detail further on (25, 39, 40).

The attitude towards an innovation is, however, dependent on the adopter, specifically their openness towards new ideas, which in turn is shaped by the overall innovativeness of members within the social system and the available diffusion channels, that is, the exchange of information within and across organisational boundaries (Fig. 2).

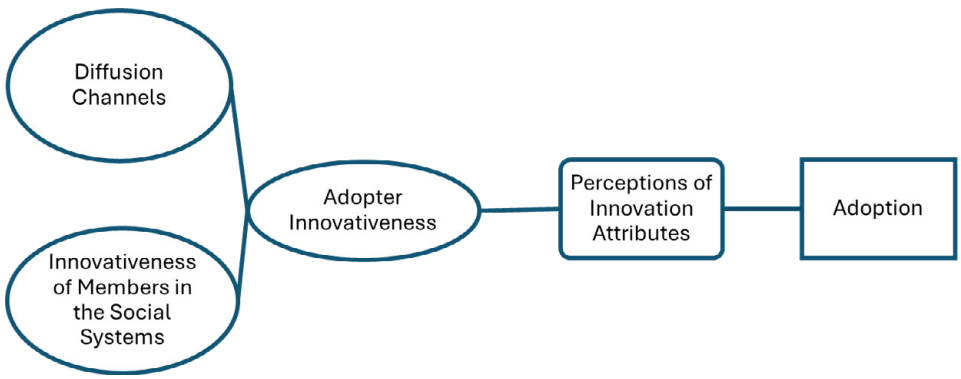

Figure 2. Factors Important for Adoption of an Innovation according to Rogers.

The individual adoption is regarded as a process with several steps from awareness to ultimate decision (Fig. 3). The rate and extent of adoption within an organisation typically follows a cumulative curve over time and are driven by type of innovation decision and its degree of obligation. Various users are categorised based on how quickly they tend to use a new method: innovators, early adopters, majority, late majority, and laggards (10). Intermediary actors, like opinion leaders and change agents, play a crucial role in successful adoption and implementation by providing advice and setting examples (10, 12, 36).

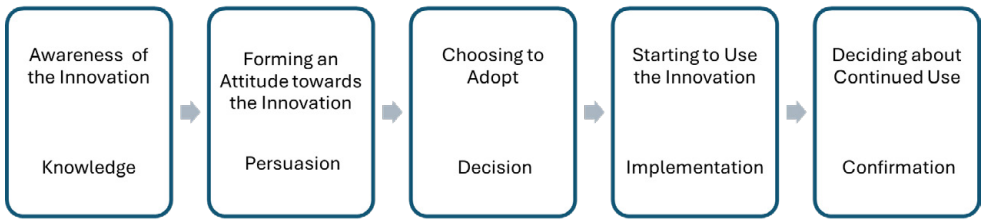

Figure 3. Individual Adoption Process according to Rogers.

Critical perspectives

The Theory of Diffusion has faced criticism for its limited applicability to various contexts, a to heavy focus on adopters' perceptions of the innovation, thereby overlooking broader social and organisational factors, and for oversimplifying the complex, iterative, and nonlinear adoption process (10). Lastly, categorisation of adopters has been criticised for being value-laden, static, and for lacking explanations of reasons for adoption or non-adoption.

The Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is a social psychological theory that can be used to understand individual behavioural change mechanisms for adopters and end-users. (35, 41-43). *TPB* is one of the most widely used theories in the field of behavioural health, as it explores intrapersonal mechanisms for change, and was therefore chosen, along with the concept of organisational readiness, to interpret results from Case 1 of this thesis (Table 1) (44). TPB posits that people's behaviour reasonably follows from their beliefs, attitudes, and intentions (Fig.4) (35, 41). A behaviour is most likely to occur when intentions are strong, when there are no environmental barriers preventing the individual from acting, and when the individual has the capability to perform the behaviour.

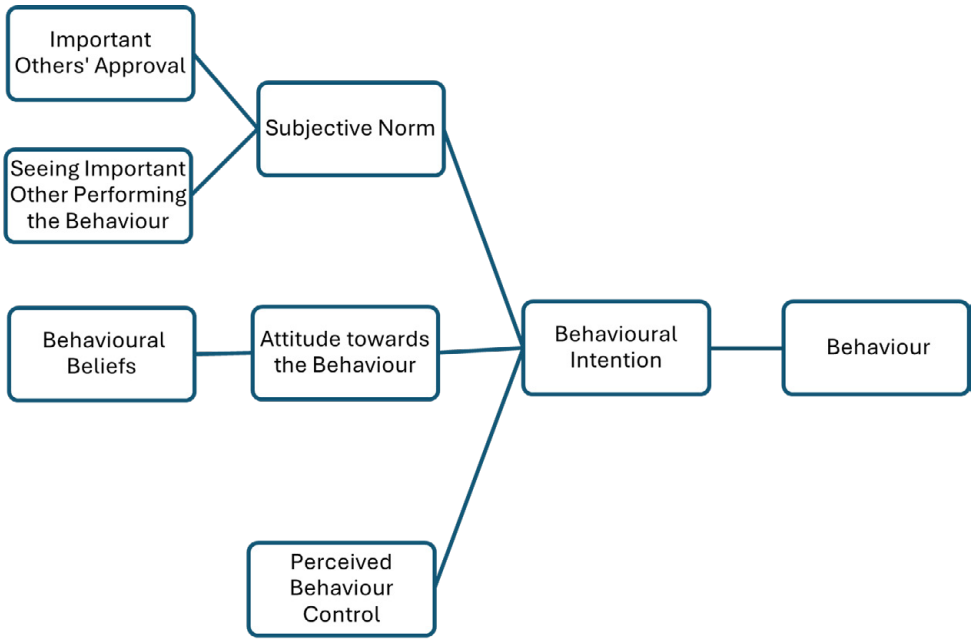

Figure 4. The Theory of Planned Behaviour according to Azjen.

TPB describes how clinicians' attitudes towards a specific behaviour (for example to adopting an EBP or guideline), their subjective norms (social pressures to perform the behaviour), and their perceived behavioural control (self- efficacy) influence one another, and together shape their intentions and ultimately their behaviour (Fig.4). The attitude is, in turn, determined by beliefs of expected outcomes and cost-benefits (behavioural beliefs), while subjective norms are influenced by expectations of important others' approval or disapproval of the behaviour and by seeing other performing the behaviour.

Critical perspectives

TPB has been criticised by assuming a dichotomous view on behavioural change (change or not) and for oversimplifying human behaviour by neglecting cultural differences, and external factors such as social and environmental influences beyond individual control (35).

Organisational Readiness for Change

Organisational Readiness for Change is a concept that aim to summarise team members and organisational preparedness, commitment and capability to implement change and is widely regarded as an essential antecedent to successful implementation of change in health services, but consensus about definition, content

and level of measurement is lacking (44). Organisational Readiness for Change is specific to the innovation being implemented, while other organisational characteristics may have relevance regardless of innovation (45).

Determinant Frameworks

DFs describe factors, acting as either barriers or facilitators, akin to risk and protective factors, that are hypothesised or have been found to influence (determine) implementation outcomes (12). These factors are categorised into broader domains, and sometimes subdomains, based on their characteristics. While a dynamic interplay within and across domains is hypothesised to influence outcomes, this interaction has not always been empirically tested or clarified (12, 46, 47).

EPIS Framework of Contextual Levels and Factors

A key aspect for choosing frameworks may be their orientation i.e., for which the setting and type of innovation the frameworks were originally designed (34). The Exploration, Preparation, Implementation, and Sustainment (EPIS) framework was developed to inform EBP implementation efforts in public health services serving children and families (40). It is particularly relevant for analysing Case 1 in this thesis as it is often used to investigate CAMHS clinician adoption attitudes in early implementation phases (Table 1) (40, 48, 49). Moreover, the instrument used for Case 1, the Evidence-Based Practice Attitude Scale (EBPAS), is often used to measure EBP adoption attitudes within studies using the EPIS framework, thereby providing a strong theoretical and practical connection, enhancing consistency and relevance (50, 51). EPIS explicitly recognise that different variables may play crucial roles at different points in the implementation process, thereby combining a DF and process model approach (40).

The framework of contextual levels is one of four key concepts in EPIS. The categorisation of domains differs from other DFs as there are two main domains or constructs, inner and outer context. There is an emphasis on the interconnectedness of context domains, subdomains, and factors. Characteristics of the individual adopter is regarded as a part of the inner context, while characteristics of the patients are sometimes included and regarded as a part of the outer context. The innovation is a key concept on its own rights and is not a part of the contextual framework. However, innovation characteristics are not often directly examined in EBP implementation studies in behavioural health (35, 52). The following text offers a condensed description of the different domains and subdomains.

The inner context domain consists of *organisational characteristics* such as organisational structure and resources, organisational culture (implicit norms of a work unit that guides behaviour) and climate (perceptions about and affective responses to their work environment) leadership, as well as individual *adopter characteristics* including demographic factors such as age, level of education,

training, primary discipline, amount of professional experience, as well as shared or unique, personal values and goals and levels of innovativeness, but also strengths of social networks (social and professional) as well as attitudes towards and perceived need for change.

The outer context domain consists of subdomains such as *sociopolitical context,* funding, *patient* characteristics, and advocacy*,* and *interorganisational networks,* which in turn consists of different factors depending on the implementation phase.

The innovation is not a part of the contextual framework but relates to its characteristics, development source, and, most importantly, the *perceived fit* between the innovation (EBP) and the inner context (adopter and organisational factors) and the outer context (system and patient factors).

Grol and Wensing Framework

Several DFs were developed for the healthcare setting with the purpose of categorising factors explaining guideline non-adherence (12, 25, 53-55). Examples of DFs include Grol and Wensing Framework (G&W), developed through a synthesis of empirical studies in healthcare, and the Consolidated Framework of Implementation Research (CFIR), a metatheory drawing on existing frameworks, including G&W, and classic theories (12, 25, 31, 56). Despite CFIR's widespread use, we opted for the G&W for categorising determinants in Case 2, given its practical applicability in guideline studies, including a separate patient domain, fewer subdomains and an implementation instrument (Table 1)(12, 25). Furthermore, it has a corresponding instrument, the Barriers and Facilitator Assessment Instrument (BFAI) (25, 57, 58)

According to the taxonomy of Nilsen, the G&W consists of five domains, namely the *innovation, adopter, end-user*, *context*, and the *implementation strategies* (Table 2) (12, 25, 27). The context domain is further divided into subdomains of inner context, covering professional interactions and health organisation, and outer context.

The following text offers a description of the different domains, summarised in Table 2, which also includes the results on barriers and facilitators from CPG studies in healthcare based on a synthesis of meta-reviews of qualitative, quantitative, and mix-method research, across various health areas, primarily focusing on physical health and adult patients. (59-62). Furthermore, they primarily focus on mono-professional guidelines with physicians and, to some extent, nurses as the main target adopter group, in most cases.

The innovation domain A range of characteristics might hinder and enable innovation adoption and embeddedness of which Roger´s attributes of innovation are described in more detail: *Relative advantage* refers to perceptions of advantage an innovation offers in achieving goals such as improving patient, services,

psychological work environment and costs compared to existing practice. *Compatibility* refers to perceptions about if the innovation (and the evidence underpinning it) complies with existing values, norms as well as daily procedures, processes and routines (25, 27, 31, 36, 54). *Complexity* pertains to beliefs of how difficult it is to understand, learn and use the innovation or its components. *Trialability* is the perception of the possibility to try out an innovation or parts of an innovation on a small scale to demonstrate its value. *Visibility* concerns the possibility to show the results and use of an innovation. *Adaptability* reflects the perceptions of whether the innovation can be tailored and adapted to meet the diverse needs of the adopter, end-user, and organisation. Additional characteristics in the innovation domain that is not covered by Rogers are *Innovation quality* as manifested by the evidence-base and development process, which is regarded as the most important innovation characteristic as well as the *format and presentation* (36, 54).

The adopter domain includes clinician characteristics such as C*ognitions* which include information-seeking skills, awareness of the innovation, general and specific knowledge, and skills to use the innovation and decision-making patterns. *Motivational factors* concern attitudes, intention to change and tension for change. *Attitudes* may refer to an individual's overall evaluation (favourable and unfavourable) of an innovation which is in turn is influenced by factors such as its evidence -base, complexity, visibility and so forth. *Tension for Change* may refer to dissatisfaction of own performance caused by for example a discrepancy between individual goals and current practice or by negative feedback from others. *Routines and Habits*, which may be related to attitudes strength, and professional training, can ease or hinder a new behaviour.

The patient domain includes patient characteristics such as *beliefs, knowledge,* implicit or explicit *preferences, motivation* and *behaviour* which can influence the uptake of innovation. Patient preferences are often interpreted by the health professionals.

The context domain The *inner context* covers Professional interactions such as team processes and professional networks, and Organisational factors such as organisational change capacity which in turn is dependent of organisational structure (structural characteristics) and culture (shared norms, values, and beliefs that drive communication and behaviour in an organisation), and availability of resources. *The outer context* refers to social, political, legal, and financial factors in the wider system, such as affiliation of health professions to their professional organisation, laws and regulations and existing financial incentives and disincentives.

Table 2. Summary of Main Barriers and Facilitators to Guideline Implementation*

Domain	Characteristic	Barrier	Facilitator
Innovation	Quality	Quality issues	Clearly developed Clear evidence-base
	Relative advantage	Impractical	Useful
	Compatibility	Lack of compatibility	
	Complexity	Complex	Simple or user-friendly
	Triability		
	Visibility		
	Adaptability	Rigid	Flexible
	Format/ Presentation		Clear and concise
Adopter	Cognitions	Lack of awareness, knowledge and skills	Awareness, communication- and behavioural change skills
	Motivational factors	Overall negative attitude	Positive attitude
	Routines		Part of routine practice
			Younger, inexperienced
End-user	Beliefs, knowledge Skills, motivation, Behaviour Need and preferences	Negative attitudes, lack of awareness, motivation, Socio-cultural beliefs and language barriers, complexity, comorbidity	Positive attitudes, Awareness, motivation, Positive socio-cultural beliefs
Context	**Inner Context**		
	Professional Interactions		
	Team processes	Teamwork issues, professional roles and responsibilities issues	Multidisciplinary teams and meetings
	Professional networks	Negative attitude, limited support from peers,negative social influences	Social or professional role and identity
	Organisational Factors		
	Change capacity	Heavy workload	Change capacity
	Structure	Weak organisational structure	Efficient processes
	Leadership	Limited, negative attitude or support from leaders	Strong leaderships and reinforcement
	Culture		
	Resources	Lack of time and financial constraints	
	Outer Context		
	Social factors	Not prioritising the health condition,	
	Financial incentives	Lack of financial incentives	
	Legislation	Lack of legal incentives	

* Findings from systematic reviews categorised according to Grol and Wensing Framework (59-62).

Critical perspectives

Determinant Frameworks have been criticised for being overly complex and cumbersome, a wide range of determinants lacking clear definitions are grouped into subdomains and domains without clear boundaries making the frameworks difficult to apply in a proper way in real-word settings (12, 35, 63, 64). They have also received criticism for being simplistic and reductionistic by oversimplifying complex phenomena (12, 35). Conceptual clarity, for example, regarding important interconnections between subconstructs and determinants, originally presented in induvial theories, may be lost when constructs from different theories are broken into parts and then combined into broader categories (35). There also seems to be uncertainty about whether determinants are best conceptualised at the domain level or the individual variable level and an inconsistency in which barriers belong to which domain (12, 25, 56, 64). Determinants assessed individually as predictors of implementation outcomes may also ignore potential synergetic or opposing effects of other relevant determinants (12, 35).

Implementation as a Process

The aforementioned adoption process in Roger´s theory of diffusion aims to describe the process of innovation uptake from the perspective of the individual adopter (36). Likewise, implementation is often described as a complex process that is typically taken part in different phases or stages (12).

Early Phases of Implementation

Researchers and implementation planners have good reasons to focus on adoption or the earliest phases of implementation. The early implementation phases are therefore often studied as a distinct field, particularly when implementing knowledge, EBPs and CPGs, as adoption has the potential to impede further implementation (39, 65). Adoption represents a complex process necessary for full implementation (10, 36, 39). Understanding the adoption process may provide insights for the development of strategies to increase uptake (66).

Critical Perspectives

Viewing the implementation process as a linear model has been criticised for being overly simplistic and misleading. In reality, implementation is a dynamic and iterative process that requires adaptation and flexibility to manage complex and evolving contexts. There are also no clear boundaries between the different stages or clear criteria for determining when one has transitioned to the next step (12).

Goals and Outcomes of Implementation

The ultimate goal of the implementation of an intervention is to enhance patient benefits and improve service quality (39). Proctor et al. (2011) advanced implementation research by identifying eight distinct implementation outcomes, separate from these patient and service outcomes (info box). Implementation outcomes help differentiate between an intervention that fails in a new context (intervention failure) and one that is poorly executed (implementation failure).

> 'Implementation outcomes are effects of deliberate and purposive actions to implement new treatments, practices, and services'(39).

Outcomes in the Early Phases of Implementation

The first four implementation outcomes are typically analysed during early implementation stages and concern adopter´s attitudes and perceptions rather than their actual use of the innovation. Adoption, however, occupies an intermediate position, as it can also refer to actual uptake and can be measured at the organisational level (39). Understanding these attitudes is crucial, as they can significantly influence the success of implementation efforts, acting as precursors to the decision of whether to try a new practice. This is the rationale for choosing Acceptability, Adoption and Appropriateness as implementation outcomes in this thesis (Table 1) (36, 41, 51).

Implementation outcomes according to Proctor (39)

Acceptability	Satisfaction with content and complexity.
Adoption	Intention to try, but can also refer to uptake.
Appropriateness	Perceived fit, relevance or compatibility.
Costs	Costs associated with implementation
Feasibility	Actual fit, degree of sucessful use.
Fidelity	Delivered as intended.
Penetration	Integration within a service.
Sustainability	Maintained within a service.

Critical Perspectives

The critique highlights issues in the operationalisation and inconsistent use of implementation outcomes, noting unclear distinctions between determinants, mediators, moderators, and outcomes, which undermines reliability (67). Few studies use implementation outcomes as dependent variables or test their sensitivity to change across the different phases of implementation or in relation to implementation strategies. However, there is debate on whether implementation outcomes are sufficient as 'endpoint' dependent variables or should be tested with more distal service systems and clinical outcomes.

Clinician Attitudes towards Innovation and Adoption

Attitudes play diverse roles in implementation science, serving as determinants, mechanisms, or outcomes of interest (46). Research on attitudes may also inform the development and testing of implementation theories and strategies, allowing inferences to be drawn for specific issues using relevant theoretical models and study designs (68).

Attitudes encompass cognitive aspects (related to thoughts), affective aspects (related to feelings), and behavioural aspects (related to actions) (69). A key feature of attitude, as conceptualised by Thurstone, a pioneer in the field of attitudes, is its connection to evaluation or affective response toward an object, idea or issue (68, 69). An attitude towards a behaviour is an evaluative response that predispose one favourably or unfavourably towards performing that behaviour, for example using an EBP or CPG (41).

When examining what can be done to accelerate uptake, it may be important to understand and address the concerns of those responsible for the adoption and delivery, namely frontline clinicians (10). Individual readiness is, however, influenced by a range of factors inherent in the complexity of real-world health service settings (10, 25). Furthermore, as highlighted by EPIS and G&W frameworks, adopters may see implementation challenges differently, or have different priorities, depending on background, training, experiences, norms, and values and so forth (25, 40). Subgroups' adoption attitudes may also differ based on Rogers' attributes of innovations and adopters' attributes respectively and due to their behavioural beliefs of expected outcomes of a behaviour or their organisations' readiness for change, with their motivation for change varying accordingly (25, 36, 40, 41, 70).

Critical Perspectives

Attitudes alone are not likely to predict behaviour, as clinicians might express positive attitudes towards an innovation such as an EBP or guideline, or articulate positive adoption attitudes but still face practical barriers that prevent adoption.(36,

41, 71). Furthermore, provider attitudes may vary across settings, contexts, and time, making it challenging to generalise findings and develop universal strategies (35). In addition, like many other psychological phenomena, attitudes are not directly observable. Therefore, they are difficult to conceptualise and measure consistently (68, 72-74).

Measurement Issues in Implementation

Despite some progress, instrumentation challenges remain a significant barrier to implementation research, similar to how unreliable symptom scales and heterogeneous outcomes hinder mental health treatment research and evidence-based decision-making (75-79). Various instruments assess individual and organisational readiness, including attitudes towards EBP and guideline adoption during early implementation phases (68, 72, 75, 78-80). However, few instruments operationalise the construct they assess, measure established implementation outcomes, adhere to established classifications or address several important constructs in a determinant framework. Additionally, many instruments do not provide sufficient scale development data, are seldom reused, or are cross- validated in different cultures. These factors may explain discrepancies across different implementation studies and impact the development of implementation as a research field, as study results depend on measurement methods, reporting, and evaluation (75-77).

The Swedish Healthcare System

The Swedish healthcare system is a shared responsibility between the national government, county councils, and municipalities (81). The national government holds the overall responsibility for establishing health policies, such as legislation and guidelines. The municipalities are responsible for services such as school health care, home health care, and special housing for the elderly or those with disabilities. The regional health authorities, represented by twenty-one county councils or regional bodies, are responsible for funding and providing healthcare services to their population, based on local taxation. The healthcare system is politically governed and organised into three levels: primary, secondary, and tertiary care. While there is a mix of public and privately-owned facilities, most are publicly funded. Healthcare and drug prescriptions are free for patients under 20 years of age. Mental care is an integrated part of the healthcare system.

Evidence-Based Practice and Guidelines in Sweden

The Swedish NBHW, an autonomous government agency under the Ministry of Health and Social Affairs, is mandated to support and exercise public authority in areas such as social, health, and medical services. NBHW collects, analyses, and disseminates evidence-based information. They use a structured process to create national guidelines for widespread and resource-intensive conditions. These guidelines primarily aid decision-makers in allocating resources within healthcare and social service. CPGs for healthcare clinicians are developed by regional health authorities, hospitals, clinical departments, other health organisations, and professional health groups, including specialist associations.

CAMHS Context

Specialised child and adolescent psychiatry are organised at the regional level, providing specialised mental health services for CYP up to the age of eighteen, through outpatient clinics, hospitals, and community settings. There are 31 publicly driven CAMHS serving median 64 000 children (10 000-500 000) in their catchment area (82). Initially, there was no clear first-line care for CAMHS in Sweden, but over time, it has been organised within CAMHS or primary care to improve accessibility. Mild mental health issues are often managed by schools, youth clinics, and social services. As in other countries, increasing patient influx and improved treatments have not been matched by proportional funding increases for CAMHS (8, 83). Therefore, CAMHS faces significant resource shortages leading to struggles with accessibility, waiting lists for treatments, heavy workloads, and staff turnover, which is also the case in Sweden (8, 82).

Clinicians

A competent CAMHS workforce is critical for providing high-quality care. The CAMHS workforce consists of numerous professions and potential adopters representing many degrees, theoretical models, and professional guilds. In Swedish CAMHS, the workforce includes psychologists, social workers, nurses, child psychiatrists, and to some extent allied healthcare professionals such as physiotherapists, occupational therapists, as well as nurse assistants and educators (82). Among these, physicians, psychologists, nurses, physiotherapists, occupational therapists, and more recently, health and medical social workers are professions that require licensure. Staff composition varies between the twenty-one county councils, different CAMHS units, and over time.

Patients

Young people who receive specialist care are a heterogenous group that not only have more severe condition comorbidities, or higher risks for suicide, but also more complex needs than those treated in general care settings (84-86). Children from

especially vulnerable populations, those with low socioeconomic status, with more severe presentation and from minority groups, are less likely to be offered and to stay in treatment, which is a challenge when it comes to EBP and guideline implementation (8, 87).

Cases and Conceptualisation

This section explores the two case studies used in this thesis. Table 3 summarises the similarities and differences between the cases, which will be further illustrated in the following. The connection between the two cases, their aims, and the related papers is outlined in Table 4 and will be described in detail in the Methods section.

Table 3. The Two Cases

Cases	Paper	Innovation	Context	Adopter	End-user	TMF
1	I, III	EBP	CAMHS	Outpatient clinician	Patients	TPB EPIS
2	II, IV	Depression CPG			Youth with depression	DOI G&W

***Note*:** TMF =Theories, models, and frameworks, TPB =Theory of Planned Behaviour, EBP= Evidence-Based Practice, CPG= Clinical Practice Guideline, CAMHS= Child and Adolescent Mental Health Services, EPIS= Exploration, Preparation, Implementation, and Sustainment, DOI= Rogers' Diffusion of Innovations Theory, G&W = Grol and Wensing Framework.

The Two Cases

The two cases share the overall aim of improving child and adolescent mental health services and quality of care. They both face the challenge of targeting a multidisciplinary group of clinicians during the early implementation phase, thereby utilising early implementation outcomes as described by Proctor et al (39). Case 1 focuses on EBP for various conditions treated in CAMHS. Case 2 involves implementing a depression CPG launched by the Swedish Association of Child and Adolescent Psychiatry (SACAP) (Table 3) (88).

Case 1 Attitudes towards EBP Adoption

Mental Health Conditions among the Young

Mental health conditions profoundly impact a large and increasing number of CYPs worldwide, constituting a growing burden of disease among young individuals (3, 89). The high frequency of mental disorders in young persons and their associated negative consequences, render them major health priorities (4, 83) Globally, approximately one in seven to one in ten 10–19-year-olds experiences a mental disorder, these conditions significantly affect young persons' well-being, education, and overall quality of life, making it a leading cause of non-fatal disability in this age group (3, 4). Over the past 30 years, there has been a rise in common mental health problems, including anxiety disorders, major depressive disorders, conduct disorders, and a particularly strong increase in eating disorders among children and adolescents globally and in Europe (83, 89). The estimated high and growing prevalence of these issues in CYPs is of particular concern, as early onset symptoms often persist into adulthood, resulting in substantial health and personal costs (90). This is why the World Health Organisation (WHO) continues to designate mental health in young people, particularly depression, as a global priority area (91).

Evidence-Based Practices in Child and Adolescent Mental Health

As mentioned before, EBP is a comprehensive concept that encompasses the use of evidence-based treatments and assessments (18). Accurate diagnosis is essential for clinical decision-making and can facilitate access to appropriate EBTs (92). When clinician diagnosis is based on unstructured interviews or guided by unreliable or invalid assessments several missteps may occur, for example misidentifying the primary condition, missing significant comorbidity, choosing an inappropriate treatment approach, and misinterpreting treatment progress. Therefore EBA resulting in an accurate diagnosis is crucial for initial case conceptualisation, identifying treatment targets, selecting EBT strategies (93). It also helps monitor treatment progress and personalise treatment to improve patient outcomes (93, 94). There are numerous EBTs to a range of mental health conditions, including anxiety, attention problems, autism, depression, disruptive behaviour, eating problems, substance use, and traumatic stress (95, 96). These treatments have shown beneficial effects that often outperform treatment as usual care (96, 97). Treatment effects are generally moderate in size and relatively durable, with the strongest effects observed for anxiety treatment, followed by conduct problems, ADHD, and depression. However, treatment effects seem to have declined across years and seem to differ across patient groups (8, 96, 98).

Gap between EBP and Usual Care in CAMHS

Despite the extensive research on their development and testing, empirically supported assessments, and treatments, are not reaching enough of the youth

receiving child and adolescent mental health services across countries (55, 99-102). Only about four out of ten children and adolescents with a mental health disorder receive the necessary treatment and just half of those treated receive an EBT (8, 9). Among those receiving EBT, only two out of five receive an EBT consistent with their diagnosis (103). Those with diagnosis-congruent EBP show better improvements, this effect also extends to CYPs with comorbid disorders compared to those not receiving EBT. Timely and effective treatment of mental disorders also significantly reduces the risk of subsequent negative outcomes and saves related health costs (9, 55). However, studies that examine the implementation of EBPs in outpatient services have shown modest impact, at best (8).

Attitudes towards EBP Adoption, Actual Adoption and Variation

A small but increasing body of evidence indicates that CAMHS clinician positive attitudes towards EBP adoption are significantly linked to actual EBP adoption but may vary due to individual and organisational factors (35, 104, 105).

The Evidence-Based Practice Attitude Scale

The EBPAS is a widely used implementation instrument supported by its rigorous scale development, cross-cultural validation, and often highly ranked in reviews of implementation instruments for its psychometric validation (51, 73, 78, 106). It assesses clinicians' attitudes towards EBP across four dimensions: the intuitive appeal of EBP, the likelihood of EBP adoption given requirements, openness to new practices, and perceived divergence between research-based interventions and current practice, and can be used to measure acceptability, adoption and appropriateness according to Proctors terminology of implementation outcomes (39, 51, 74, 78).

Differences in EBP Adoption Attitudes by Individual Factors

Research using the EBPAS shows that attitudes towards EBP adoption vary among CAMHS clinicians(51, 107-110). Women, younger, less experienced, but more highly educated clinicians generally have more positive attitudes. The clinician's discipline also plays a significant role, as some fields emphasise the integration of research and practice during training and beyond (111). Notably, Social workers have demonstrated more positive EBP attitudes, but understanding of discipline-related differences beyond the USA remains limited (51, 112, 113). Likewise, the link between attitudes towards psychiatric diagnosis and EBP remains unclear. An accurate diagnosis is crucial for treatment selection and outcomes, and thereby act as a facilitator (92). Yet, complexities in ordinary care can delay an adequate diagnosis and related treatment assignment, making diagnoses act as a barrier. The usefulness of diagnosis and diagnostic aids for treatment selection and prognosis in ordinary clinical practice has therefore been questioned (114, 115).

Differences in EBP Attitudes by Organisational Factors

Determinat frameworks such as the EPIS emphasises the interconnectedness of context domains and factors.(40) Correspongingly, adopter attitudes has been shown to vary by organisational type, structure and climate across different countries, with more research needed on this topic (51, 107, 109, 110, 113, 116-118). Additionally, attitudes may differ across healthcare settings, cultures, and countries (108). A Norwegian study found significant differences in EBP attitudes in adult mental health clinicians compared to normative data from the USA and a Swedish CAMHS study showed differences in EBA attitudes (109, 119). Given the similarities in healthcare training and delivery between Norway and Sweden, and between EBP and EBA adoption attitudes, similar differences may exist between Sweden and the USA for EBP adoption attitudes in CAMHS clinicians.

Case 2 Perceived Barriers to Depression CPG Adoption

Depression Among the Young

Depression is common across the lifespan and one of the conditions that leads to the highest disease burden and premature death (120-122). Early-onset depression, compared to adult-onset, has a more severe prognosis, including psychosocial and psychiatric problems in life and is closely associated with suicide, one of the most common causes of death among adolescents (123-125). Depression in children and young people is common and a highly recurrent condition (4, 124, 126, 127). The increasing prevalence is a major concern, as depression severely impacts young people's quality of life, functioning and personal development, leading to lower educational attainment, difficulties engaging in the labour market, as well as substantial societal losses.

Evidence- Based Practice Guidelines for Youth Depression

CPGs for depression aim to align routine care practices with the evidence base, particularly regarding assessment, assignment, delivery, and monitoring of EBTs. (124, 128-130). Effective treatments are available and are included in most guidelines. However, meta-analyses of youth depression treatment have shown persistently modest effects, and smaller average effects than for other common childhood disorders and markedly smaller effects than those of adult depression treatment, partly due to a considerable proportion of spontaneous improvements (94, 96, 98, 131, 132). Furthermore, treatment responses vary and predicting who is most likely to benefit from which interventions is not currently possible. As a consequence, young people often need to try different forms of treatment before finding one that works for them. CPGs therefore suggest a stepwise approach to treating depression. Some of the guideline recommendations are based on stronger research evidence, while some rely on consensus of clinical expertise and patient

preferences, following the principles of practicing EBM (126, 129, 133). Consensus is influenced by the culture, values, and resources where the guideline is developed, which can explain differences between guidelines from different countries. However, core recommendations are consistent across depression CPGs: a timely identification, a thorough diagnostic process including suicide risk assessments when indicated, a stepped care model based on depression severity and regular follow-ups. In the stepped care model, low-intensity psycho-educational interventions are provided as the initial treatment, with more intensive psychotherapeutic interventions and medication being introduced based on depression severity (124, 129, 133).

Gap between Depression Guidelines and Usual Care in CAMHS

Despite an increasing number of young people seeking help for depressive symptoms, few are assumed to have access to EBTs or care according to guidelines, even though high availability and effective care are expected to improve the prognosis (85, 134-137). Under-detection and under-treatment of depression are both major concerns and are associated with increased healthcare costs (124, 126, 136). Similar to other diagnostic processes within CAMHS, EBAs is seldom used, and the diagnostic procedure is often based on unstructured, incomplete, and inaccurate clinical interviews or unreliable and invalid depression rating scales (101, 102). Apart from misidentifying depression as the primary condition, this approach can lead to several other clinical missteps, such as missing significant comorbidity and suicide risk, selecting an inappropriate treatment approach, and misinterpreting treatment progress.

About a third of depressed youth receive disorder-specific care and only a third of those receive treatments from the mental health sector (136). Knowledge about common care is, however, highly limited (85, 86). Available studies show a knowing-doing gap, which refers to the disparity between knowledge of effective care for depressed youth and the actual care provided, in terms of detection, diagnosis, treatment and follow-up in primary care and CAMHS.

Barriers and Facilitators to Guideline adoption in CAMHS

There is limited knowledge about the barriers to guideline implementation in CAMHS and the applicability of care guidelines, even less about facilitators, and a complete lack of knowledge about potential variations between professions. Only a few studies have explored CAMHS clinicians' perceptions of barriers and facilitators to guideline adoption (84, 133, 138, 139). Studies on barriers to depression guideline adoption in CAMHS suggest that the primary barrier is a poor fit between the guidelines and the patients, findings are, however, mixed in these qualitative and retrospective studies (84, 133, 139). They suggest a relatively high concordance despite diverse staff and varying philosophies, yet they lack direct comparisons of the perspectives of different groups (84, 133, 138, 139). Adherence

to ADHD guidelines, however, appears to differ among healthcare professions in CAMHS (140, 141). Additionally, adult mental health clinicians' perceptions of barriers vary due to profession and professional background (142, 143).

The Barriers and Facilitators Assessment Instrument

The BFAI is a theory-based tool used to measure clinicians' perceptions of modifiable determinants for implementing innovations like guidelines in healthcare (57, 58). It is one of few instruments measuring determinants from multiple domains of implementation and providing psychometric data (57, 58, 75, 80, 144). The BFAI has been used across various health professions, settings, and countries, including by a multi-professional staff (145-148). Limited data suggest no differences across professions in perceived barriers at the domain level, while differences has been shown at the individual determinant level (147). BFAI has been applied in mental health and depression guideline research, but has not yet been used within CAMHS, and no Swedish version was available (145, 146).

Rationale

This project originated from a national SACAP effort to develop a CPG for depression, requested by Swedish CAMHS managers. Based on earlier clinical development experiences, we identified the need for an implementation program. The Deplyftet project offered a unique opportunity to identify critical factors affecting EBP and guideline implementation in CAMHS, develop and test support strategies, analyse instruments, and evaluate the impact of the guidelines and implementation strategies.

Aims

This thesis aimed to bridge the knowledge gaps with respect to CAMHs clinicians' attitudes towards EBP, along with their perceptions of important barriers and facilitators to guideline uptake and any variation in these attitudes based on clinician and workplace characteristics (Table 4). A key part of this thesis was to investigate if these attitudes and perceptions can be measured in a valid and reliable way also in the context of Swedish CAMHS.

Table 4. Aims and Measures Used in the Different Papers

Paper	Aims	Measure
	Aim 1 Cross-Validating Implementation Instruments	
I	Describe translation and adaptation Investigate the reliability and factorial structure	EBPAS
II	Describe the translation and adaptation Investigate items for measuring barriers Test if scales are valid and reliable measures of barrier domains Test the relationships within and across domains Investigate the relationship between EBP and CPG attitudes	BFAI EBPAS
	Aim 2 Investigating Clinician Adoption Attitudes	
III	Investigate attitudes towards adopting EBP Compare with normative data from the USA Examine differences in attitudes	EBPAS ORC
IV	Investigate views on the feasibility of adopting the CPG Examine important barriers at domain and determinant leve Examine differences in views	BFAI

Note: For Case 1, Evidence-Based Practice is the innovation, and for Case 2, the clinical practice guideline for depression. EBPAS= Evidence-Based Practice Attitude Scale, BFAI= Barriers and Facilitators Assessment Instrument, ORC= Organizational Readiness for Change Instrument

Cross-Validating Implementation Instruments

Paper I and II aimed to translate and adapt two validated instruments for use in Sweden and to examine their psychometric properties compared to the original versions (Table 4).

Paper I: Cross-validating the EBPAS

Paper I aimed to describe the translation and adaptation process of the Swedish version of the EBPAS, investigate the reliability and factorial structure compared to previous first-, second-order, and bifactor models tested in English and non-English versions, and evaluate whether the EBPAS subscale domains were supported when the general attitude domain was accounted for.

Paper II: Cross-validating the BFAI

Paper II aimed to present the translation and adaptation process of the Swedish version of the BFA and investigate the extent to which the items can be used to measure individual barriers, if the scales are valid and reliable measures of the different domains, the relationship of determinants within and across domains and the relationship between perceived barriers and EBP adoption attitudes

Investigating Clinician Adoption Attitudes

Paper III and IV focused on the perspective of frontline clinicians and aimed to address important knowledge gaps in the literature with respect to clinicians´ attitudes towards EBP and multi-professional guideline adoption as well as potential differences due individual and organisational factors, specifically in the context of CAMHS and depression (Table 4).

Paper III: Investigating EBP Adoption Attitudes

Paper III aimed to examine clinicians' attitudes towards EBP adoption, evaluate them against American norms, and analyse how EBPAS scores varied based on demographic and organisational factors previously identified in the scientific literature. Additionally, we aimed to investigate how these attitudes related to clinicians' views on the utility of psychiatric diagnoses.

Paper IV: Investigating Barriers to Depression CPG Adoption

Paper IV aimed to investigate CAMHS clinicians overall view on the feasibility of adopting the depression CPG, examine which factors they perceived as most important at the domain and individual determinant level and any differences due to professional factors.

Methods

Project Setting and Design

This thesis is part of the Deplyftet research program, which employs a theory-driven multicentre, mixed-method, and action-oriented approach to study the uptake of the depression guideline before and after an implementation effort. The program lasted for three years and has been conducted in three waves. The Pilot was given in 2014-2017, Wave 1 in 2017-2020, and Wave 2 in 2018-2021. This baseline study used a cross-sectional design.

Procedure

All publicly funded CAMHS were invited to participate. Sixteen of eligible 31 CAMHS- clinics from fifteen of the twenty-one regions serving 1330000 (66%) of the 2 000 000 minors took part in the program. They represent all types of publicly owned and funded county council clinics.

The validation of the instruments occurred in two phases and are described below, and in paper I and II. To address the second research aim, we used the adapted and translated measures to investigate CAMHS clinician EBP and CPG adoption attitudes, analyse differences between subgroups of clinicians, and CAMHS, and compare the results with other studies.

Translation and Adaptation Processes

We used a systematic approach for the translation and adaption of the Swedish versions of the EBPAS and BFAI. First, we obtained permission from the scale developers (Aarons and Harmsen) to translate, adapt, and use these instruments (51, 57, 58). Then, we translated and adapted the instruments using a stepwise forward and backward method following standardised guidelines (149).

Data Material

Data for the thesis were collected as a baseline web-based survey distributed per work mail to 1350 clinicians in the participating CAMHS (n=16) from October 2014 to June 2018. The invitation emails provided information about the Deplyftet program, and a secure web link that provided access to the corresponding survey distributed by Enter gate. Two to five reminders were sent. Clinicians with direct patient contact, working at outpatient services at participating CAMHS were included, whereas clinicians working in inpatient wards or without direct patient contact were excluded.

Participants

The survey was distributed to 1350 clinicians, and was filled out by 812 participants, resulting in a response rate of 60%. Paper I, II and IV used subsamples of this population (Table 6).

The participants were auxiliary nurses, nurses, social workers, psychologists, and medical doctors (psychiatrists, residents, fellows in psychiatry and medical doctors without any speciality training) and others. The typical participant in the sample as a whole was female (84%), had a bachelor's degree (66%), and five or less years of experience working in CAMHS (44%). For a description of the typical participants for the subsamples in paper I, II and IV, please see the included papers.

Innovations

Evidence-Based Practice

For Case 1, the innovation is EBP in general and for all patients treated in CAMHS.

Clinical Practice Guideline for Depression

For Case 2, the innovation involves the SACAP's depression CPG (88). This guideline, which is multidisciplinary and derived from a NBHW Depression and Anxiety guideline, incorporates a stepped-care approach with checklists and clinician recommendations (88, 139). It shares many features with other youth depression guidelines, regarding the care pathway, including diagnostic assessment and treatment processes, such as prescribing antidepressants (124, 126, 129, 133). Unlike other depression guidelines, the Swedish guidelines advocate for brief

psychosocial interventions as an initial step for both mild and moderate depression, rather than just mild cases. Within a broader psychoeducational framework inspired by Cognitive Behavioural Therapy, Interpersonal Therapy, and Family Therapy, this modular treatment aims at factors affecting the maintenance of youth depression using models that demonstrate the interplay of mood and important factors such as sleep issues, problematic routines, withdrawal and inactivation, school issues, peer issues, and negative family interactions. Based on a comprehensive assessment, youth and parents identify specific 'downward and upward spirals' affecting the youth's mood, formulate goals for treatment to inform treatment planning, and learn skills such as problem-solving, positive behavioural activation, and communication skills to enhance functioning, reduce stress, and ultimately improve mood. Besides being modular based, this treatment uses manuals developed within the Deplyftet program that can be used flexibly, and includes regular check-ups, repeated suicide risk assessments, and safety planning. This brief intervention aligns well with the psychosocial interventions used in the IMPACT study (150).

Measures

Demographics

The survey included questions about the clinician's age, gender, professional discipline, highest educational level, number of years worked in CAMHS.

The Evidence-Based Practice Attitude Scale

The EBPAS was used for Papers I-III. It is a 15- item measure (5-point Likert scale 0-4) across four dimensions: *Requirements* (three items) refers to whether practitioners will use the innovation if it is requested by their organisation or state, *Appeal* (four items) refers to whether practitioners will use an EBP if they or their colleagues find it intuitively appealing, *Openness* (four items) refers to attitudes towards using new/manualised interventions and *Divergence* (four items, reversed when scoring total scale) refers to whether practitioners perceives research-based interventions as not clinically useful or less important than their own clinical experience (51). Higher mean scores indicate more favourable attitudes (except for the Divergence scale). To achieve content validity for the construction, the EBPAS was based on a literature review, consultation with mental health service providers and researchers, and was further supported by an expert panel (51, 108, 151). Research has demonstrated the scale's satisfactory validity and reliability. For example, the hypothesised dimensions of the EBPAS with the placement of items in four scales, as well as a total scale measuring global EBP adoption attitudes, have

been repeatedly supported in several studies using confirmatory factor analysis (CFA) (51, 108, 151).

The Barriers and Facilitators Assessment Instrument

The BFAI was used for Papers II and IV. BFAI asses' barriers and facilitators for implementation on four different scales: 1) *Innovation*, 2) *Care Provider* 3) *Patient,* and 4) *Context* (57, 58, 80, 144). Its content validity was supported by a comprehensive literature review and consensus procedure involving an expert panel (57, 58). The BFAI is constructed to be a flexible instrument with an openness for adaptations of choice and wording of items. Items can be changed to address specific innovations or to suit research in the different phases of implementation. The original BFAI is divided into two parts. Part 1 (items 1-16) is intended for guideline implementation and part 2 (items 17-27) for preventive care. Items are rated on a Likert scale ranging from 1 *(fully disagree)* to 5 *(fully agree).* Researchers are also free to add items and to add an extra response option 'Not applicable (N/A)' to the answering scale (57). At the item level, barriers are defined by collapsing the response category "Disagree' with "Fully disagree' (score >3 for positively worded items (#1-3 and #16) and "Disagree' with "Fully disagree' (score<3) for negatively worded items (#4-15 and 17-27), with facilitators defined the opposite way around (57, 58). Individual barriers and facilitators are assessed at the item level, and domains are assessed across four scales. To compute scale scores, positively worded items (#1-3 and #16) are reversed. A higher scale score indicates more barriers. Item performance was evaluated and the BFAI domains have been found to possess acceptable levels of internal consistency, given the short scale length. However, the structural validity of the four scales was not examined during the scale development.

The Organizational Readiness for Change Instrument

For paper III, we also used items from a previously validated Swedish-language version of the Organizational Readiness for Change instrument (ORC) to assess clinicians' perceptions of organisational readiness (70, 152). The ORC contains 115 items rated on a 5-point scale (1 = strongly disagree, 5 = strongly agree) in 18 content domains indicating organisational implementation readiness. The ORC incorporates four subscales assessing motivational factors, program resources, and organisational climate at the organisational level and staff attributes at the individual provider level. To decrease the item load of the overall survey, nine OCR items about organisational readiness were selected for the analyses: One item from each subscale of the Organisational Climate scale (six item in total); two items from the Motivation for Change scale; and one item from the Resources scale (staff turnover) (see supplemental Table S2 in paper III for individual items) were chosen based on the content and strongest factor loadings of the subscales in the Swedish version of

the ORC, ensuring that the most relevant and representative aspects of the subscales´ constructs were included (152).The nine items used in the present study demonstrated acceptable internal consistency (Cronbach's α = .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 (153, 154). All statistical analyses were carried out using different version of SPSS unless otherwise stated (155). Statistical methods used are summarised in Table 5.

Table 5. Summary of Statistical Methods and Effect Sizes Used

Statistical method	Paper I	Paper II	Paper III	Paper IV
Correlation Analyses (Pearsons r)	x	x	x	x
Reliability (Cronbach' α)	x	x	x	
Intraclass Correlation Coefficient	x	x	x	x
Exploratory Factor Analyses		x		
Confirmatory Factor Analysis	x			
T-Test (Cohens' δ)			x	
Generalised Linear Models				x
Chi Square-Test (Cramér's V)				x
Anova (η^2)				x
Simple and Multiple Regressions (R^2 and sr^2)			x	

Note: r = Pearson's correlation coefficient, α = Cronbach's alpha, V = Cramér's V, η² = Eta-squared, δ = Cohen's d, R² = coefficient of determination, sr² = squared semi-partial coefficient

Data Preparation

Prior to analyses, we examined the accuracy of data entry, missing values, normality, nonlinearity, heteroscedasticity, and influential cases for grouped and ungrouped data.

Data Handling

Participants were excluded from the study if they had missing data for all items, if all their responses were identical, or if they were identified as multivariate outliers. A small number of cases were excluded due to missing data on independent

variables. Univariate outliers were replaced (156). The N/A response option in the BFAI response scale was included in the item analyses for Paper II, but was thereafter treated as missing, and a missing value analysis was carried out. For the exploratory factor analyses (EFAs), missing values were treated as truly missing without imputation, while cases with missing data were included in the CFAs. Listwise deletions were used for the internal consistency, General Linear Model (GLM), and regression analyses. For Paper III, barriers and facilitators at the item level were defined according to the instructions for use. For Papers III - IV, some categorical variables were recorded, and scale scores were calculated as the means of test items, provided at least 50% of scale items had valid data.

Sample Sizes

The cleaned datasets included 799 clinicians for the sample as a whole (paper III), of which 565 were for used paper I and 433 for paper II and IV (Table 6). A sample of 300 or > 10 participants per item is deemed sufficient for conducting EFAs and CFAs, thus the studies were sufficiently powered for these analyses (156).

Table 6. Response Rate and Item Completion per Paper

Paper	Eligible	Responded	Response Rate	At least one item	Valid Data
Paper I	925	570	62 %	567	565
Paper II and IV	854	455	52 %	440	433
Paper III	1350	812	60 %	800	799

Note: 'Eligible' refers to the number of individuals approached. 'Responded' indicates those who answered the survey. 'At least one item' counts those who completed at least one item. 'Valid data' represents fully completed responses.

Psychometric Testing

To address aim 1, the instruments were tested for psychometric properties in Papers I and II, respectively.

Item Analyses

Descriptive statistics were used to test item performance. For the BFAI, we evaluated the items using the same thresholds as in the original article.

Scale Analyses

Correlation analyses were used to investigate the strength of the relation between items and scales using the benchmarks suggested by Cohen, small r = .10-.29, medium r = .30-.49, and large r = > .50 (156, 157). Internal consistency was examined using Cronbach alpha and (corrected) item-total correlation for the scales.

A threshold of α ≥.70 was deemed acceptable. Within-clinic intraclass correlation coefficient (ICC) was calculated to determine how much of the variance was accounted for by individual CAMHS at the service level.

For the EBPAS, EFA was not used to test the factor structure since the factor structure of the EBPAS has been examined in previous studies using both exploratory and confirmatory methods (Paper I) (51, 108, 151). In order to investigate whether the proposed factor structure remained valid in the Swedish version, a series of CFAs were estimated to compare the three model that have gained strongest support; a first-order model with four factors (subscales), a second-order model with a general attitudes factor on the level above the four factors, and a bifactor model with items loading on the general attitudes factor and the specific factors, using Mplus (158). We used several fit indices to summarise the model fit, together with the strength of the factor loadings, and modification indices to evaluate the models. Additionally, for the bifactor model, the Explained Common Variance (ECV) was used to evaluate the importance of the general attitude factor in comparison to the sub-factors (156, 159).

For the BFAI, we conducted a series of EFAs using Principal Axis Factoring with Varimax rotation for each scale, to assess whether the measure conformed to the theoretical model of four scales tapping different domains of perceived barriers for guideline implementation. We used the Kaiser criteria, the scree plot, percentage of variance explained, and the strength and pattern of factor loadings to assess dimensionality (156). A principal component analysis (PCA) was also performed to investigate how much of the variance in all BFAI items that could be explained by one component. EFA was used instead of CFA since the validation of the BFAI is in its initial stages.

Analyses of Clinician Adoption Attitudes

To address aim 2, attitudes towards EBP adoption and perceived barriers to guideline adoption were investigated in Papers III and IV.

We applied a Bonferroni correction to control for Type 1 error given multiple comparisons for all the following analyses. Levene's test was used to decide whether the t-tests and ANOVAs should be performed under the assumption of equal variances.

Scale Comparisons

For paper III, we used one-sample t-tests to compare the means of the EBPAS scales in the Swedish CAMHS sample with the USA norms from a study among (child) mental health practitioners in USA (108). To estimate the magnitude of the effect, we used Cohens d with the following benchmarks: small d=.20, medium d= .50,

large d= .80 (157). We used GLM in Mplus to investigate differences between BFAI subscale means (Paper IV) (158).

Analyses of Differences among Groups of Professionals

For Paper III, we built simple and multiple regression models to examine the predictive value of various independent variables on attitudes towards EBP adoption. We used EBPAS scale scores as dependent variables (DVs) and included gender, age, experience, highest level of education, profession, attitude towards psychiatric diagnoses, type of workplace (academic vs. non-academic), and organisational readiness, as measured by the sum score of the nine ORC items, as independent variables (IVs). Given the low ICCs, we replicated the multiple regression analyses of Aarons et al. (2004, 2010), in alignment with the Norwegian and Dutch studies of the EBPAS (51, 108-110). For these analyses, we used squared semi-partial correlations to estimate the 'unique' relationships between IVs and DVs. We adopted the following benchmarks by Cohen to interpret the strength of the regression coefficients: $R^2 = .02$ for small, $R^2 = .13$ for medium, and $R^2 = .26$ for large effects (157).

For paper IV, we used Chi square-test to analyse potential differences at the item level by profession. A binary choice design was chosen; barriers were compared to non – barriers. We used Cramér's V, with the following benchmarks: small V= 0.10, medium V= .30, large V = .50; to measure the strength of the association and standardised residuals to identify which groups were different to the others (156, 157). To test for between-group differences at the scale level, we used One-way ANOVAs for categorical data and correlation analyses to test the relationship between continuous and ordinal variables (paper IV). We used Eta squared (η^2) with the following benchmark. small $\eta^2= .01$, medium $\eta^2= .09$, large $\eta^2= .25$ to estimate the effect size (156, 157). Post-hoc comparisons were computed using Tukey HSD tests. For the correlation analyses, we used the beforementioned benchmarks suggested by Cohen.

Results

This section provides a brief summary of the key findings from the studies. Detailed results and tables are available in the individual papers.

Cross-Validation of the Implementation Instruments

Paper I: Cross-Validation of the EBPAS

For the EBPAS, item #13 in the Requirement subscale the term ‘state’ was replaced with ‘National Board of Health and Welfare’ to suit the Swedish context while maintaining its integrity, other adjustments focused on language precision (Appendix 1).

Among the 570 respondents, 565 (99.1%) responded to one or more EBPAs items (Table 6). Mean values were high for most of the positively phrased items and generally lower for negatively phrased items. Item 15 ‘enough training’ had a very obvious ceiling effect, in line with a previous study (160).

EBPAS internal consistency was acceptable to good for all subscales except Divergence, with α ranging from .60 to .88, and .81 for the total scale. ICCs were low (<1%), indicating minimal variation between services. The CFAs showed adequate fit for all models, especially when items 9 and 10 were allowed to correlate, supporting the total scale and four subscales. The four-factor model had the best fit and strong factor loadings, except for Divergence on item 3 (‘Know better than researcher’). Subscale correlations were generally moderate. The second-order model, with a general attitudes factor above the four factors, fitted adequately, but not as well as the four-factor model. Factor loadings were similar, with item 3 having the lowest loading. The bifactor model supported the total scale and subscales, with items loading moderately on both the general and specific factors. ECVs indicated that a substantial proportion of variance was explained by the General Attitudes factor and the subscale factors.

Paper II: Cross-Validation of the BFAI

In the BFAI, we aligned with usage instructions by changing 'This directive or innovation' to 'This guideline' (Appendix 2). Furthermore, items 9 and 10 in the Context scale and item 26 in the Patient scale were adapted for the CAMHS context. All other items in the EBPAS and BFAI were straightforward translations. We used the N/A response category as per instructions.

Of the 455 participants, 440 (96.5%) responded to at least one item. All BFAI items met the developers' threshold. Four BFAI items had more than 20% of the ratings in the highest or lowest response categories

Internal consistency was acceptable across all scales, with α ranging from .70 to .74, and good for the total scale (α = .85). ICCs were low. The EFAs supported the structural validity of the four BFAI dimensions, suggesting that a one-factor model might suffice for the Context and Patient scales, and possibly for the Innovation and Provider scales, based on the Scree plots, the explained variance, and the patterns of factor loadings. Factor loadings were generally moderate, except for the Context scale on item 15 ('Requires financial compensation'). Correlations between scales were moderate. The PCA somewhat supported the total scale, with a single component explaining 26% of the variance and strong item-component correlations.

Correlations between BFAI and EBPAS scales were generally negative but weak, with strongest correlation between the BFAI Innovation scale and the EBPAS Total scale, while the Context scale had the weakest correlations.

Clinician Adoption Attitudes

Paper III: EBP Adoption Attitudes

Clinicians from various disciplines within CAMHS across Sweden generally exhibited positive attitudes towards EBP across all four dimensions. They showed a readiness to adopt EBPs when they found them appealing (Appeal), demonstrated openness to new and research-based treatments (Openness), and perceived minimal differences between EBPs and their current practices (Divergence). While they were generally positive towards mandatory EBPs, they were slightly less inclined to use them (Requirement).

Compared to USA norms, participants in this study had significantly higher general EBP adoption attitudes as well as specific attitudes. The biggest differences were in General Attitude and Appeal (moderate effect sizes), followed by Requirement and Openness (small effect sizes). Divergence showed no statistically significant differences between the countries.

All clinician and organisational characteristics were related to at least one dimension of EBP attitudes in both models, though they explained only small portions of the variance, except for Attitude towards diagnosis, which explained a larger portion, but still below the moderate range.

Females scored higher than males on Requirement, Appeal, and total scales. Younger clinicians scored higher (lower for Divergence) than older clinicians on all scales except Requirements in both models. Those with less experience in child psychiatry scored higher on Openness in both models, but lower on Divergence, with higher total scores only in unadjusted models. Staff with a master's degree or more scored lower on Divergence in both models, with higher total and Openness and scores in unadjusted models. Nurses and other groups scored higher than psychologists on Requirement in both models, while psychiatrists scored lower on Appeal in adjusted models.

Respondents at academic services reported higher Appeal scores. Organisational readiness for change had weak, negative correlations with Requirement and General Attitude scales, remaining significant for Requirement in adjusted models. The prediction outcomes across attitudinal domains are presented in Supplemental material in Paper III and will not be presented in detail here.

Paper IV: Barriers to Depression CPG Adoption

CAMHS clinicians were generally positive about adopting the depression guideline across all four barrier dimensions. They perceived fewer barriers related to the guideline attributes (Innovation) and their own abilities (Provider), but more social norms and financial barriers (Context) and patient-related barriers (Patient). Key individual facilitators included positive attitudes towards guidelines, working style, and involvement in implementation planning. Main individual barriers were related to provider knowledge, involvement, and training.

No significant relationships were found between barrier domains and gender, age, or years of experience, but a weak relationship existed between educational level and the Provider domain. There were small to medium sized differences by professional discipline across most barrier domains, except for the context domain, with psychiatrists perceiving fewer barriers than other professions. For the patient domain, there were no significant differences between psychiatrists and psychologists. At the individual determinant level, psychiatrists were more positive about guideline flexibility, showed fewer knowledge-related barriers, and were more involved in implementation planning. They also perceived fewer training barriers compared to counsellors, with small effect sizes for individual facilitators and barriers.

Discussion

This thesis aimed to fill knowledge gaps about CAMHS clinicians' attitudes towards EBP adoption, and their views on key barriers and facilitators to guideline adoption, including any variations due to factors proposed in the literature. Additionally, the purpose was to investigate whether these attitudes and perceptions can be measured in a valid and reliable way in Swedish CAMHS, thereby contributing to the overall validation of these instruments.

Main Findings

Our main findings are that CAMHS clinicians in Sweden generally had positive attitudes towards EBP adoption as well as towards the depression guideline uptake. Specifically, they were prepared to adopt EBPs when they found them appealing and they were particularly optimistic about guideline characteristics. Furthermore, they perceived themselves as open to new interventions and were hopeful about their own adoption abilities. Barriers were related to the patient and the context domains, as well as individual clinician knowledge and training. EBP adoption attitudes varied across several individual and organisational characteristics, with perceived utility of diagnosis being the most consistent and strongest predictor across dimensions and models. Perceptions of barriers, however, only differed across professions; psychiatrists were the most positive, and counsellors were the least positive about guideline embeddedness.

Overall, the psychometric properties of the Swedish version of the EBPAS were on par with the English version. The EBPAS total score appears to be a valid measure of general attitudes. The subscales, however, despite being comparatively better supported in this Swedish sample, had some issues. The findings also provided preliminary support for the Swedish version of the BFAI's item performance, internal structure, and reliability.

Cross-Validation of Implementation Instruments

The aim of Papers I and II was to cross-validate two brief yet broad implementation instruments for use in Sweden.

Paper I: Cross-Validation of the EBPAS

The specific aims of Paper I were to describe the translation and adaptation process of the Swedish version of the EBPAS, investigate the reliability of the Swedish translation and factorial structure relative to previous models tested in English and non-English versions, and test whether the EBPAS subscale domains were supported when the general attitude domain was accounted for.

The reliability of the Swedish version of the EBPAS was on par with, and its factor structure closely mirrored the English version, indicating that the translation and adaptation to Swedish did not alter how the items were rated and interpreted (108). Reliability results showed good internal consistency for all scales except the Divergence scale, consistent with previous studies (51, 108, 151). Results from the first- order and second-order CFA models suggest high similarity with the English version, supporting the validity of the Swedish version and scoring of the subscales (108). However, several issues shown previously persist. For example, across studies, the Divergence subscale has consistently shown problems such as low internal consistency and weaker factor loadings across models, as well as weaker interdomain correlations (51, 108-110, 151, 160). This also applies to our study, although the Divergence subscale was comparatively better supported. Moreover, during scale development, in order to achieve better fit, two items in the Appeal subscale were allowed to correlate, suggesting that these two items have more in common than the subscale itself can account for (51, 108, 151). We were also the first to highlight issues with the Requirements scale, specifically the limited number of items and the overly similar phrasing of items, which can inflate factor loadings and levels of internal consistency.

The use of the inventory as a single measure of EBP attitudes was supported by generally stronger loadings on the general factor in the second-order model and by the bifactor model, which suggested that items contributed to both the general attitude (total scale) and their specific constructs (subscales), with better support for unique information in the Swedish version than in the Dutch version (110). In line with the Dutch study, the subscales for Openness, and Requirements, were strongly supported. Somewhat in line with the Dutch study, the Appeal subscale faced issues; however, in our study, it was indistinguishable from the General Attitudes factor, showing a weaker relationship between its items and the subscale than with the total scale. At odds with the Dutch study, the Divergence items showed significant relationships with the General Attitude scale and its subscale, thereby being even better supported in our study. Overall, our results support the scoring of the total scale and at least three out of the four subscales, with some caution recommended.

Paper II: Cross-Validation of the BFAI

The specific aims of Paper II were to describe the translation and adaptation process of the Swedish version of the BFAI and investigate the extent to which the BFAI items can be used to measure individual barriers, whether the BFAI scales are valid

and reliable measures of barrier domains, and the relationship of determinants within and across the BFAI domains within a Swedish context.

The Swedish version of the BFAI demonstrated satisfactory item qualities, with reliability comparable to, and slightly better than, the Dutch original (57, 58). This supports that the translation and adaptation did not seriously affect how the items were interpreted and rated. Consistent with the Dutch original study, item responses were generally high, while still demonstrating acceptable central tendency and variance (57, 58). This suggests that the items have the potential to effectively discriminate among individuals with different levels of perceived barriers to guideline implementation. The exploratory factor and correlation analyses provided preliminary support for the hypothesised dimensions of the four, somewhat related, barrier domains, each composed of theoretically related items. However, the Context scale exhibited comparatively weaker intra- and inter-domain correlations, and one item (# 15 Require financial compensation) might be considered as not aligning with the others. Similarly, a total scale was somewhat supported by the PCA and our findings on the internal consistency of the total scale. Due to the absence of previous studies in the existing literature, we were unable to compare our findings directly.

Correlations between BFAI and EBPAS scales were negative, as expected, but they were weak. The strongest relationships, in the moderate range, were observed between the BFAI Innovation and EBPAS scales and the weakest between the BFAI Context and EBPAS scales. Again, we were unable to compare our findings directly with previous studies due to their absence in the existing literature, but this is somewhat in line with research suggesting that general attitude towards EBP adoption moderately correlates with their perceptions of a specific EBP´s innovation attributes (161). Overall, the results suggest that perceived barriers to guideline implementation and EBP adoption attitudes are somewhat related with variations across different domains of attitudes and perceptions.

Clinician Adoption Attitudes

Paper III: EBP Adoption Attitudes

The specific aims of Paper III were to investigate clinicians' attitudes towards EBP adoption in Swedish CAMHS, compare them with American norms, and analyse how EBPAS scores varied based on demographic and organisational factors.

CAMHS clinicians in Sweden reported positive attitudes towards EBP in general and across all four EBPAS dimensions. They were somewhat more positive than the American norms but scored similarly on the Divergence scale (108). Their positive view, particularly on Openness and Appeal, may have been influenced by their favourable perception of the depression guideline (161, 162). However, Swedish

clinicians were somewhat more doubtful about the clinical utility of research-based interventions, possibly believing they are not well-suited to the Swedish healthcare context. They also placed less emphasis on clinical experience and more on structured treatment methods, likely due to their lesser experience.

Differences between subgroups were mainly at the clinician level rather than the organisational level. The best predictor of positive EBP attitudes, which we are the first to show, was having a favourable view of the utility of psychiatric diagnosis, likely because most EBT-protocols within CAMHS are diagnosis-based (92). In line with previous studies, female respondents generally had more positive EBP attitudes, while more experienced clinicians were less open (107-109). In our study, age was significantly associated with general attitudes and three out of four specific attitudes but not Requirement, at odds with Aarons' study, where age was linked solely to the Requirement dimension (108). The greater impact of age over experience in our study may again be due to the participants' relatively lesser experience.

Educational level was associated with Divergence, in our study, while it was linked to Requirements and Appeal in Aaron's. Differences in training in evidence-based methods, educational systems or professional roles may make Swedish clinicians with higher education more autonomous and sceptical of EBP than their international counterparts, which may also explain the observed differences between professions across the studies. Nurses and other professional groups scored higher on Requirements and psychiatrists scored lower on Appeal, at odds with the American sample where social workers scored higher on EBPAS overall and Openness, and other professional groups scored lower on Divergence (108). However, the findings from these two studies differ from those of Paper IV, which will be described below and discussed later in the integrated discussion section.

Paper IV: Barriers to Depression CPG Adoption

The specific aims of Paper IV were to explore CAMHS clinicians' overall perspectives on the feasibility of adopting a clinical depression guideline, the factors they considered most crucial, and any differences due to professional background.

Clinicians were generally positive about adopting the depression guideline, contrasting with previous qualitative studies on depression guideline implementation in CAMHS and youth mental health (84, 133, 139). This positivity may stem from the SACAP guideline being co-created by experts and adopters, using a collaborative rather than a directive approach (25). Other reasons could include differences in innovation scope and content, targeted users, and end-users across studies (84, 133, 139).

At the domain level, CAMHS clinicians in our study reported fewer barriers regarding the guideline's characteristics and their ability to adopt it, which aligns

with a study by Hermens et al but contrasts with Westerlund et al (133, 139). Consistent with previous studies, participants in our study noted more barriers related to context and patient characteristics (84, 133, 139). At the individual determinant (item) level, lack of knowledge and training were the main barriers, as seen in the other studies. Key facilitators included clinicians' role perception, working style, and involvement in the implementation planning process, though comparisons are difficult due to a lack of studies on facilitators.

Little is known about professional differences in guideline uptake attitudes in CAMHS. Previous studies on youth depression guideline implementation suggest high agreement despite staff mix and different philosophies, but these studies did not explore professional differences (84, 139). At odds with CPG studies overall, we did not find any differences related to gender, age, experience, or educational level except for a weak negative correlation between educational level and the provider scale (59). However, we observed small to medium sized differences due to professional discipline in the general view across all domains except context. There are no comparable studies within CAMHS, but our results are in contrast with a study within adult mental health as well as a study in somatic emergency department care using the same instrument (143, 147). Additionally, we found minor differences in about half of the top barriers and facilitators. Psychiatrists were generally more positive compared to other professions, especially counsellors. They perceived less barriers and more facilitators regarding their capability to adopt to the guideline, particularly in terms of guideline awareness, training needs, and involvement. There are no comparable studies within CAMHS but results broadly align with two studies on Schizophrenia guidelines within German adult psychiatric care (142, 163). Possible explanations to our finding are discussed further on.

Integrated Discussion

This section focuses on comparisons between the properties of the instruments (from Papers I and II), as one of the strengths of this thesis is the cross-validation of these instruments for use in Sweden and CAMHS. This aims to provide more reliable conclusions about the results on adoption attitudes, recognising that reliability, like validity, is not an inherent property of an instrument but depends on the context of its use. Additionally, this work explores differences in attitudes towards EBP and guideline adoption (from Papers III and IV), building on previously known differences and contributing new insights by examining factors that have not been well investigated previously. This discussion includes the significance of these findings, their interpretations, and their relation to theory.

Cross-Validation of Implementation Instruments

A strength of the Swedish version of EBPAS and BFAI is that they are built upon two previously known and validated instruments, although the degree of evidence of validity differs between the well-known and thoroughly investigated EBPAS and the less known and less investigated BFAI (51, 57, 58, 108, 151). The instruments used in this thesis are relatively short, and there is a call for brief and pragmatic scales within the field of implementation, as they have clear benefits regarding burden and interpretation (164). However, pragmatic scales have some inherent drawbacks. Short but heterogeneous scales may not consistently represent the underlying construct, affecting the validity and reliability of conclusions, obscuring clear patterns, and reducing the study's power when used as outcome measures or predictors. That said, given the pronounced problems with instrument issues in the field of implementation science, overall, the EBPAS and possibly BFAI are valid, reliable, broad yet brief, implementation instruments.

Reliability of Scales

The ICCs for both EBPAS and BFAI scales were small, indicating minimal variance across services, and most variation was among clinicians. Overall, EBPAS demonstrated slightly better internal consistency than BFAI but with greater variability,

The results on ICCs are in line with previous EBPAS studies, but have not been reported for BFAI studies, preventing comparisons (51, 108, 109, 160). Results are, however, in contrast with a study measuring quality indicators of the SACAP depression CPG via medical record review (165). Results from a paper on the quality of diagnostic assessment, including suicide risk assessment, suggest that the greatest quality variation was between services and outweighed clinician and patient variables (Paper VI). This finding may indicate that tension for change, as measured by actual care, does not have a relationship with EBP and guideline adoption attitudes, at least not at the service level, at odds with G&W Framework.

The internal consistency results were on par with or slightly better than the results from the original versions (51, 57, 58, 108, 151). According to often-cited benchmarks of alpha, the reliability of the total scales was good. Internal consistency fell between acceptable and good for the EBPAS subscales except for the Divergence scale, which have consistently shown low homogeneity among items (51, 108, 151). In addition, although comparatively better in our studies, all BFAI scales showed heterogeneity, reflected in acceptable Cronbach's α values (57, 58). These internal consistency results reflect that the scales are brief (covering three to seven items) yet broad, capturing a wide range of relevant aspects important for EBP and guideline adoption. In addition, a one-size-fits-all approach to benchmarks of Cronbach alphas has been questioned (166). Moreover, some argue that Cronbach alphas is quite conservative as it builds upon an assumption of tau-equivalence.

Other suggest an even higher level of acceptance. Nevertheless low homogeneity of items in a scale may have implications for the strength between the scale and its outcome variables and also the power needed to show this association (166, 167). Suggested measures to increase the reliability of the EBPAS and BFAI scales are discussed in further directions.

Validity of Scales

Regarding construct validity, which is the degree to which a test or instrument measures the theoretical construct it is intended to measure, our findings support the Swedish versions in a child mental health context and add to the overall validity of these instruments (168). For BFAI, the strongest support was found for item performance (scoring individual determinants) and, to some extent, the scales (scoring the domains). In contrast, our results on the validity of EBPAS indicated that the strongest support was for the General Attitude domain and three of the facets, i.e., using the total scale and possibly three of the subscales.

Item Performance

In contrast to guideline studies, which often report individual barriers as frequencies, EBP adoption studies seldom use individual items to measure attitudes as predictors or outcomes, and therefore rarely report their item performance (51, 80, 108, 144, 151). In comparison with the EBPAS items, BFAI items were more centralised while being adequately normally distributed, supporting their use in implementation projects. The optimal method for reporting individual CPG determinants (means or proportions) remains unclear. Results from paper IV indicate that top barriers and facilitators were consistent across reporting methods, with only slight differences in order.

Structural Validity

Previous studies, along with our own, support the proposed dimensionality of the EBPAS (51, 108, 110, 151). In addition, using a bifactor model, we are the first to show that this multidimensionality did not hamper the ability to score and interpret the EBPAS as a single measure of EBP adoption attitudes, since all items contributed to the general attitude domain. On the contrary, the results provided the strongest support for the total scale. The beforementioned issues with the Divergence scale may be due to the level of semantic and logical similarities among items and to their direction of phrasing in relation to each other and the other subscales (110, 160). Another possible explanation concerns the conceptualisation of EBP. When EBPAS was developed, the familiarity with the terms EBP and EBTs was low; therefore, survey questions in the Divergence scale were couched in more descriptive terms, reflecting the notion of research-based and/or manualised treatments that characterised most EBP (14, 51). For this reason, EBPAS has also been criticised for being non-specific, thereby violating the principle of

correspondence, for an attitude measure to be a good predictor of behaviour, it should match the behaviour in terms of specificity and context (68). However, EBPAS has also been praised for its broad item language which may facilitate its use across studies (73).

When BFAI was developed, barriers and facilitators with the strongest support for a relationship with an implementation outcome, while being considered measurable, were selected and categorised into four superordinate categories (57, 58). Unlike the development of the EBPAS, these categories were not evaluated for dimensionality. Our results provided preliminary support for the hypothesised dimensions of the four barrier domains, each consisting of theoretically related items. A more detailed analysis indicates that a single factor may not adequately capture the complexity of the Innovation and Provider scales, which consist of more items than the other scales, but for varied reasons. The Innovation scale covers several, but far from all, of Rogers' innovation attributes, and each attribute is generally represented by only one item (36, 57, 58). Results from Paper II suggest that items measuring perceived fit and time consumption differ from the other attributes, which are more linked to implementation outcomes such as acceptability and appropriateness, and that the guideline layout, which is not one of Rogers' original attributes, is not on equal footing with the others (10, 36). Given the gaps in existing literature, making comparisons is challenging. Results regarding the Innovation scale are broadly in line with the study of a measure based on Rogers' innovation attribution theory, the Perceived Characteristics of Intervention Scale (PCIS) (169). Items in the Provider scale, on the other hand, differ in content specificity, as some items concern the ability to adopt the guideline whereas others are more broadly phrased, covering more general adopter attributes. Apart from potentially compromising content validity, this inconsistency may have implications for the Provider scale's internal consistency and dimensionality (167). Our results more strongly supported the shorter Patient scale and the Context scale, respectively. However, for the Context scale, the 'financial compensation' item did not align well with the other (social norms) items, whose conceptualisation is more in line with subjective norms as articulated by TPB than innovativeness of others according to DOI. Additionally, a more fine-grained analysis also suggests that CAMHS clinicians do not differentiate between colleagues and others, contrary to Rogers' theory on homophily (36).

Although Rogers' diffusion theory does not specifically focus on patient characteristics, it emphasises that attitudes towards adoption are influenced by various factors, including adopter characteristics, social systems and innovation attributes (10, 36). Relationships within and across barrier domains are also recognised by some Determinant Frameworks (12). Our study found a weak average intercorrelation across all BFAI items and moderate interdomain correlations. Furthermore, although the method used was not as advanced as that for the dimensional analysis of EBPAs, the BFAI total scale was somewhat supported by

interdomain correlations, reliability results, and the PCA. An important consideration for using a total barrier score, beyond the issues with the Context items, is understanding the concept of general perceived barriers and what the BFAI total scale actually measures (166, 170).

Relationship between EBP and Guideline Adoption Attitudes

Regarding convergent validity, we generally observed weak and negative correlations between attitudes to EBP and guideline adoption with the strongest relationships between guideline attributes and EBP adoption attitudes. We were unable to compare our findings directly due to their absence in the existing literature, but this is somewhat in line with research suggesting that providers attitude towards EBP adoption correlates with their perceptions of a specific EBP's innovation attribute as measured by the PCIS (161, 162, 169). The connection between specific innovation characteristics and openness to EBP adoption was however rather weak, somewhat at odds with Rogers' theory of diffusion (36). Correspondingly, the weakest relationship was between the Context scale and other BFAI scales and EBPAS total, respectively. The results suggest that support from important others for the depression guideline does not impact general or specific EBP adoption attitudes and intentions, given that a criticism regarding the conceptualisation of EBPAS is correct. Fisherman et al. criticised the conceptualisation of EBPAS, noting that its items might be closer to measuring behavioural intention, the individual readiness to perform a behaviour, rather than adoption attitudes (68, 171). If the criticism is correct, this would mean that what EBPAS measures might be closer to actual behaviour, such as using research-based treatment manuals, as behaviour intention is regarded an immediate antecedent of actual behaviour and has been shown to predict actual use. However, this could also be a result of conceptual ambiguities within implementation science, as adoption, according to Rogers' and Proctor's terminology, refers to the intention to adopt as well as the actual uptake (36, 39).

Pragmatism and Practicality

The importance of practical and pragmatic scales is increasingly emphasised in the real-world context of implementation science (76, 172-175). Instruments need to be stakeholder-relevant, low burden, actionable, and sensitive to change (175). Besides of being psychometrically robust and theoretically grounded, other key factors such as cost, accessibility, instrument length, and clarity of language as well as being broadly applicable, useful for benchmarking, norm-referenced, and unlikely to cause harm, are crucial considerations in instrument development and selection (76, 164, 172). While practicality and robust psychometrics may seem at odds when developing and selecting instruments for implementation initiatives, the cross-validated instruments discussed in this thesis strive to balance both aspects as these instruments are brief, practical, being freely available, making them easy and less

time-consuming to use in resource-intensive settings, thereby having the potential of reducing respondent bias due to irritation and fatigue. The instruments are also unlikely to cause harm and are suitable for benchmarking, thereby meeting multiple criteria for pragmatic measures (164, 172, 175).

Clinician Adoption Attitudes

Overall, our findings suggest generally positive views towards the guideline and EBP but with important variations that may impact efforts to implement and adoption of clinical practice guidelines and EBP.

Clinician Optimism despite EBP Challenges

According to the Theory of Planned Behaviour, outcome expectancies significantly influence adoption attitudes and behavioural intentions (41). Therefore, it may seem paradoxical that CAMHS clinicians held such positive views towards EBP adoption when the EBP movement is regarded as being in crisis, a situation that is even more pronounced in the CAMHS context due to problems with replication and decreasing treatment effects for young people with mental health conditions over time (20, 96). Results from meta-analyses of RCTs suggest that EBTs are effective and durable. However, the probability of a youth receiving EBT being better off after treatment than a youth from the control group, receiving usual care, is only modestly better than chance (96, 176). Other sources of variance in treatment effects, in addition to the control condition used, include the type of mental health condition treated, with stronger effects observed for anxiety and more disappointing effects for depression, and the geographical location of treatment studies, with stronger effects in North America than in other contexts (177). In light of this, considering our inquiry into EBP attitudes in the context of a depression implementation project, the more optimistic views on EBP compared to American counterparts are even more surprising (98, 108). Nevertheless, clinicians in Sweden expressed similar experiences of divergence, where they were more sceptical regarding the practical applicability of research-based interventions, potentially due to a perception that these interventions may not be fully compatible with the Swedish healthcare context (177).

Similarly, relative advantage and compatibility are particularly important in influencing the individual adoption rate according to Rogers (36). Despite this, participants in our study were generally optimistic about the possibility to adopt the guideline, which, like most other depression guidelines, recommends psychological therapy as the first-line treatment. Guidelines can be seen as an even more complex innovations than individual EBTs because they include EBAs, risk assessments, and several treatment components, such as pharmacological treatments, in addition to talking therapies. Additionally, the diagnostic and treatment procedures for depression may be considered more challenging than for other mental health

conditions, given the difficulties in adequately diagnosing depression due to its polythetic nature and the high prevalence of comorbidities, not only with anxiety but also with dissimilar disorders such as ADHD, oppositional defiant disorder, and conduct disorder, and the comparatively less effective treatments (176). In spite of this, CAMHS clinicians were most positive about the guideline's characteristics and their own ability to adopt it.

Differences due to Individual Factors

A notable aspect of the EPIS framework is the interconnectedness of factors within and across the context domains, a feature that is less emphasised within the G&W Framework (25, 40). However, segmentation across subgroups is emphasised. Our findings on differences in attitudes towards adoption varied depending on innovation, while EBP adoption attitudes varied due to age, gender, length of education, and experience; these factors did not affect clinicians' views on guideline adoption.

Our findings suggest that differences in adoption attitudes between professional disciplines depend on the innovation. Nurses and other professional groups scored higher on Requirements (and lower on Openness in the uncontrolled model), suggesting that they are more inclined to use mandatory EBPs. Psychiatrists scored lower on Appeal suggesting that they put less value on the appeal and sense-making of an EBP, colleagues' use and approval and own training when considering adopting an EBP. This may be due to psychiatrists being more focused on the clinical outcomes and effectiveness of an EBP rather than its appeal or colleagues' approval (178). Future research should investigate whether these professional differences can be understood in terms of Rogers' adopter attributes and whether different professionals actually respond to various implementation strategies (36). Interestingly, this contrasts to our results on psychiatrists carrying the most positive attitudes towards guideline adoption and especially their positivity towards the characteristics of the Depression guideline. Psychiatrists´ greater optimism towards guideline adoption may be due to the guideline being produced by SACAP, a medical professional association, fostering a sense of ownership, as most physicians prefer guidelines produced by well-informed colleagues and medical associations (54, 179). One of the main guideline barriers in Westerlund's study on the NBWH guideline, apart from the poor fit between the guideline and patient needs, was that the NBWH guideline was developed externally, without connection to the CAMHS society (139). Additionally, even though SACAP tried to inform all professional groups, inviting them to comment on drafts of the guideline during its development, psychiatrists may have been easier to reach, making them more aware and knowledgeable of the guideline, as suggested by Rogers' theory of the nature and structure of social networks and related influence theories (36). This suggests that psychiatrists might have been progressed further in Roger´s adoption process, reaching the stages of knowledge and persuasion before other professionals.

Another explanation concerns professionals having different educational backgrounds, tasks, and responsibilities. Consequently, some professions may need to make more significant changes to their working methods to comply with the guideline, which can affect their perceptions of the guideline's usability and their own training needs. This might explain why counsellors had a generally more pessimistic view. Apart from having the least education and training in diagnostic procedures and EBTs, they are often responsible for the most complex and vulnerable patients, requiring a systems thinking approach that can be hard to capture in a guideline (101). Another possible explanation might be related to Rogers' theory on homophily which suggests that people are more influenced by those they perceive as similar to themselves (36). In this context, counsellors may identify the least with leading figures within SACAP, perceiving them as less authoritative and had the weakest communication networks with SACAP compared to the other professionals (10, 36, 54). Results from Paper II, however, somewhat contradict this, as CAMHS clinicians overall did not differentiate between colleagues and others. However, we were not able to conduct any invariance analyses. Therefore, it would be interesting to investigate if this finding applies for all subgroups.

Our findings suggest that attitudes towards diagnosis significantly influence the adoption of EBPs more than other individual and organisational factors, thereby highlighting the importance of views on diagnosis utility in shaping clinicians' views on evidence-based treatments. Even though youths with diagnosed disorders tend to have poorer outcomes with EBTs than subsyndromal youths, when EBTs are compared to usual care in community settings, research also suggests that those receiving diagnosis-specific EBTs experience greater improvements compared to those receiving non- EBTs (103, 177). This positive impact also benefits youths with comorbid disorders. Consequently, it would be intriguing to explore whether clinicians with favourable attitudes towards EBPs perceive greater value in psychiatric diagnoses due to better treatment outcomes, or if the opposite is true. Likewise, it would be interesting to investigate if, and to what extent attitudes towards diagnosis influence perceptions about guideline adoption. Understanding this relationship could provide deeper insights into how clinicians' views on diagnosis impact their acceptance and implementation of EBPs and guidelines, potentially leading to more effective strategies for promoting adherence in clinical practice.

Differences due to Organisational Factors

Findings from our studies indicate a connection between EBP adoption attitudes and organisational factors as described in EPIS, but this connection was relatively weak and somewhat at odds with previous studies (107, 180). A possible explanation for this finding is shared challenges and perceived support across CAMHS, as indicated by ICCs of Context and ORC scales. In addition, BFAI Context scales showed the

weakest relationship with EBPAS and BFAI scales. However, levels of organisational readiness of change also are supposed to differ across interventions and adopters (45).

Summary of Findings on Adoption Attitudes

The results indicate generally positive attitudes towards EBP and clinical guidelines among clinicians, even amidst challenges in the EBP movement, particularly when it comes to treatment of young people with depression. Differences in attitudes were influenced by individual factors, but these varied depending on the innovation being adopted, i.e., EBP broadly or guidelines for a specific condition. Organisational factors also played a role in EBP adoption attitudes, though their impact was less pronounced. Overall, this thesis highlights the complexity of adopting innovations, influenced by innovation, adopter, patient, and contextual factors, and showing cross-country variations.

Strengths and Weaknesses of Method Choices

The study uses a cross-sectional design where CAMHS clinicians at participating CAMHS completed a survey as a baseline before implementation. This design has several inherent strengths and weaknesses. Survey studies are cost-effective, reach many respondents, allow anonymity, and have standardised, quantifiable questions. Our large, nationwide study covers a significant proportion of Swedish CAMHS, with a decent response rate reflecting the clinician composition (82, 181). We used instruments based on implementation theory, developed through literature review and consensus, and evaluated psychometrically, following guidelines for accurate translation and adaptation, as previously referenced. Data were carefully prepared for analysis, ensuring reliability. We employed theory-based predictors and effect sizes, rather than relying solely on statistical significance, to estimate the strengths of differences.

However, cross-sectional studies have limitations, such as the inability to establish causality and there is a risk of social desirability bias in self-report surveys (167, 182). Misunderstandings can occur, and there is limited opportunity to clarify or expand on responses, which can only relate to the specific questions included in the instruments. While brief and pragmatic scales have clear benefits, the brevity of the instruments used in this study may have exacerbated these issues.

Voluntary participation may positively skew results and explain the small or no differences observed between potential adopters and services, and we could not compare non-respondents (181). However, the results are consistent with previous studies (51, 107, 108, 147).

For the BFAI, we used the N/A response option, which may have masked a lower item response rate. Missing data was not completely random, which can introduce uncertainty and affect generalisability; a missing data analysis was conducted to address this (182).

Cross-Validation of Implementation Instruments

We did not conduct structured content validity testing with pilot testing on the target group, so we cannot confirm that the Swedish versions measure their intended constructs (167, 183). Additionally, we did not perform test-retest reliability tests, leaving the stability of the scales over time unknown. As discussed earlier, although comparatively better in our studies, some scales showed heterogeneity, reflected in low Cronbach's α values. We chose to keep all items to preserve the instrument's original form and content. While coefficient Ω (omega) could have been used to evaluate the internal consistency of the EBPAS due to its multidimensionality, we opted for Cronbach's α for its widespread use and ease of interpretation. The calculation of Cronbach's α for the total barrier scale in the BFAI instrument may be questioned, as BFAI total might be more of an index than a scale (167, 170). Furthermore, we evaluated the structural validity with EFAs since the BFAI had previously only undergone basic psychometric testing, but did not employ parallel analysis or CFAs. Lacking instruments for criterion validity, we could not test concurrent validity properly. We used correlations between EBPAS and BFAI despite them measuring different constructs. Path diagrams or Directed Acyclic Graphs could have better illustrated relationships, considering attitudes as latent variables and theories, such as TPB and DOI, suggesting that innovation characteristics and social norms influence (adoption) attitudes.

Clinician Adoption Attitudes

These methodological limitations and choices impact the reliability of our conclusions in Paper III-IV. For Paper III, we used EBPAS subscales and totals as outcomes, resulting in numerous calculations. Similarly, in Paper IV, we reported both individual BFAI determinants and domains as outcomes. However, in contrast to earlier studies, we tried to adjust for these multiple comparisons using Bonferroni correction (51, 107, 108). The use of categorical response options for age and experience in initial surveys complicated calculations, leading to a loss of precision and preventing us from using correlation for mean estimates, which affected reporting and may have affected the results. Variations in professional group sizes could affect overall results. When comparing EBP attitudes with national norms, we used independent t-tests due to the lack of access to American data, acknowledging that differences might stem from various factors beyond cultural differences, such as different participant distributions, data collection methods, and elapsed time. Despite bifactor analysis results, we reported all EBPAS scales. We used only one item to measure Attitudes towards diagnosis and nine questions to measure

Organisational readiness for change. In line with previous studies, the explanatory power of the regressions was quite low suggesting that we may not have included the most critical independent variables (51, 107, 108). We employed ANOVA for domain-level differences rather than more complex models, making direct comparison between the EBPAS and BFAI results difficult to interpret.

Ethical Consideration

Investigating the perspectives of clinicians on implementing EBPs and a guideline for treating depression in children and adolescents within CAMHS involves several ethical considerations, including consent, confidentiality, and participation.

All procedures in this thesis adhered to the ethical standards of the institutional and national research committees and the 1964 Helsinki Declaration and its amendments. The Deplyftet research program was approved by the Regional Ethical Review Board in Umeå (approval numbers EPN 2015/186-31 and EPN 2016/502-32).

Data collection on professionals began in 2014, prior to obtaining ethical approval in 2015. These data were reported for the first time in 2018 (Paper I). CAMHS clinicians were informed that participation in the surveys was voluntary, but distribution via work email with multiple reminders may have been perceived as informal coercion. The surveys, used for both implementation support and research purposes, making it impossible to participate in only one way. No personal data were collected, and the surveys were anonymous, though information about the clinic, profession, and age was gathered. The small size of the Swedish CAMHS community means data could potentially identify individuals. Some respondents provided personal information, such as their email addresses, in free-text responses. Results were reported to participating services, and clinicians shared their opinions, experiences, and perceptions, but no data except aggregated reports were available for local CAMHS.

Given the surveys' brevity and the pre-implementation phase's limited awareness and experience, it is important for staff to have opportunities to share their thoughts in other ways and on multiple occasions. Implementing new methods and guidelines can increase clinicians' workload and ethical stress. If clinicians feel unprepared, it can lead to uncertainty and resistance. New working methods may create tensions among team members, as work content, job roles, and responsibilities might need to be renegotiated. Although the study found that clinicians had a positive view of their and their CAMHS's ability to implement EBPs and depression guideline, this should be interpreted cautiously. At the beginning of an implementation endeavour, many clinicians do not fully understand the necessary changes in work methods or the required knowledge and skills. This is especially true for professional groups with limited experience in following treatment protocols, diagnosing independently,

and conducting suicide risk assessments, particularly when CAMHS face competing demands and have weak work procedures and leadership.

Implications, Further Directions, and Conclusions

The Swedish version of the EBPAS align with the original English version, making it useful for measuring EBP adoption attitudes in implementation projects, though subscale revisions might be needed. Likewise, the Swedish version of the BFAI shows promise in CAMHS for exploring barriers and enablers of guideline adoption, with further psychometric testing recommended.

Implications for Implementation Projects

Our findings suggest that implementation planners cannot rely solely on findings from other countries but need to tailor their approaches based on the adopters' needs. To address the most manageable guideline barriers, it may be useful to investigate those specifically related to the EBP or the guideline that is about to be adopted.

Our findings support the use of EBPAS, which has stronger evidence base due to previous extensive research and also provide support for the use of the BFAI, which is earlier in its validation process, as a tool for the development and evaluation of guideline implementation projects in a CAMHS context. BFAI items might be used in different phases of implementation: to pinpoint and strengthen aspects of the implementation context in the planning phase, and to identify and address barriers and upcoming challenges in the initial implementation phase. Domain-level barrier scores may be too imprecise when the purpose of the barrier investigation is to design and execute implementation strategies. Similar to the use of, for example, depression scales in diagnostic procedures, it is advisable to use instruments such as BFAI and EBPAS in conjunction with an interview. This combination allows for a deeper understanding, ultimately leading to more valid and reliable conclusions.

To enhance EBP and guideline adoption, implementation participation and ownership issues should be addressed. Collaboration with more sceptical provider groups and inclusion of their perspectives, identified in the diagnostic phase, can inform the innovation as well as the design, selection, and implementation of strategies to enhance the uptake of the EBP or guideline.

Implications for Researchers

Implementation researchers can use the EBPAS total scores to investigate clinician attitudes towards EBP adoption, as the total score might be seen as the most reliable and valid measure of EBP adoption attitudes. The subscales may be used to explore individual facets of EBP adoption attitudes when a more precise and specific analysis is needed. It is, however, important to keep in mind that a strong relationship between the subscales and an implementation outcome may be due to

common variance (general attitude) rather than the unique contribution of each subscale. Similarly, the BFAI can be used to assess barriers at various levels: individual items, domain (scale score), and possibly the BFAI total score when a broader assessment of content is needed. However, researchers should exercise caution when using the BFAI total score, as its interpretation can be complex and not entirely straightforward.

Further Directions

EBPAS and possibly BFAI are valid, reliable, broad yet brief, and pragmatic implementation instruments. However, for future use, it may be necessary to further develop and evaluate these instruments. Refining items in the BFAI Provider scale to achieve a consistent level of specificity, and rephrasing items in the EBPAS Divergence scale to avoid issues with oppositely directed items, is recommended. Additionally, rewording similar items in the EBPAS Requirement to make them less similar, and replacing items in the EBPAS Appeal scales that are too similar, would be beneficial. For the BFAI Context scale, replacing or rewording could be considered for the same reasons, but primarily, more items should be added to cover more aspects of context factors than just professional norms and financial support. Adding a few items to all the original EBPAS and BFAI scales to increase content validity and reliability would also be beneficial. These adjustments would help maintain brevity while ensuring the scales remain valid, reliable, and suitable for implementation planning and research in routine care settings. Further research is necessary to explore the dimensionality of the Swedish versions of the EBPAS and BFAI in various healthcare contexts, bearing in mind that the construct domains may vary depending on the specific combination of intervention, context, and whether the respondents are part of a multi-professional staff. More research is also needed to investigate the relationship between attitudes towards EBP adoption and perceived barriers to guideline adoption.

Additionally, it is crucial to examine whether the pattern of attitudes towards EBP adoption holds, and whether the barriers identified in our study, and previous studies are core determinants common to other EBP and guideline implementation studies in CAMHS or unique to youth depression guideline studies. An urgent area for further research is to evaluate various tailored approaches to dissemination and implementation to develop cost-effective and sustainable strategies, where EBPAS and BFAI can serve as implementation tools. More research is needed to study the relationship between attitudes towards EBP adoption and attitudes towards psychiatric diagnoses. Further studies are needed to elucidate whether the variations in professional differences in attitudes towards EBP adoption and perceived barriers found in our study persist, and whether these differences are primarily due to method or context. Further research is also needed to assess the ability of the EBPAS to predict the adoption, fidelity, and sustainment of EBP and guidelines compared to measures like the BFAI, which assess barriers and facilitators to the adoption of

evidence-based guidelines. Finally, additional research is planned to investigate the relationship between EBPAS and BFAI scores and clinical outcomes in Swedish CAMHS and other healthcare settings.

Possible solutions to EBP and implementation challenges include a deployment-focused model, where the implementation strategies are developed and tested with the type of participants and within the type of context for which the innovation is ultimately intended, something that was partially done within the Deplyftet implementation program, where feedback from the pilot influenced the design of manuals for the next wave. Additionally, the effectiveness of the innovation and implementation strategies, co-developed with intended users and end-users in real-world settings, might be simultaneously tested, as done in hybrid effectiveness-implementation studies such as the iSave study (Paper V) (184).

Conclusions

The studies underlying this thesis support the reliability and construct validity of the EBPAS and BFAI. The Swedish version of the EBPAS aligned with the original English version, making it useful for measuring EBP adoption attitudes in implementation projects, though subscale revisions might be needed. Likewise, the Swedish BFAI showed promise in CAMHS for exploring barriers and enablers of guideline adoption, with further psychometric testing recommended.

CAMHS clinicians in Sweden exhibited positive attitudes towards EBP and depression guideline adoption, with great consensus across individuals and organisations. Despite these positive views, multilevel barriers persisted. Addressing these barriers, such as adapting EBPs and guidelines for specific patient groups, discussing the pros and cons of psychiatric diagnoses, and providing tailored staff education and training, is essential for equitable care and may further support successful implementation.

References

1. Brownlee S, Chalkidou K, Doust J, Elshaug AG, Glasziou P, Heath I, et al. Evidence for overuse of medical services around the world. Lancet. 2017;390(10090):156-68.
2. Glasziou P, Straus S, Brownlee S, Trevena L, Dans L, Guyatt G, et al. Evidence for underuse of effective medical services around the world. Lancet. 2017;390(10090):169-77.
3. Kieling C, Buchweitz C, Caye A, Silvani J, Ameis SH, Brunoni AR, et al. Worldwide Prevalence and Disability From Mental Disorders Across Childhood and Adolescence: Evidence From the Global Burden of Disease Study. JAMA Psychiatry. 2024;81(4):347-56.
4. Polanczyk GV, Salum GA, Sugaya LS, Caye A, Rohde LA. Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. Journal of Child Psychology and Psychiatry. 2015;56(3):345-65.
5. Mokdad AH, Forouzanfar MH, Daoud F, Mokdad AA, El Bcheraoui C, Moradi-Lakeh M, et al. Global burden of diseases, injuries, and risk factors for young people's health during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2016;387(10036):2383-401.
6. Costello EJ, He JP, Sampson NA, Kessler RC, Merikangas KR. Services for adolescents with psychiatric disorders: 12-month data from the National Comorbidity Survey-Adolescent. Psychiatr Serv. 2014;65(3):359-66.
7. Merikangas KR, He JP, Burstein M, Swendsen J, Avenevoli S, Case B, et al. Service utilization for lifetime mental disorders in U.S. adolescents: results of the National Comorbidity Survey-Adolescent Supplement (NCS-A). J Am Acad Child Adolesc Psychiatry. 2011;50(1):32-45.
8. Hoagwood KE, Purtle J, Spandorfer J, Peth-Pierce R, Horwitz SM. Aligning dissemination and implementation science with health policies to improve children's mental health. Am Psychol. 2020;75(8):1130-45.
9. Wang S, Li Q, Lu J, Ran H, Che Y, Fang D, et al. Treatment Rates for Mental Disorders Among Children and Adolescents: A Systematic Review and Meta-Analysis. JAMA Netw Open. 2023;6(10):e2338174.
10. Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. Milbank Q. 2004;82(4):581-629.
11. Rabin BA, Brownson RC, Haire-Joshu D, Kreuter MW, Weaver NL. A glossary for dissemination and implementation research in health. J Public Health Manag Pract. 2008;14(2):117-23.

12. Nilsen P. Making sense of implementation theories, models and frameworks. Implement Sci. 2015;10:53.
13. Guyatt. Evidence-based medicine. A new approach to teaching the practice of medicine. Jama. 1992;268(17):2420-5.
14. Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. Bmj. 1996;312(7023):71-2.
15. Haynes RB, Devereaux PJ, Guyatt GH. Clinical expertise in the era of evidence-based medicine and patient choice. Vox Sang. 2002;83 Suppl 1:383-6.
16. Haynes RB, Devereaux PJ, Guyatt GH. Physicians' and patients' choices in evidence based practice. Bmj. 2002;324(7350):1350.
17. Institute of Medicine CoQoHCiA, . Crossing the Quality Chasm: A New Health System for the 21st Century. Washington (DC): National Academies Press (US), ; 2001.
18. Hoffmann T, Bennett S, Del Mar C. Evidence-based practice across the health professions-E-pub: Elsevier Health Sciences; 2017.
19. Bauer MS, Damschroder L, Hagedorn H, Smith J, Kilbourne AM. An introduction to implementation science for the non-specialist. BMC Psychology. 2015;3(1):32.
20. Greenhalgh T, Howick J, Maskrey N. Evidence based medicine: a movement in crisis? Bmj. 2014;348:g3725.
21. Guyatt GH, Meade MO, Jaeschke RZ, Cook DJ, Haynes RB. Practitioners of evidence based care. Not all clinicians need to appraise evidence from scratch but all need some skills. Bmj. 2000;320(7240):954-5.
22. Institute of Medicine Committee on Standards for Developing Trustworthy Clinical Practice G. In: Graham R, Mancher M, Miller Wolman D, Greenfield S, Steinberg E, editors. Clinical Practice Guidelines We Can Trust. Washington (DC): National Academies Press (US). 2011.
23. Woolf SH, Grol R, Hutchinson A, Eccles M, Grimshaw J. Clinical guidelines: potential benefits, limitations, and harms of clinical guidelines. Bmj. 1999;318(7182):527-30.
24. Kredo T, Bernhardsson S, Machingaidze S, Young T, Louw Q, Ochodo E, et al. Guide to clinical practice guidelines: the current state of play. Int J Qual Health Care. 2016;28(1):122-8.
25. Grol R, Wensing M, Eccles M, Davis D. Improving patient care: the implementation of change in health care: John Wiley & Sons; 2013.
26. Guerra-Farfan E, Garcia-Sanchez Y, Jornet-Gibert M, Nuñez JH, Balaguer-Castro M, Madden K. Clinical practice guidelines: The good, the bad, and the ugly. Injury. 2023;54 Suppl 3:S26-s9.
27. Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. Lancet. 2003;362(9391):1225-30.
28. Makarski J, Brouwers MC, Enterprise A. The AGREE Enterprise: a decade of advancing clinical practice guidelines. Implement Sci. 2014;9:103.

29. Neumann I, Santesso N, Akl EA, Rind DM, Vandvik PO, Alonso-Coello P, et al. A guide for health professionals to interpret and use recommendations in guidelines developed with the GRADE approach. J Clin Epidemiol. 2016;72:45-55.
30. Dearing JW, Kee KeF. Historical Roots of Dissemination and Implementation science. In: Brownson RC, Colditz GA, Proctor EK, editors. Dissemination and Implementation Research in Health: Translating Science to Practice. first ed. Oxford New York: Oxford University Press; 2012.
31. Grol R, Wensing M. What drives change? Barriers to and incentives for achieving evidence-based practice. Med J Aust. 2004;180(S6):S57-60.
32. Lomas J. Diffusion, dissemination, and implementation: who should do what? Ann N Y Acad Sci. 1993;703:226-35; discussion 35-7.
33. Eccles MP, Mittman BS. Welcome to Implementation Science. Implementation Science. 2006;1(1):1.
34. Birken SA, Powell BJ, Shea CM, Haines ER, Alexis Kirk M, Leeman J, et al. Criteria for selecting implementation science theories and frameworks: results from an international survey. Implement Sci. 2017;12(1):124.
35. Williams NJ, Beidas RS. Annual Research Review: The state of implementation science in child psychology and psychiatry: a review and suggestions to advance the field. J Child Psychol Psychiatry. 2019;60(4):430-50.
36. Rogers EM. Diffusion of Innovation. 3rd ed. ed. New York: London: Free Press; 1983.
37. Peters S, Sukumar K, Blanchard S, Ramasamy A, Malinowski J, Ginex P, et al. Trends in guideline implementation: an updated scoping review. Implement Sci. 2022;17(1):50.
38. Davies P, Walker AE, Grimshaw JM. A systematic review of the use of theory in the design of guideline dissemination and implementation strategies and interpretation of the results of rigorous evaluations. Implement Sci. 2010;5:14.
39. Proctor E, Silmere H, Raghavan R, Hovmand P, Aarons G, Bunger A, et al. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. Adm Policy Ment Health. 2011;38(2):65-76.
40. Aarons GA, Hurlburt M, Horwitz SM. Advancing a Conceptual Model of Evidence-Based Practice Implementation in Public Service Sectors. Administration and Policy in Mental Health and Mental Health Services Research. 2011;38(1):4-23.
41. Ajzen I. The theory of planned behavior. Organizational behavior and human decision processes. 1991;50(2):179-211.
42. Godin G, Bélanger-Gravel A, Eccles M, Grimshaw J. Healthcare professionals' intentions and behaviours: a systematic review of studies based on social cognitive theories. Implement Sci. 2008;3:36.
43. Lewis CC, Boyd MR, Walsh-Bailey C, Lyon AR, Beidas R, Mittman B, et al. A systematic review of empirical studies examining mechanisms of implementation in health. Implementation Science. 2020;15(1):21.
44. Weiner BJ. A theory of organizational readiness for change. Implementation Science. 2009;4(1):67.

45. Nilsen P, Bernhardsson S. Context matters in implementation science: a scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. BMC Health Services Research. 2019;19(1):189.
46. Lewis CC, Klasnja P, Powell BJ, Lyon AR, Tuzzio L, Jones S, et al. From Classification to Causality: Advancing Understanding of Mechanisms of Change in Implementation Science. Front Public Health. 2018;6:136.
47. Kislov R, Pope C, Martin GP, Wilson PM. Harnessing the power of theorising in implementation science. Implement Sci. 2019;14(1):103.
48. Moullin JC, Dickson KS, Stadnick NA, Albers B, Nilsen P, Broder-Fingert S, et al. Ten recommendations for using implementation frameworks in research and practice. Implementation Science Communications. 2020;1(1):42.
49. Moullin JC, Dickson KS, Stadnick NA, Rabin B, Aarons GA. Systematic review of the Exploration, Preparation, Implementation, Sustainment (EPIS) framework. Implementation Science. 2019;14(1):1.
50. Wang Y, Wong ELY, Nilsen P, Chung VC-h, Tian Y, Yeoh E-K. A scoping review of implementation science theories, models, and frameworks — an appraisal of purpose, characteristics, usability, applicability, and testability. Implementation Science. 2023;18(1):43.
51. Aarons GA. Mental health provider attitudes toward adoption of evidence-based practice: the Evidence-Based Practice Attitude Scale (EBPAS). Ment Health Serv Res. 2004;6(2):61-74.
52. Stirman SW, Gutner CA, Langdon K, Graham JR. Bridging the Gap Between Research and Practice in Mental Health Service Settings: An Overview of Developments in Implementation Theory and Research. Behav Ther. 2016;47(6):920-36.
53. Flottorp SA, Oxman AD, Krause J, Musila NR, Wensing M, Godycki-Cwirko M, et al. A checklist for identifying determinants of practice: a systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. Implement Sci. 2013;8:35.
54. Grol R, Wensing M. Characteristics of Successful Innovations. Improving Patient Care2020. p. 87-102.
55. Peters-Corbett A, Parke S, Bear H, Clarke T. Barriers and facilitators of implementation of evidence-based interventions in children and young people's mental health care - a systematic review. Child Adolesc Ment Health. 2024;29(3):242-65.
56. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement Sci. 2009;4:50.
57. Harmsen M PM, Wensing M. Barriers and facilitators assessment instrument, Introduction, instructions and instrument. Radboud University Nijmegen Medical Centre,, Centre for Quality of Care Research (WOK) RUNMC; 2005.

58. Peters MAJ HM, Laurant MGH, Wensing M. Ruimte voor verandering? Knelpunten en mogelijkheden voor verandering in de patiëntenzorg [Room for improvement? Barriers to and facilitators for improvement of patient care]. Nijmegen: Centre for Quality of Care Research (WOK), Radboud University Nijmegen Medical Centre, Centre for Quality of Care Research (WOK) RUNMC; 2002.
59. Francke AL, Smit MC, de Veer AJ, Mistiaen P. Factors influencing the implementation of clinical guidelines for health care professionals: a systematic meta-review. BMC Med Inform Decis Mak. 2008;8:38.
60. Correa VC, Lugo-Agudelo LH, Aguirre-Acevedo DC, Contreras JAP, Borrero AMP, Patiño-Lugo DF, et al. Individual, health system, and contextual barriers and facilitators for the implementation of clinical practice guidelines: a systematic metareview. Health Res Policy Syst. 2020;18(1):74.
61. Zhou P, Chen L, Wu Z, Wang E, Yan Y, Guan X, et al. The barriers and facilitators for the implementation of clinical practice guidelines in healthcare: an umbrella review of qualitative and quantitative literature. J Clin Epidemiol. 2023;162:169-81.
62. Fischer F, Lange K, Klose K, Greiner W, Kraemer A. Barriers and Strategies in Guideline Implementation-A Scoping Review. Healthcare (Basel). 2016;4(3).
63. Moullin JC, Sabater-Hernández D, Fernandez-Llimos F, Benrimoj SI. A systematic review of implementation frameworks of innovations in healthcare and resulting generic implementation framework. Health Research Policy and Systems. 2015;13(1):16.
64. Damschroder LJ, Reardon CM, Widerquist MAO, Lowery J. The updated Consolidated Framework for Implementation Research based on user feedback. Implement Sci. 2022;17(1):75.
65. Wisdom JP, Chor KH, Hoagwood KE, Horwitz SM. Innovation adoption: a review of theories and constructs. Adm Policy Ment Health. 2014;41(4):480-502.
66. Fixsen D. Implementation research: A synthesis of the literature. University of South Florida, Louis de la Parte Florida Mental Health Research Institute, The National Implementation Research Network. 2005.
67. Proctor EK, Bunger AC, Lengnick-Hall R, Gerke DR, Martin JK, Phillips RJ, et al. Ten years of implementation outcomes research: a scoping review. Implement Sci. 2023;18(1):31.
68. Fishman J, Yang C, Mandell D. Attitude theory and measurement in implementation science: a secondary review of empirical studies and opportunities for advancement. Implementation Science. 2021;16(1):87.
69. Ajzen I. Nature and operation of attitudes. Annual review of psychology. 2001;52(1):27-58.
70. Lehman WE, Greener JM, Simpson DD. Assessing organizational readiness for change. J Subst Abuse Treat. 2002;22(4):197-209.
71. Brennan C, Greenhalgh J, Pawson R. Guidance on guidelines: Understanding the evidence on the uptake of health care guidelines. J Eval Clin Pract. 2018;24(1):105-16.

72. Landsverk NG, Olsen NR, Brovold T. Instruments measuring evidence-based practice behavior, attitudes, and self-efficacy among healthcare professionals: a systematic review of measurement properties. Implement Sci. 2023;18(1):42.
73. Dorsey CN, Mettert KD, Puspitasari AJ, Damschroder LJ, Lewis CC. A systematic review of measures of implementation players and processes: Summarizing the dearth of psychometric evidence. Implement Res Pract. 2021;2:26334895211002474.
74. Pilar M, Jost E, Walsh-Bailey C, Powell BJ, Mazzucca S, Eyler A, et al. Quantitative measures used in empirical evaluations of mental health policy implementation: A systematic review. Implementation Research and Practice. 2022;3:26334895221141116.
75. Chaudoir SR, Dugan AG, Barr CHI. Measuring factors affecting implementation of health innovations: a systematic review of structural, organizational, provider, patient, and innovation level measures. Implementation Science. 2013;8(1):22.
76. Martinez RG, Lewis CC, Weiner BJ. Instrumentation issues in implementation science. Implement Sci. 2014;9:118.
77. Lewis CC, Fischer S, Weiner BJ, Stanick C, Kim M, Martinez RG. Outcomes for implementation science: an enhanced systematic review of instruments using evidence-based rating criteria. Implementation Science. 2015;10(1):155.
78. Mettert K, Lewis C, Dorsey C, Halko H, Weiner B. Measuring implementation outcomes: An updated systematic review of measures' psychometric properties. Implementation Research and Practice. 2020;1:2633489520936644.
79. Lewis CC, Mettert K, Lyon AR. Determining the influence of intervention characteristics on implementation success requires reliable and valid measures: Results from a systematic review. Implement Res Pract. 2021;2:2633489521994197.
80. Willson ML, Vernooij RWM, Gagliardi AR. Questionnaires used to assess barriers of clinical guideline use among physicians are not comprehensive, reliable, or valid: a scoping review. J Clin Epidemiol. 2017;86:25-38.
81. Glenngård AH, Thomson S, Osborn R, Squires D, Jun M. The Swedish health care system. International Profiles of Health Care Systems The Commonwealth Fund. 2020:181-9.
82. Uppdrag Psykisk Hälsa S. Kartläggning Barn- och ungdomspsykiatrin 2016 https://www.uppdragpsykiskhalsa.se/assets/uploads/2017/11/Kartla%CC%88ggning-2016-%E2%80%93-Barn-och-ungdomspsykiatri.pdf: SALAR Swedish Association of Local Authorities and Regions/ SKL Sveriges kommuner och landsting; 2017.
83. Castelpietra G, Knudsen AKS, Agardh EE, Armocida B, Beghi M, Iburg KM, et al. The burden of mental disorders, substance use disorders and self-harm among young people in Europe, 1990–2019: Findings from the Global Burden of Disease Study 2019. Lancet Regional Health – Europe. 2022;16.
84. Hetrick SE, Simmons M, Thompson A, Parker AG. What are specialist mental health clinician attitudes to guideline recommendations for the treatment of depression in young people? Aust N Z J Psychiatry. 2011;45(11):993-1001.
85. Hetrick SE, Thompson A, Yuen K, Finch S, Parker AG. Is there a gap between recommended and 'real world' practice in the management of depression in young people? A medical file audit of practice. BMC Health Serv Res. 2012;12:178.

86. Neufeld SAS, Dunn VJ, Jones PB, Croudace TJ, Goodyer IM. Reduction in adolescent depression after contact with mental health services: a longitudinal cohort study in the UK. Lancet Psychiatry. 2017;4(2):120-7.
87. Ruphrect-Smith H, Davies S, Jacob J, Edbrooke-Childs J. Ethnic differences in treatment outcome for children and young people accessing mental health support. European Child & Adolescent Psychiatry. 2024;33(4):1121-31.
88. Jarbin H, von Knorring A-L, Zetterquist M. Riktlinje Depression. pdf. https://slf.se/sfbup/riktlinjer/: Sveriges läkarförbund; 2014 20230412. Contract No.: 10 may.
89. Piao J, Huang Y, Han C, Li Y, Xu Y, Liu Y, et al. Alarming changes in the global burden of mental disorders in children and adolescents from 1990 to 2019: a systematic analysis for the Global Burden of Disease study. Eur Child Adolesc Psychiatry. 2022;31(11):1827-45.
90. Patel V, Flisher AJ, Hetrick S, McGorry P. Mental health of young people: a global public-health challenge. Lancet. 2007;369(9569):1302-13.
91. WHO. Comprehensive mental health action plan 2013–2030. Geneva: World Health Organization; 2021.
92. Harvey AG, Gumport NB. Evidence-based psychological treatments for mental disorders: modifiable barriers to access and possible solutions. Behav Res Ther. 2015;68:1-12.
93. Youngstrom EA, Choukas-Bradley S, Calhoun CD, Jensen-Doss A. Clinical Guide to the Evidence-Based Assessment Approach to Diagnosis and Treatment. Cognitive and Behavioral Practice. 2015;22(1):20-35.
94. Ng MY, Weisz JR. Annual Research Review: Building a science of personalized intervention for youth mental health. Journal of Child Psychology and Psychiatry. 2016;57(3):216-36.
95. Chorpita BF, Daleiden EL, Ebesutani C, Young J, Becker KD, Nakamura BJ, et al. Evidence-based treatments for children and adolescents: An updated review of indicators of efficacy and effectiveness. Clinical Psychology: Science and Practice. 2011;18(2):154-72.
96. Weisz JR, Kuppens S, Ng MY, Eckshtain D, Ugueto AM, Vaughn-Coaxum R, et al. What five decades of research tells us about the effects of youth psychological therapy: A multilevel meta-analysis and implications for science and practice. Am Psychol. 2017;72(2):79-117.
97. Garland AF, Haine-Schlagel R, Brookman-Frazee L, Baker-Ericzen M, Trask E, Fawley-King K. Improving community-based mental health care for children: translating knowledge into action. Adm Policy Ment Health. 2013;40(1):6-22.
98. Weisz JR, Kuppens S, Ng MY, Vaughn-Coaxum RA, Ugueto AM, Eckshtain D, et al. Are Psychotherapies for Young People Growing Stronger? Tracking Trends Over Time for Youth Anxiety, Depression, Attention-Deficit/Hyperactivity Disorder, and Conduct Problems. Perspectives on Psychological Science. 2018;14(2):216-37.

99. Deighton J, Argent R, De Francesco D, Edbrooke-Childs J, Jacob J, Fleming I, et al. Associations between evidence-based practice and mental health outcomes in child and adolescent mental health services. Clin Child Psychol Psychiatry. 2016;21(2):287-96.
100. Garland AF, Bickman L, Chorpita BF. Change what? Identifying quality improvement targets by investigating usual mental health care. Adm Policy Ment Health. 2010;37(1-2):15-26.
101. Cook JR, Hausman EM, Jensen-Doss A, Hawley KM. Assessment Practices of Child Clinicians: Results From a National Survey. Assessment. 2015;24(2):210-21.
102. Becker-Haimes EM, Tabachnick AR, Last BS, Stewart RE, Hasan-Granier A, Beidas RS. Evidence Base Update for Brief, Free, and Accessible Youth Mental Health Measures. Journal of Clinical Child & Adolescent Psychology. 2020;49(1):1-17.
103. Lee P, Lang JM, Vanderploeg JJ, Marshall T. Evidence-Based Treatments in Community Mental Health Settings: Use and Congruence With Children's Primary Diagnosis and Comorbidity. Research on Child and Adolescent Psychopathology. 2022;50(4):417-30.
104. Becker-Haimes EM, Okamura KH, Wolk CB, Rubin R, Evans AC, Beidas RS. Predictors of clinician use of exposure therapy in community mental health settings. J Anxiety Disord. 2017;49:88-94.
105. Becker EM, Smith AM, Jensen-Doss A. Who's using treatment manuals? A national survey of practicing therapists. Behav Res Ther. 2013;51(10):706-10.
106. Powell BJ, Mettert KD, Dorsey CN, Weiner BJ, Stanick CF, Lengnick-Hall R, et al. Measures of organizational culture, organizational climate, and implementation climate in behavioral health: A systematic review. Implementation Research and Practice. 2021;2:26334895211018862.
107. Aarons GA, Glisson C, Green PD, Hoagwood K, Kelleher KJ, Landsverk JA, et al. The organizational social context of mental health services and clinician attitudes toward evidence-based practice: a United States national study. Implement Sci. 2012;7:56.
108. Aarons GA, Glisson C, Hoagwood K, Kelleher K, Landsverk J, Cafri G. Psychometric properties and U.S. National norms of the Evidence-Based Practice Attitude Scale (EBPAS). Psychol Assess. 2010;22(2):356-65.
109. Egeland KM, Ruud T, Ogden T, Lindstrom JC, Heiervang KS. Psychometric properties of the Norwegian version of the Evidence-Based Practice Attitude Scale (EBPAS): to measure implementation readiness. Health Res Policy Syst. 2016;14(1):47.
110. van Sonsbeek MA, Hutschemaekers GJ, Veerman JW, Kleinjan M, Aarons GA, Tiemens BG. Psychometric properties of the Dutch version of the Evidence-Based Practice Attitude Scale (EBPAS). Health Res Policy Syst. 2015;13:69.
111. Frazier SL, Bearman SK, Garland AF, Atkins MS. Dissemination and implementation in children's mental health: Closing the research to training gap. Dissemination and implementation of evidence-based practices in child and adolescent mental health. New York, NY, US: Oxford University Press; 2014. p. 98-123.

112. Aarons GA, Cafri G, Lugo L, Sawitzky A. Expanding the domains of attitudes towards evidence-based practice: the evidence based practice attitude scale-50. Adm Policy Ment Health. 2012;39(5):331-40.
113. Rye M, Friborg O, Skre I. Attitudes of mental health providers towards adoption of evidence-based interventions: relationship to workplace, staff roles and social and psychological factors at work. BMC Health Serv Res. 2019;19(1):110.
114. First MB, Pincus HA, Levine JB, Williams JBW, Ustun B, Peele R. Clinical Utility as a Criterion for Revising Psychiatric Diagnoses. American Journal of Psychiatry. 2004;161(6):946-54.
115. First MB, Rebello TJ, Keeley JW, Bhargava R, Dai Y, Kulygina M, et al. Do mental health professionals use diagnostic classifications the way we think they do? A global survey. World Psychiatry. 2018;17(2):187-95.
116. Beidas R, Skriner L, Adams D, Wolk CB, Stewart RE, Becker-Haimes E, et al. The relationship between consumer, clinician, and organizational characteristics and use of evidence-based and non-evidence-based therapy strategies in a public mental health system. Behav Res Ther. 2017;99:1-10.
117. Powell BJ, Mandell DS, Hadley TR, Rubin RM, Evans AC, Hurford MO, et al. Are general and strategic measures of organizational context and leadership associated with knowledge and attitudes toward evidence-based practices in public behavioral health settings? A cross-sectional observational study. Implement Sci. 2017;12(1):64.
118. Izmirian SC, Nakamura BJ. Knowledge, Attitudes, Social Desirability, and Organizational Characteristics in Youth Mental Health Services. J Behav Health Serv Res. 2016;43(4):630-47.
119. Danielson M, Månsdotter A, Fransson E, Dalsgaard S, Larsson JO. Clinicians' attitudes toward standardized assessment and diagnosis within child and adolescent psychiatry. Child and Adolescent Psychiatry and Mental Health. 2019;13(1):9.
120. Patel V, Saxena S, Lund C, Thornicroft G, Baingana F, Bolton P, et al. The Lancet Commission on global mental health and sustainable development. Lancet. 2018;392(10157):1553-98.
121. Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet Psychiatry. 2022;9(2):137-50.
122. Patel V, Chisholm D, Parikh R, Charlson FJ, Degenhardt L, Dua T, et al. Addressing the burden of mental, neurological, and substance use disorders: key messages from Disease Control Priorities, 3rd edition. Lancet. 2016;387(10028):1672-85.
123. Clayborne ZM, Varin M, Colman I. Systematic Review and Meta-Analysis: Adolescent Depression and Long-Term Psychosocial Outcomes. J Am Acad Child Adolesc Psychiatry. 2019;58(1):72-9.
124. Thapar A, Eyre O, Patel V, Brent D. Depression in young people. Lancet. 2022;400(10352):617-31.
125. Turecki G, Brent DA. Suicide and suicidal behaviour. Lancet. 2016;387(10024):1227-39.

126. Walter HJ, Abright AR, Bukstein OG, Diamond J, Keable H, Ripperger-Suhler J, et al. Clinical Practice Guideline for the Assessment and Treatment of Children and Adolescents With Major and Persistent Depressive Disorders. J Am Acad Child Adolesc Psychiatry. 2022.
127. Shorey S, Ng ED, Wong CHJ. Global prevalence of depression and elevated depressive symptoms among adolescents: A systematic review and meta-analysis. British Journal of Clinical Psychology. 2022;61(2):287-305.
128. Birmaher B, Brent D, Bernet W, Bukstein O, Walter H, Benson RS, et al. Practice parameter for the assessment and treatment of children and adolescents with depressive disorders. J Am Acad Child Adolesc Psychiatry. 2007;46(11):1503-26.
129. Hopkins K, Crosland P, Elliott N, Bewley S, Clinical Guidelines Update Committee B. Diagnosis and management of depression in children and young people: summary of updated NICE guidance. BMJ. 2015;350:h824.
130. Thapar A, Collishaw S, Pine DS, Thapar AK. Depression in adolescence. Lancet. 2012;379(9820):1056-67.
131. Cuijpers P, Karyotaki E, Ciharova M, Miguel C, Noma H, Stikkelbroek Y, et al. The effects of psychological treatments of depression in children and adolescents on response, reliable change, and deterioration: a systematic review and meta-analysis. European Child & Adolescent Psychiatry. 2023;32(1):177-92.
132. Eckshtain D, Kuppens S, Ugueto A, Ng MY, Vaughn-Coaxum R, Corteselli K, et al. Meta-Analysis: 13-Year Follow-up of Psychotherapy Effects on Youth Depression. Journal of the American Academy of Child & Adolescent Psychiatry. 2020;59(1):45-63.
133. Hermens ML, Oud M, Sinnema H, Nauta MH, Stikkelbroek Y, van Duin D, et al. The multidisciplinary depression guideline for children and adolescents: an implementation study. Eur Child Adolesc Psychiatry. 2015;24(10):1207-18.
134. Pile V, Shammas D, Smith P. Assessment and treatment of depression in children and young people in the United Kingdom: Comparison of access to services and provision at two time points. Clin Child Psychol Psychiatry. 2020;25(1):119-32.
135. Mojtabai R, Olfson M, Han B. National Trends in the Prevalence and Treatment of Depression in Adolescents and Young Adults. Pediatrics. 2016;138(6).
136. Avenevoli S, Swendsen J, He JP, Burstein M, Merikangas KR. Major depression in the national comorbidity survey-adolescent supplement: prevalence, correlates, and treatment. J Am Acad Child Adolesc Psychiatry. 2015;54(1):37-44.e2.
137. Herrman H, Patel V, Kieling C, Berk M, Buchweitz C, Cuijpers P, et al. Time for united action on depression: a Lancet-World Psychiatric Association Commission. Lancet. 2022;399(10328):957-1022.
138. Gatej AR, Lamers A, van Domburgh L, Vermeiren R. Perspectives on clinical guidelines for severe behavioural problems in children across Europe: a qualitative study with mental health clinicians. Eur Child Adolesc Psychiatry. 2020;29(4):501-13.

139. Westerlund A, Ivarsson A, Richter-Sundberg L. Evidence-based practice in child and adolescent mental health services – The challenge of implementing national guidelines for treatment of depression and anxiety. Scandinavian Journal of Caring Sciences. 2021;35(2):476-84.
140. Levelink B, Walraven L, Dompeling E, Feron FJM, van Zeben-van der Aa DMCB. Guideline use among different healthcare professionals in diagnosing attention deficit hyperactivity disorder in Dutch children; who cares? BMC Psychology. 2019;7(1):43.
141. Mücke K, Plück J, Steinhauser S, Hellmich M, Scholz K, Sonneck A, et al. Guideline adherence in German routine care of children and adolescents with ADHD: an observational study. Eur Child Adolesc Psychiatry. 2021;30(5):757-68.
142. Gaigl G, Täumer E, Merz K, Zöscher S, Wagner S, Kösters M, et al. Multifactorial barriers in the implementation of schizophrenia and psychosocial therapies guidelines: A quantitative study across different professions. Schizophr Res. 2021;228:425-34.
143. Lorenz C, Güler D, Halms T, Khorikian-Ghazari N, Röh A, Flick M, et al. Conventional and living guideline for schizophrenia: barriers and facilitating factors in guideline implementation. European Archives of Psychiatry and Clinical Neuroscience. 2024;274(6):1483-96.
144. Gagliardi AR, Armstrong MJ, Bernhardsson S, Fleuren M, Pardo-Hernandez H, Vernooij RWM, et al. The Clinician Guideline Determinants Questionnaire was developed and validated to support tailored implementation planning. J Clin Epidemiol. 2019;113:129-36.
145. Lugtenberg M, Burgers JS, Besters CF, Han D, Westert GP. Perceived barriers to guideline adherence: A survey among general practitioners. BMC Family Practice. 2011;12(1):98.
146. Smolders M, Laurant M, Verhaak P, Prins M, van Marwijk H, Penninx B, et al. Which Physician and Practice Characteristics are Associated With Adherence to Evidence-Based Guidelines for Depressive and Anxiety Disorders? Medical Care. 2010;48(3):240-8.
147. Souffront K, Chyun D, Kovner C. Barriers to referral for elevated blood pressure in the emergency department and differences between provider type. J Clin Hypertens (Greenwich). 2015;17(3):207-14.
148. Cousins JL, Wark PAB, Hiles SA, McDonald VM. Understanding Clinicians' Perceived Barriers and Facilitators to Optimal Use of Acute Oxygen Therapy in Adults. Int J Chron Obstruct Pulmon Dis. 2020;15:2275-87.
149. Sousa VD, Rojjanasrirat W. Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. Journal of evaluation in clinical practice. 2011;17(2):268-74.
150. Goodyer IM, Reynolds S, Barrett B, Byford S, Dubicka B, Hill J, et al. Cognitive-behavioural therapy and short-term psychoanalytic psychotherapy versus brief psychosocial intervention in adolescents with unipolar major depression (IMPACT): a multicentre, pragmatic, observer-blind, randomised controlled trial. Health Technol Assess. 2017;21(12):1-94.

151. Aarons GA, McDonald EJ, Sheehan AK, Walrath-Greene CM. Confirmatory factor analysis of the Evidence-Based Practice Attitude Scale in a geographically diverse sample of community mental health providers. Adm Policy Ment Health. 2007;34(5):465-9.
152. Billsten J, Fridell M, Holmberg R, Ivarsson A. Organizational Readiness for Change (ORC) test used in the implementation of assessment instruments and treatment methods in a Swedish National study. J Subst Abuse Treat. 2018;84:9-16.
153. Pinnock H, Epiphaniou E, Sheikh A, Griffiths C, Eldridge S, Craig P, et al. Developing standards for reporting implementation studies of complex interventions (StaRI): a systematic review and e-Delphi. Implement Sci. 2015;10:42.
154. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Ann Intern Med. 2007;147(8):573-7.
155. IBM. IBM SPSS statistics for windows 27 ed. Armonk, NY2020.
156. Tabachnick BG, Fidell LS. Using multivariate statistics. Boston, MA: Allyn and Bacon; 2006.
157. Cohen J. Statistical power and analysis for behavioral sciences. 2nd ed ed. New York: Lawrence Erlbaum Associates; 1988.
158. Muthén LK, Muthén BO. Mplus User's Guide. eight ed. Los Angeles: Muthén & Muthén; 1998-2017 april 2017.
159. Reise SP, Moore TM, Haviland MG. Bifactor models and rotations: exploring the extent to which multidimensional data yield univocal scale scores. J Pers Assess. 2010;92(6):544-59.
160. Wolf DAPS, Dulmus CN, Maguin E, Fava N. Refining the Evidence-Based Practice Attitude Scale: An Alternative Confirmatory Factor Analysis. Social Work Research. 2014;38(1):47-58.
161. Cook JM, Thompson R, Simiola V, Wiltsey Stirman S, Schnurr PP. Provider general attitudes versus specific perceptions of evidence-based psychotherapies for PTSD. Psychol Serv. 2020;17(1):46-53.
162. Barnett M, Brookman-Frazee L, Regan J, Saifan D, Stadnick N, Lau A. How Intervention and Implementation Characteristics Relate to Community Therapists' Attitudes Toward Evidence-Based Practices: A Mixed Methods Study. Adm Policy Ment Health. 2017;44(6):824-37.
163. Khorikian-Ghazari N, Lorenz C, Güler D, Halms T, Röh A, Flick M, et al. Guideline for schizophrenia: implementation status and attitude toward an upcoming living guideline. European Archives of Psychiatry and Clinical Neuroscience. 2023;273(7):1587-98.
164. Lewis CC, Mettert KD, Stanick CF, Halko HM, Nolen EA, Powell BJ, et al. The psychometric and pragmatic evidence rating scale (PAPERS) for measure development and evaluation. Implement Res Pract. 2021;2:26334895211037391.

165. Remvall S, Santesson A, Bäckström M, Hofvander B, Jarbin H. Diagnostic Assessments of Depression in Child and Adolescent Psychiatry: Exploration of Quality Indicators – Occurrences, Correlations and Predictors in a Nationwide Swedish Outpatient Cross-Sectional Medical Record Review. In: Department of Child and Adolescent Psychiatry FoCS, Lund, Lund University, Lund, Sweden, editor. 2024.
166. Streiner DL, Norman GR. Health Measurement Scales: A practical guide to their development and use: Oxford University Press; 2008 01 Sep 2009.
167. DeVellis RF, Thorpe CT. Scale development: Theory and applications: Sage publications; 2021.
168. American Psychological A, National Council on Measurement in E, Joint Committee on Standards for E, Psychological T. Standards for educational and psychological testing: American Educational Research Association; 2014.
169. Cook JM, Thompson R, Schnurr PP. Perceived Characteristics of Intervention Scale: Development and Psychometric Properties. Assessment. 2015;22(6):704-14.
170. Streiner DL. Being inconsistent about consistency: when coefficient alpha does and doesn't matter. J Pers Assess. 2003;80(3):217-22.
171. Fishman J, Yang C, Mandell DS. A review of attitude research that is specific, accurate, and comprehensive within its stated scope: responses to Aarons. Implementation Science. 2022;17(1):29.
172. Powell BJ, Stanick CF, Halko HM, Dorsey CN, Weiner BJ, Barwick MA, et al. Toward criteria for pragmatic measurement in implementation research and practice: a stakeholder-driven approach using concept mapping. Implementation Science. 2017;12(1):118.
173. Stanick CF, Halko HM, Dorsey CN, Weiner BJ, Powell BJ, Palinkas LA, et al. Operationalizing the 'pragmatic' measures construct using a stakeholder feedback and a multi-method approach. BMC Health Services Research. 2018;18(1):882.
174. Stanick CF, Halko HM, Nolen EA, Powell BJ, Dorsey CN, Mettert KD, et al. Pragmatic measures for implementation research: development of the Psychometric and Pragmatic Evidence Rating Scale (PAPERS). Translational Behavioral Medicine. 2019;11(1):11-20.
175. Glasgow RE, Riley WT. Pragmatic Measures: What They Are and Why We Need Them. American Journal of Preventive Medicine. 2013;45(2):237-43.
176. Weisz JR, Fitzpatrick OM, Venturo-Conerly KE, Sternberg A, Steinberg JS, Ng MY. Research Review: The internalizing paradox – youth anxiety and depression symptoms, psychotherapy outcomes, and implications for research and practice. Journal of Child Psychology and Psychiatry. 2023;64(12):1720-34.
177. Weisz JR, Ugueto AM, Cheron DM, Herren J. Evidence-based youth psychotherapy in the mental health ecosystem. J Clin Child Adolesc Psychol. 2013;42(2):274-86.
178. Grol R, Wensing M. Implementation of Change in Healthcare. Improving Patient Care2020. p. 1-20.
179. Brownson RC, Colditz GA, Proctor EK. Dissemination and implementation research in health: translating science to practice: Oxford University Press; 2018.

180. Saldana L, Chapman J, Henggeler S, Rowland M. Assessing organizational readiness for change in adolescent treatment programs. Journal of Substance Abuse Treatment. 2007;33:159-69.
181. Van Horn PS, Green KE, Martinussen M. Survey response rates and survey administration in counseling and clinical psychology: A meta-analysis. Educational and Psychological Measurement. 2009;69(3):389-403.
182. Tabachnick BG, Fidell LS. Using multivariate statistics: Allyn & Bacon/Pearson Education; 2007.
183. Clark LA, Watson D. Constructing validity: New developments in creating objective measuring instruments. Psychological Assessment. 2019;31(12):1412-27.
184. Ekelöf K, Sæther E, Santesson A, Wilander M, Patriksson K, Hesselman S, et al. A hybrid type I, multi-center randomized controlled trial to study the implementation of a method for Sustained cord circulation And VEntilation (the SAVE-method) of late preterm and term neonates: a study protocol. BMC Pregnancy Childbirth. 2022;22(1):593.

Appendix

Appendix 1 The Swedish version of the Evidence-Based Practice Attitude Scale

Inställning till evidensbaserad vård

Nedanstående frågor handlar om dina känslor inför att använda nya terapimetoder, interventioner eller behandlingar. Med manualiserad terapi menas interventioner med specifika riktlinjer och/eller delar, som antingen beskrivs i en manual och/eller ska följas på ett strukturerat/förutbestämt sätt

Använd följande skala och fyll i den cirkel som bäst beskriver i vilken omfattning du håller med om varje påstående

1. Jag tycker om att pröva nya former av terapimetoder/interventioner för att hjälpa mina patienter
2.Jag är villig att pröva nya former av terapi/interventioner även om jag måste följa en behandlingsmanual
3.Jag vet bättre än forskare hur jag ska ta hand om mina patienter
4.Jag är villig att använda olika nya typer av terapimetoder/interventioner som är utvecklade av forskare
5.Forskningsbaserade behandlingar/interventioner är inte kliniskt användbara
6.Klinisk erfarenhet är viktigare än att använda manualiserade terapimetoder/behandlingar
7.Jag skulle inte använda manualiserade terapimetoder/interventioner
8.Jag skulle prova en ny terapimetod/intervention även om den skiljer sig mycket från hur jag brukar göra

Om du fick träning i en för dig ny terapimetod eller intervention, hur troligt vore det att du tar till dig den om:

9. Den var intuitivt tilltalande
10. Den verkade rimlig
11. Din chef krävde det
12. Din klinik krävde det
13. Socialstyrelsen krävde det
14. Kolleger använde den och var nöjda med den
15. Om du upplevde att du hade fått tillräckligt med träning för att kunna använda den på rätt sätt

Appendix 2 The Swedish version of the Barriers and Facilitators Assessment Instrument

Hindrande och främjande faktorer för implementering

Följande är ett antal påståenden om att arbeta enligt riktlinjen. Vi skulle vilja veta om du samtycker till påståendena eller inte och i vilken grad. Om du inte har en stark åsikt, försök att komma fram till om det är mer åt "håller med" än "håller inte med". Om du verkligen inte vet, kan du välja "håller varken med eller inte håller med

1. Den här riktlinjen lämnar tillräckligt med utrymme för mig att göra mina egna avvägningar
2. Den här riktlinjen lämnar tillräckligt med utrymme till att väga in patientens önskningar
3. Den här riktlinjen är en bra inkörsport till studier på egen hand
4. Jag läste inte riktlinjen ingående och/eller kommer inte ihåg den
5. Jag skulle vilja veta mer om riktlinjen innan jag bestämmer mig för att tillämpa den
6. Jag har svårt för att ändra mina gamla rutiner
7. Jag tycker att delar av riktlinjen är felaktiga
8. Jag känner ett generellt motstånd mot att arbeta manualbaserat
9. Kollegor medverkar inte till att följa riktlinjen
10. Andra behandlare medverkar inte till att följa riktlinjen
11. Cheferna medverkar inte till att följa riktlinjen
12. Patienterna medverkar inte till att följa riktlinjen
13. Att arbeta enligt riktlinjen är för tidskrävande
14. Riktlinjen stämmer inte överens med mitt sätt att arbeta på min klinik
15. Att arbeta enligt den här riktlinjen kräver ekonomisk ersättning (till enheten)
16. Riktlinjens layout gör den användarvänlig

Det är svårt att arbeta med vård enligt riktlinjen

21. …för att jag inte är tränad i att arbeta med vård enligt riktlinjen
22. …för att jag inte har varit involverad i framtagandet av vård enligt riktlinjen
23. …med patienter med annan kulturell bakgrund
25. …med patienter med låg socioekonomisk status
26. …med unga patienter (<13 år)

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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?

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Abstract

Background: There is a call for valid and reliable instruments to evaluate implementation of evidence-based practices (EBP). The 15-item Evidence-Based Practice Attitude Scale (EBPAS) measures attitude toward EBP, incorporating four lower-order factor subscales (Appeal, Requirements, Openness, and Divergence) and a Total scale (General Attitudes). It is one of a few measures of EBP attitudes evaluated for its psychometric properties. The reliability of the Total scale has been repeatedly supported, but also the multidimensionality of the inventory. However, whether all of the items contribute to the EBPAS Total beyond their subscales has yet to be demonstrated. In addition, the Divergence subscale has been questioned because of its low correlation with the other subscales and low inter-item correlations. The EBPAS is widely used to tailor and evaluate implementation efforts, but a Swedish version has not yet been validated. This study aimed to contribute to the development and cross-validation of the EBPAS by examining the factor structure of t a Swedish-language version in a large sample of mental health professionals.

Methods: The EBPAS was translated into Swedish and completed by 570 mental health professionals working in child and adolescent psychiatry settings spread across Sweden. The factor structure was examined using first-order, second-order and bifactor confirmatory factor analytic (CFA) models.

Results: Results suggested adequate fit for all CFA models. The EBPAS Total was strongly supported in the Swedish version. Support for the hierarchical second-order model was also strong, while the bifactor model gave mixed support for the subscales. The Openness and Requirements subscales came out best, while there were problems with both the Appeal (e.g. not different from the General Attitudes factor) and the Divergence subscales (e.g. low reliability).

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Conclusions: Overall, the psychometric properties were on par with the English version and the total score appears to be a valid measure of general attitudes towards EBP. This is the first study supporting this General Attitudes factor based on a bifactor model. Although comparatively better supported in this Swedish sample, we conclude that the use of the EBPAS subscale scores may result in misleading conclusions. Practical implications and future directions are discussed.

Keywords: Attitudes, EBP, Evidence-based practice attitude scale (EBPAS), Implementation, Validation, Psychometric evaluation, Psychometric properties, Confirmatory factor analysis (CFA), Bifactor model

Background

Health practitioner's attitudes and values play an important role in implementing evidence-based practice (EBP) in community care settings [1]. Positive attitudes along with subjective norms and a person's self-efficacy may influence the practitioner's decision whether or not to implement a new practice [2, 3]. According to Rogers, the innovation-decision process starts with knowledge and persuasion when the provider [practitioner] forms a favorable or unfavorable attitude toward the innovation [4]. Both general and specific constructs play an important role in understanding and predicting behavior. General predictor variables are suggested as the best to predict general outcomes and specific predictor variables the best to predict specific outcomes [5, 6]. Assessing both specific and general attitudes towards EBP may help in the tailoring and evaluation of an implementation program [7].

Psychometrically sound and theory-based measurements, including those measuring attitude towards EBP, are essential for the field of implementation science [8, 9]. A good scale consists of a heterogeneous set of items that capture the entire breadth of a given construct while providing acceptable reliability. A scale's dimensionality can have important consequences for scale scoring and interpretation [6]. Although only valid and reliable measures can confidently and consistently measure what they are intended to measure, psychometric information is absent in about half of all articles using various scales as part of innovation implementation programs in healthcare settings [8, 10]. Other problems are the lack of short and pragmatic instruments and instruments with a broad application used across studies [11].

The Evidence-Based Attitude Practice Scale (EBPAS) is an instrument of high overall psychometric quality [12]. The EBPAS was developed by Aarons on the basis of a comprehensive literature review and consultation with mental health service providers and researchers. Fifteen items generate a total score and subscale scores covering four important domains of attitudes toward EBP: the intuitive *Appeal* of EBP to the provider; response to organizational *Requirements*; *Openness* to new/manualized interventions; and perceived *Divergence* [1, 13, 14]. Subscale scores are used to obtain information about the specific domains of attitude toward EBP and the total score (where the Divergence items are reversed) is used to estimate a common dimension of global attitude to EBP. Previous studies have suggested good internal consistency for the total scale and the subscale scores except for the Divergence subscale [1, 13, 14].

The convergent validity has been examined by correlation with theoretically related constructs, supporting the total scale and to some extent the subscales [15–18]. Consistent with expectation, EBPAS total and subscales scores positively correlate with provider education levels, leadership quality and attitudes towards change, and the implementation climate [14, 19–22]. In respect of concurrent validity, attitudes toward EBP, measured by the EBPAS, are expected to have a relationship to service delivery [22]. Previous studies find that scores on the Openness subscale are positively correlated with self-reported use of manuals and cognitive-behavioral therapy [23, 24], while higher scores on the Divergence subscale are associated with the use of non-evidence-based therapy strategies [24]. However, no such associations were found between usage and scores on the Appeal and Requirements subscales; and correlations between practice indicators and the EBPAS total score were not tested [23, 24]. In further support of the concurrent validity of the EBPAS, one study found that psychotherapists who scored higher on the Openness scale prior to training in EBP reported more fidelity consistent modifications at follow-up and those who scored higher on the Appeal subscale reported more fidelity inconsistent modifications [25]. Subsequent studies have also found that higher Requirement scores, but not scores on the other subscales, are associated with non-adherence, non-skillful usage, and non-usage of EBP techniques after training [26, 27]. Staff turnover is a major problem in mental health settings and may jeopardize implementation and sustainment of EBP [28]. Higher scores on the Openness subscale predicted greater workplace retention [28]. Practitioners who scored higher on the Divergence subscale had a higher likelihood of EBP discontinuation, another threat to EBP sustainment [29]. The latter study used only the Divergence and Openness subscales and

no association between Openness subscale scores and EBP discontinuation was found.

The construct validity of the EBPAS has been investigated in several studies using Confirmatory factor analysis (CFA) [1, 13, 14] (Additional file 1). The fit of first-order models support the placement of the EBPAS items in four separate subscales, with moderate to strong factor loadings for all subscales except Divergence [1, 13, 14]. The factor loadings have generally been moderate to strong with the weakest loadings for the Divergence scale. Correlations between the factors have generally been moderate, suggesting that they in part measure the same overall construct, but also here, the Divergence scale has shown weak correlations with some of the other scales [1, 13]. To remedy the lack of support for the Divergence scale, a more complicated five-factor model has been tested wherein the Divergence subscale is split in to two factors [30], but subsequent research did not support this model [31]. The hypothesis of a general attitude factor using all 15 items (i.e. a total score) from the EBPAS has been supported by acceptable model fit for a second-order model [14]. The first-factor loadings were strong and loadings on the general factor moderate to strong. Again the Divergence scale has been least supported. Items from this subscale had inconsistent loadings on the Divergence factor itself and the Divergence factor had a weak loading on the general factor [14]. Results from one bifactor model study provided preliminary support for the hypothesis that the variance in the individual EBPAS items can be attributed to a general factor and uniquely to the four domain-based factors (Appeal, Requirements, Openness, Divergence) [32] (Additional File 1). In that study, the bi-factor model had a slightly better fit compared to the second-order model with significant first-factor loadings in the moderate to strong range (with an exception for the Appeal subscale). Factor loadings or the general attitudes (total) scale were moderate except for items from the Divergence subscale, which were weak or non-significant.

In sum, the available research provides preliminary support for the proposed factor structure (four subscales and a total scale) for the EBPAS, but several issues remain. The model has been revised such that two items in the Appeal subscale were allowed to correlate, reflecting the possibility that these two items have more in common than can be accounted for by the subscale itself (e.g. they may suggest an additional specific factor) [13, 14]. Furthermore, across studies, there are clear difficulties with the factor loadings for the Divergence subscale [1, 13, 14, 30, 32].

The EBPAS has been translated into different languages and cross-validated in various settings, however a Swedish version has not yet been validated [30–36]. The present study aimed to help fill this gap in the literature. Studies assessing the factorial validity of translated scales are important because they provide further evidence of the cross-cultural validity of the constructs assessed by that scale. New problems can be the results of a translation and it is important to show that the translation does not result in weaker support for the scale's validity.

To summarize, the EBPAS, or parts of it, is widely used in implementation research. Previous studies give some support for its construct validity especially the general factor. There is less support for the EBPAS as a multidimensional scale with four subscales contributing uniquely to the general attitude construct. In other words, is it meaningful to include all of the sub-factors in the EBPAS general factor? Is it wise to add items/subscales together into a total scale or use the subscales independently as indicators of specific attitude towards EBP or predictors for other implementation outcomes?

The present study aimed to address these gaps in the literature. The construct validity of a Swedish version of the EBPAS was examined in a large and representative sample of practitioners working in child mental health settings across Sweden thus following previous studies by the scale developer [1, 13, 14]. In addition we conducted a confirmatory bifactor analysis to evaluate the plausibility of scoring and using the subscales [32]. Specifically, this study aimed to investigate: 1) the reliability of a Swedish translation of the EBPAS; 2) its factorial structure relative to previous (first-, second-order and bifactor models) tested in English and non-English version of this scale and 3) whether sub-factors are uniquely supported in the Swedish version of the inventory, in other words, whether the subscale domains are supported when the general attitude domain has been accounted for?

Methods

Design and setting

Data from the current cross-sectional study were obtained as part of a large prospective, multi-center implementation study of evidence-based interventions for depressed youth. All publicly (state) funded child and adolescent mental health services (CAMHS) in Sweden were invited to participate in the Swedish Association of Child and Adolescent Psychiatry "Deplyftet" implementation program for youth depression. Individual Swedish CAMHS serves about 64,000 children annually (range = 29,000- 450,000) children. The current study uses a subsample of data drawn from providers working at 11 of 31 eligible CAMHS who collectively serve about 712,000 youth (36% of all Swedish children). The individual CAMHS from which the current data are drawn represent all types of publicly owned and funded CAMHS, serving

similar-sized catchment areas as the remaining CAMHS (i.e., average = 65,000 youth, range = 41,000- 125,000).

Procedure

The validation of the Swedish version of the EBPAS was conducted in two stages. First, the EBPAS was translated from English into Swedish by an expert group of mental health professionals following recommendations for the translation of measures (see below) [36]. Second, the EBPAS was administered to 925 professionals working in Swedish CAMHS via a web-based survey. Data were collected as a baseline assessment from October 2014 to February 2017 with 2–5 reminders sent (if necessary) and the resulting data used to examine the psychometric properties of the EBPAS.

Measure

The web-based survey included questions about the respondent's age, gender, and professional background, followed by the EBPAS.

The EBPAS

The EBPAS consists of 15 items rated on a Likert scale (0 = *not at all* to 4 = *to a very great extent)* and is comprised of four subscales: 1) *Appeal* (four items) measures the intuitive appeal of the EBPs; 2) *Requirements* (three items) measures the extent to which the provider would adopt a new practice if it were required; 3) *Openness* (four items) measures the extent to which the provider is generally willing to try new interventions; and 4) *Divergence* (four items) measures the extent to which the provider perceives research based treatments as not clinically useful and/or less important than their own clinical experience [1]. Requirement differs from Openness in that the former assesses how employees respond to organizational rules and regulations, while the latter measures the extent to which the provider is generally willing to try new interventions. Previous studies report Cronbach alphas ranging from .76 to .91, except for the Divergence scale (.59 -to .66) [1, 13, 14].

Cross cultural adaptation and translation

Permission to translate the EBPAS was obtained from the scale's developer [1]. Item 13 (Requirement subscale) was adapted for the Swedish context while preserving the integrity of the original item. The word "State" in item 13 was replaced with "National Board of Health and Welfare." All other items were simple translations of the original. A step-wise forward-backward translation approach was utilized [37]. The EBPAS was translated (separately) into Swedish by the first and last authors (AS, HJ), who are native Swedish speakers and fluent in English. The two translations were compared, discrepancies identified, and any discrepancies or deviations from the original item were resolved and a final Swedish version produced. This Swedish version was then back-translated into English by a professional translator. The first two authors compared the back-translated version to the English language original and the final Swedish version. No further changes were necessary. The final back-translated version was reviewed and approved by the scale developer.

Psychometric testing

A series of CFAs were conducted to test the factor structure as the EBPAS has been thoroughly examined in previous studies using both exploratory and confirmatory methods [13, 14]. We tested three models, all specified a priori, using the entire sample for each model: 1) a four factor model based on the suggested subscales of the inventory; 2) a higher- order model, with one General Attitudes factor on the level above the four subscales; and 3) a bifactor model measuring a General Attitudes factor defined to be unrelated to the sub-factors (this model was used to test for unique variance of the four scales to the general attitudes to EBP construct). The problem with first-order models is that they do not explicitly support the general factor, e.g. a sum score of all included scales [6]. In second-order models, each item loads on their specific factors, and all sub-factors load on a higher-order construct that accounts for the commonality between sub-factors. Bifactor models are an alternative to the second-order models with the advantage that it is possible to test for unique contribution of the sub-factors. In bifactor models individual items load on both a general factor and a specific factor. In other words, bifactor models test whether there is support for a specific factor after accounting for the general factor [38, 39].

Participants

A total of 570 (62%) of the 925 outpatient practitioners working in the 11 CAMHS responded to the online survey. Of these, five were excluded; three because of missing data for all items, one because all responses were the same, and one for being a multivariate outlier (Mahalanobis distance with $p < 0.001$), leaving 565 participants for analysis. Two univariate outliers (extremely high z scores > 3.0) were replaced with the same value as their closest neighbors [40]. The typical participant was female (84%), 35–45 years old (28%) and a psychologist (38%).

Statistical analyses

Descriptive statistics, item-total correlation and internal consistency reliability (Cronbach α) were analyzed using SPSS (Version 24) [41]. CFA models were estimated using MPLUS 8 [42]. The weighted least squares -robust

mean and variance adjusted (WLSMV) estimator was used since the items were ordinal (Likert scale). Cases with missing data were included in the CFA because the WSLW estimator permits their inclusion. Several different model fit indices were used:; chi-squared index (χ^2), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standard root mean square residual (SRMR). As an alternative estimation we tested the models with robust maximum likelihood (MLR), using this estimation the RMSEA revealed much better fit. RMSEA has been shown to be problematic together with WLSMV estimation [43]. For categorical models Yu has recommended .95 for CFI, .05 for RMSEA and for SRMR a good model should have lower than .08 [44]. …. In addition, we evaluated the explained common variance (ECV) for the bifactor model to evaluate the importance of the General Attitudes factor in comparison to the four subscale -factors [6]. We also estimated the variance for the EPBAS scales that could be attributed to the services using the intra class coefficient (ICC). All the ICC was found to be low, the highest was .021 for the Requirement subscale, and the ICC for the total scale was .020. A sample of 300 is sufficient for conducting CFAs [40].

Results

Descriptive item analysis

Table 1 presents the descriptive statistics for the individual items, subscales and total scale. Mean values were high for most of the positively phrased EBPAS items and generally lower for negatively worded items. Skewness was generally negative (J-shaped) for positively phrased items, but above 1.0 only for one item. Three items had a kurtosis value > 1. Item 15 (enough training) was extremely kurtotic (2.6) with a positive skew > 1.0. This item also had a very obvious ceiling effect with 54% of the ratings in the highest response category.

Reliability

Internal consistency was .81 for the total scale and ranged from α = .60 to .88 for the subscales (Table 1). Item-total correlations ranged from .30 to .58 for the total scale and from .27 to .88 for the subscales. No improvements in Cronbach's alphas occurred with removal of individual items.

Construct validity

The model fit indices are presented in Table 2, the factor inter-correlations in Table 3 and the factor loadings in Table 4. For the second-order and bifactor models, the

Table 1 EBPAS subscale and item means, standard deviations, Cronbach's alpha and item-total correlation

EBPAS subscales and Total				Total scale	Sub-scale
	M	*SD*	*α*	*r*	*r*
Requirements	2.70	0.82	.88		
12.Agency required	2.61	0.92		.49	.88
11.Supervisor required	2.51	0.97		.44	.81
13.State required	2.98	0.84		.48	.63
Appeal	3.24	0.52	.74		
10.Make sense	3.24	0.66		.43	.61
9.Intuitively appealing	3.15	0.75		.44	.58
14.Colleagues happy with therapy	3.11	0.72		.43	.46
15.Enough training	3.47	0.66		.53	.48
Openness	2.88	0.58	.76		
2.Will follow a treatment manual	2.98	0.78		.58	.68
4.Therapy developed by researchers	3.08	0.72		.55	.59
1.Like new therapy types	2.90	0.72		.31	.52
8.Therapy different than usual	2.58	0.80		.39	.47
Divergence	1.20	0.59	.60		
5.Research-based treatments not useful	0.92	0.92		.30	.42
7.Would not use manualized therapy	0.67	0.88		.53	.36
6.Clinical experience more important	1.90	0.84		.34	.42
3.Know better than researchers	0.28	0.93		.35	.27
EBPAS total	2.92	0.42	.81		

N = 565. Total, subscales and item means scores range from 0 to 4. *α* Cronbach alpha, *r* Corrected item total

Table 2 EBPAS domain correlations

	Requirement	Appeal	Openness	Divergence
Requirement				
Appeal	.545			
Openness	.251	.612		
Divergence	−.217	−.398	−.612	

Numbers are Pearson's correlation coefficient. All correlations are significant

factor loadings are also presented in Figs. 1 and 2, respectively.

First-order models

We tested the four-factor model first and found adequate fit (see Model 1a, Table 2); with the CFI and SRMR suggesting that most of the covariance was represented in this model. To further improve model fit, we fixed items 11 ("Supervisor required") and 12 ("Agency required") in the indicators of the Requirements factor to 1. The strongest correlation ($r = .65$) was between items #9 ("Intuitively appealing") and #10 ("Making sense") from the Appeal subscale, and adding this error correlation increased fit significantly (see Model 1b, Table 2). Factor inter-correlations were in the moderate range (.44). Generally loadings were high (above .5); with the exception of Divergence's loading on item #3 ("Know better than researcher") (.38) (see Tables 3 and 4).

Second-order models

A second-order model with a general factor above the four factors was tested next (see Table 2 and Fig. 1), both without (model 2a) and with the correlated items in the Appeal subscale (Model 2b). Model 2b had two more degrees of freedom than Model 1b and is therefore more parsimonious (Table 2). The CFI and SRMR suggested a good fit for Model 2b, even if the fit for this model was not as good as for Model 1b. The standardized factor loadings for the subscales were similar to the factor loadings in first order model (see Table 4). The average loading on the General Attitudes factor was also strong (.68) ranging from .48 to .86 (see Table 4 and Fig. 1).

Overall, the modification indices were difficult to interpret. For example, they suggested additional correlation between Requirements and Appeal, but also between Openness and Divergence. Adding one of these correlations increased the model fit to a level comparable to Model 1b. However, as this was not an expected correlation, we refrained from adding it to the final model.

Table 3 Model fit information for five alternative models of the EBPAS ($N = 565$)

Model	χ^2	Df	*p*	CFI	RMSEA	SRMR
First-order (1a)	555.1	85	<.001	.973	.099	0.061
First-order (1b)	399.0	84	<.001	.982	.081	0.053
Second-order (2a)	687.5	87	<.001	.965	.110	0.072
Second-order (2b)	558.5	86	<.001	.973	.098	0.066
Bifactor (3)	450.5	75	<.001	.978	.094	0.058

χ^2 = Chi-square index, *Df* Degrees of freedom, *CFI* Comparative fit index, *RMSEA* Root mean square error of approximation and *SRMR* Standardized root mean square residual

Item 11 ("Supervisor required") and 12 ("Agency required") in the indicators of the Requirements is fixed to 1. a = without covariance, b = with an added correlation (item 9 and 10), 3 = Bifactor model with error correlation (item 9 and 10)

Bifactor model

The bifactor model converged when the error correlation between item 9 and 10 was added and an additional item (12), from the Requirements factor was fixed to 1 (Model 3, Table 2). The item loadings on the General attitude and four subscales were significant ($p < 0.001$) and generally moderate (~.5): ranging from .24- to .72 for the General Attitudes scale; and from .18 to .87 for the subscales (see Table 4 and Fig. 2).

The explained common variance (ECV) for the General Attitudes factor was .46. The ECV for the subfactors were: Requirement = .22; Appeal = .07; Openness = .13; and Divergence = .11. These ECVs suggest that a substantial proportion of the overall variance in the model was explained by the General Attitudes factor and the four sub-scale factors [45].

Discussion

The present study aimed to evaluate the psychometric properties of a Swedish translation of the Evidence-Based Practice Attitude Scale (EBPAS). Overall, the Swedish version showed acceptable levels of internal consistency for the scale overall (General Attitudes) and three of the four subscales. The factor structure of the Swedish version of the EBPAS closely mimicked the structure shown for the English language original, thereby suggesting that the translation from English to Swedish did not alter how the items were interpreted and rated by the participants. The present findings provides additional support for the validity of the EBPAS in in a child and adolescent mental health contexts broadly and specifically in a Swedish context. Confirmatory factor analysis in this large and representative sample, utilizing first-order, second-order and bifactor models, provided preliminary for the proposed structure of a higher-order factor and at least three of the four domain-specific factors. The rather strong general factor supports the use of the EBPAS as a single measure of attitudes toward evidence-based practice. Most items contributed to this general factor as well as to their domain-specific factor. However, the Divergence subscale

Table 4 Standardized factor loadings from model results

EBPAS subdomains and items	Model			
	First-order (1b)	Second-order (2b)	Bifactor model (3)	
			Subdomain	General
Requirements		**0.48**		
12.Agency required	0.96	0.96	**0.87**	0.45
11.Supervisor required	0.96	0.96	**0.87**	0.37
13.State required	0.78	0.78	**0.60**	0.49
Appeal		**0.86**		
10.Make sense	0.64[a]	0.64[a]	0.31[b]	**0.55[b]**
9.Intuitively appealing	0.62[a]	0.63[a]	0.18[b]	**0.57[b]**
14.Colleagues happy	0.70	0.69	**0.57**	**0.55**
15.Enough training	0.84	0.84	0.38	**0.72**
Openness		**0.74**		
2.Will follow a manual	0.91	0.92	0.63	**0.67**
1.Like new therapy types	0.63	0.62	0.40	**0.68**
4.Research-based ok	0.82	0.82	**0.68**	0.34
8.Different from usual	0.61	0.61	0.34	0.48
Divergence		**−0.65**		
5.Research-based not useful	0.59	0.59	**0.57**	−0.36
7.Would not use manualized	0.83	0.84	0.40	**−0.57**
6.Clinical experience important	0.51	0.49	**0.54**	−0.36
3.Know better than researchers	0.38	0.39	0.35	− 0.24

N = 565 for all models tested. Item 11 ("Supervisor required") and 12 ("Agency required") in the indicators of the Requirements is fixed to 1. All models have an added correlation between item 9 and 10

For model 2b the loadings to the general factors are on the rows of the factor labels. For model 3, to highlight the items providing the best discrimination on the general factor, items loading greater than .50 on the general factor are in boldface type. Items with larger loadings on group factor than general factor are also in bold face type. [a]residual covariance = 0.65, $p < .001$. [b]residual covariance =0.68 $p < .001$. All factor loadings were statistically significant $p < .001$

revealed a somewhat weaker correlation to the General Attitudes factor.

With respect to reliability, the Swedish version was on par with the English original, with good internal consistency for the total scale and subscales with the exception of Divergence [1, 13, 14]. One of the obvious problems with the Divergence scale is its low homogeneity and the implications for its use. Correlations between a scale with low reliability and some objective criterion (or outcome variable) will be attenuated and the statistical power will be decreased [46]. Another problem is that the items of the Divergence subscale are phrased in an opposite direction to the items of the other subscales and items #5 ("Researcher-based not useful") and # 7 ("Won't use manuals") are negatively phrased. It has been suggested that self-rating scales should include items that are phrased in a positive and a negative way, but this may be difficult with the EPBAS. It is well-known that such differences in phrasing are associated with lower correlations between items and subscales [47]. It is important to note that the Requirement scale has consistently demonstrated strong internal consistency but consists of only three items with similar phrasing, differing by a single word [1, 14]. Similarities in item wording can impact participant responses, subsequent factor structure and may inflate a scale's reliability. Overall the EBPAS is a reliable scale and there are obvious benefits of briefer scales when carrying out research with already over-burdened health professionals. Nevertheless, we suggest that additional items be added to all of the subscales to improve the reliability.

With respect to the factor structure, the factor loadings from the first-order model were highly similar to those found for the English language original, providing support for the validity for this Swedish version and for the four-factor model and subscale scoring more broadly [1, 13]. The Requirements subscale had the strongest loadings, followed by Openness, Appeal and Divergence.

The factor loadings in the second-order model were also similar to the English language original but loadings on the General Attitudes factor were somewhat stronger, especially for the Divergence scale [14]. Item #3 ("Know better than researchers") had the lowest loading in this Swedish and the English language original.

One of the problems with hierarchical models is that even if they are supported they do not address whether

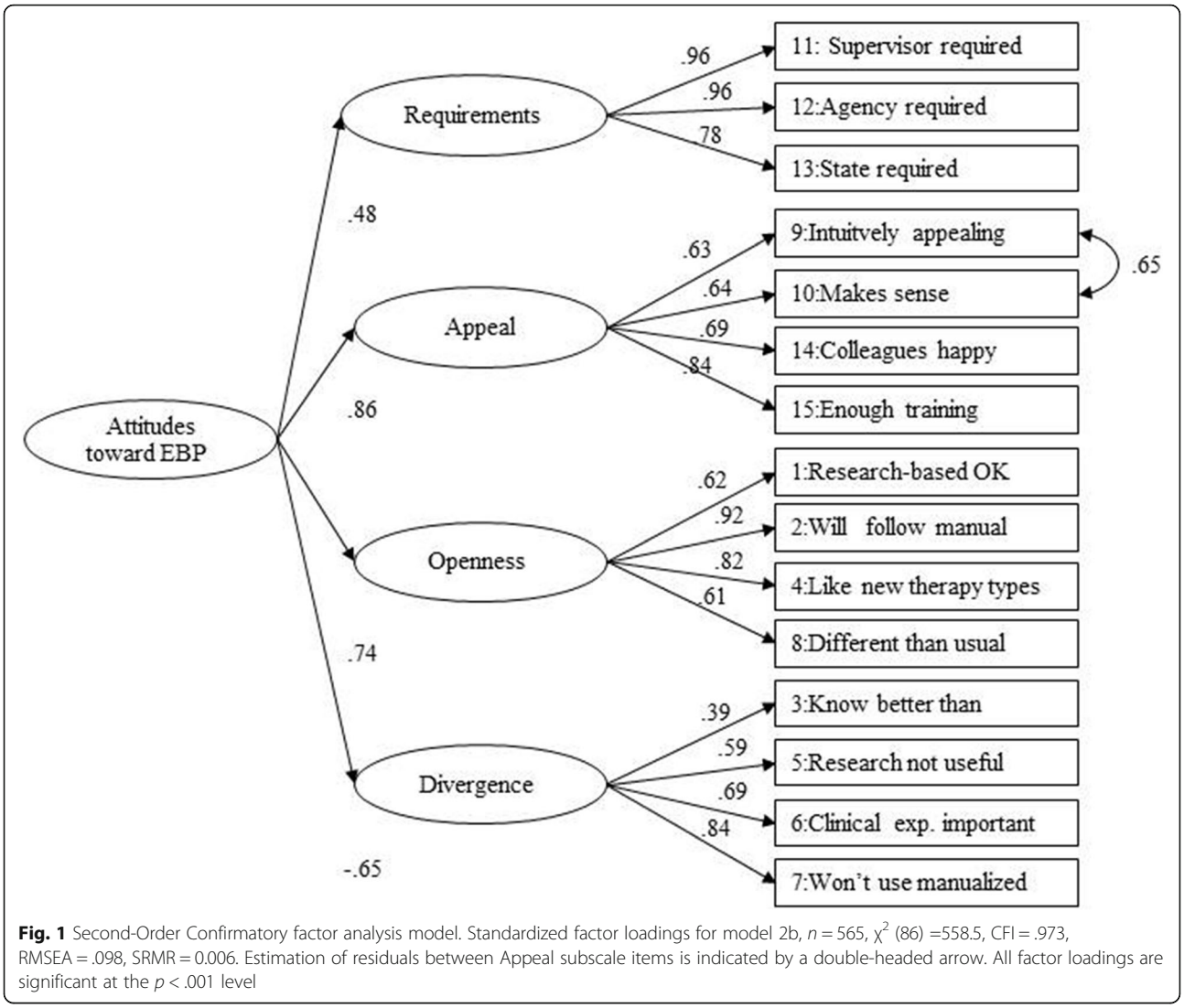

Fig. 1 Second-Order Confirmatory factor analysis model. Standardized factor loadings for model 2b, $n = 565$, χ^2 (86) =558.5, CFI = .973, RMSEA = .098, SRMR = 0.006. Estimation of residuals between Appeal subscale items is indicated by a double-headed arrow. All factor loadings are significant at the $p < .001$ level

there is unique systematic variance in the subscales [38]. Bifactor models allow a direct exploration of the extent to which subscales reflect a common target domain and the extent to which they reflect a primary subdomain. Comparing the bifactor models of the Dutch and Swedish versions of the EBPAS reveal similar loadings, but also some notable differences [32]. In line with the Dutch bifactor CFA model, the Requirements, Openness and Divergence subscales where clearly supported, but not the Appeal subscale [14]. In contrast to the Dutch study, all EBPAS items contributed to the General Attitudes factor and the unique information in the Divergence subscale was better supported. This is the first study investigating the factor structure of the EBPAS to find support for the General Attitudes factor based on a bifactor model of the scale.

Aarons has suggested that the EBPAS can be used prior to implementation efforts that aim to target specific organizational and leadership activities to enhance buy-in, subsequent uptake and sustainment of an EBP program [14]. Our findings clearly support the use of the EBPAS total score for assessing general attitudes toward EBP and the presence of multidimensionality does not handicap the ability to interpret the EBPAS as one scale. The total score includes more items than each of the four domain-specific subscales and therefore provides a larger breadth in terms of content validity and increased reliability. Previous studies find stronger evidence of convergent validity for the EBPAS total score than for the subscales but somewhat weaker evidence in relation to the total score's predictive validity [15–18]. It is important to point out that in any study, a *drawback of a using a total score is that you lose information about the relation between the individual facets measured by the scale and a criterion variable* [46]. In addition, if only some of the facets predict an expected outcome,

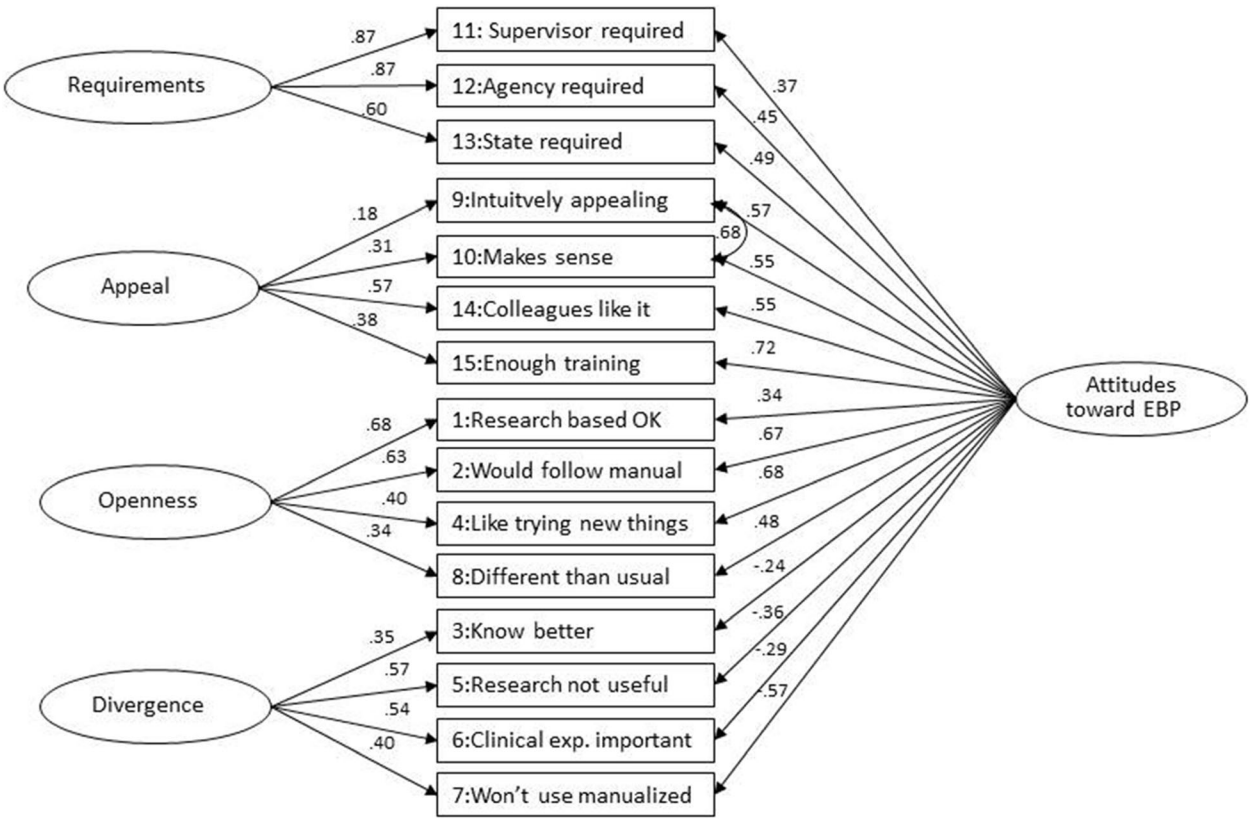

Fig. 2 Bifactor Model Standardized factor loadings for model 3, n = 565, χ^2 (75) =450.5, CFI = .978, RMSEA = .094, SRMR = 0.058. Estimation of residuals between Appeal subscale items is indicated by a double-headed arrow. All factor loadings are significant at the $p < .001$ level

the total scale will result in weaker predictions than the subscale themselves. If the different facets are related to an implementation outcome in an opposite direction, it can also result in a misleading null-finding. Our results suggest that the Requirement, Openness, but possibly not the Appeal and Divergence subscales can be scored and used as indicators of specific facets of attitudes towards EBP when a more precise and specific analysis is needed. However, implementation project planners and researcher should be aware that a strong relationship between the subscales and any implementation outcome may be due to the common variance (i.e., general attitude) measured by the subscale and not its unique contribution to the implementation outcome. More importantly, until unique contribution is better supported by adding items to increase the reliability of the EBPAS subscales, we cannot recommend that the subscales be used as predictors of implementation outcomes independently of the total scale.

Additional studies are needed that examine the factor structure of the Swedish version of the EBPAS in different healthcare contexts (e.g., with adult mental health professionals or healthcare professionals more broadly). Likewise further studies are needed that examine the relationship between the EBPAS (subscales and total scale) and different outcome variables, including the EBPAS' ability to predict the adoption, fidelity to and sustainment of EBP in a Swedish context.

Nevertheless, the present results should be taken into consideration in any future revisions of the EBPAS. The original (English language) EBPAS has previously been modified, retaining the 15 original items and subscales and adding 35 items covering eight new domains of attitudes towards EBP [47]. This 50-item version has been shortened to 36 items; keeping the 12 domain-specific subscales but with one item removed from each of the four-item subscales, including Items #9 (Appeal),#8 (Openness), and #3 (Divergence) [48]. The subscales in these revised versions have received preliminary support but use of the total score as a single scale requires further validation [47–49]. Based on the results from the present and previous research with the 15-item EBPAS, we suggest a somewhat different approach to further revision, namely the development and evaluation of the briefer version: replacing the problematic Item #3 from the Divergence scale, rewording items in the Requirement subscales to make them less similar, replacing items from the Appeal subscale that are too similar, and

adding a few items to the four original domain-specific subscales to increase their reliability. In this way it may be possible to retain a relatively brief scale that is valid and reliable, and practical for use in routine care settings where clinicians often complain of being overburdened with forms to complete.

An issue of relevance to the further development of measures of EBP broadly, and the EBPAS specifically, concerns the content validity of the individual items. Conceptions of EBP have developed over time in the literature and so it is likely that what practitioners understand as the "behavioral" components of EBP, as well as attitudes, is likely to change over time and vary between different healthcare contexts. In their effort to develop a theory- and data-driven -focused approach to item development for a measure of EBP that could be used in an implementation context, Burgess et al. suggested that inclusion of items that measure the importance of clinical experience over EBPs, clinician openness to change and problems with EBPs would increase the pragmatic utility of future measures [15].

Findings from the present study should be viewed within the context of certain methodological strengths and limitations. The sample represents front-line practitioners from a geographically diverse area covering more than a third of Sweden's child and adolescent mental health services and representing more than half of the Swedish regions (counties). The sample's characteristics were similar to available national data describing the child mental health service workforce and sufficiently robust in size for the purposes of estimating internal reliability and carrying out confirmatory factor analyses [50]. We were unable to obtain data from non-respondents to the survey and that would have allowed us to examine potential bias. Also, the likelihood that non-responders should have influenced the correlation between the items, investigated here, is less likely; than it should have influenced the mean levels.

The data originated from 11 different services, but the difference between them were rather small and could not have had any decisive influence on the estimations. Finally, there was insufficient sample size to permit creation of meaningful subgroups of participants to allow testing for invariance between groups. Invariance tests should be conducted in future validation studies of the Swedish EPBAS.

Conclusions

The present study provides support for the reliability and construct validity of the Swedish version of the EBPAS. The internal consistency coefficients for the subscales and scale overall, and the observed factor structures of the Swedish version were comparable to those reported for the English language original and other language translations. The EBPAS total score can be used as a measure of global attitudes toward EBP in implementation project planning and research, but the subscales should only be used in conjunction with the total score. Further revision of the EBPAS is warranted in order to improve the reliability and validity of the subscales.

Supplementary information

Supplementary information accompanies this paper at https://doi.org/10.1186/s12874-020-01126-4.

Additional file 1. Results of Prior Confirmatory Factor Analyses. Aaron's previous factor analytic results and van Sonsbeek bifactor model result (sample size, model fit and factor loadings)

Abbreviations

EBP: Evidence-based practice; EBPAS: Evidence-based practice attitude scale; CAMHS: Child and adolescent mental health services; CFA: Confirmatory factor analysis; WLSMV: Weighted least squares -robust mean and variance adjusted; RMSEA: Root mean square error of approximation; CFI: Comparative fit index; TLI: Tucker-lewis index; SRMR: Standardized root mean square residual; WRMR: Weighted root mean square residual

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Authors' contributions

HJ is the principal investigator, responsible for the design of the overall project, including this validation study of the Swedish version of the EBPAS. AS and MB conceptualized the specific research questions and the analytic approach for this manuscript. AS, HJ, RH and SP were responsible for the translation of the EBPAS into Swedish. Analysis were conducted by AS and MB. AS wrote the first draft of the manuscript; all authors (AS, HJ, RH, SP and MB) edited and revised the manuscript and provided critical commentary. All authors (AS, MB, RH, SP and HJ) approved the final manuscript.

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Availability of data and materials

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

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 was approved by the Regional Ethical Review Board in Umeå, dep for 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 used to be a part of the faculty of medicine of the regional University until 2004. Between 2004 and 2019 the Regional ethical boards were independent authorities. From 1 January 2019, applications for ethical examination of research are scrutinized 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 that they have no competing interests.

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References

1. Aarons GA. Mental health provider attitudes toward adoption of evidence-based practice: the evidence-based practice attitude scale (EBPAS). Ment Health Serv Res. 2004;6(2):61–74.
2. Ajzen I. The theory of planned behavior. Organ Behav Hum Decis Process. 1991;50(2):179–211.
3. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. Psychol Rev. 1977;84(2):191–215.
4. Rogers E. Diffusion of innovation. New York: Free Press; 1995.
5. Swann WB Jr, Chang-Schneider C, Larsen McClarty K. Do people's self-views matter? Self-concept and self-esteem in everyday life. Am Psychol. 2007; 62(2):84.
6. Reise SP, Bonifay WE, Haviland MG. Scoring and modeling psychological measures in the presence of multidimensionality. J Pers Assess. 2013;95(2): 129–40.
7. Aarons GA, Glisson C, Hoagwood K, Kelleher K, Landsverk J, Cafri G. Psychometric properties and U.S. National norms of the Evidence-Based Practice Attitude Scale (EBPAS). Psychol Assess. 2010;22(2):356–65.
8. Chaudoir SR, Dugan AG, Barr CHI. Measuring factors affecting implementation of health innovations: a systematic review of structural, organizational, provider, patient, and innovation level measures. Implementation Sci. 2013;8:22.
9. Rabin BA, Lewis CC, Norton WE, Neta G, Chambers D, Tobin JN, Brownson RC, Glasgow RE. Measurement resources for dissemination and implementation research in health. Implement Sci. 2016;11:42.
10. Lewis CC, Fischer S, Weiner BJ, Stanick C, Kim M, Martinez RG. Outcomes for implementation science: an enhanced systematic review of instruments using evidence-based rating criteria. Implement Sci. 2015;10(1):155.
11. Martinez RG, Lewis CC, Weiner BJ. Instrumentation issues in implementation science. Implement Sci. 2014;9(1):118.
12. Lewis CC, Stanick CF, Martinez RG, Weiner BJ, Kim M, Barwick M, Comtois KA. The Society for Implementation Research Collaboration Instrument Review Project: a methodology to promote rigorous evaluation. Implement Sci. 2015;10:2.
13. Aarons GA, McDonald EJ, Sheehan AK, Walrath-Greene CM. Confirmatory factor analysis of the evidence-based practice attitude scale in a geographically diverse sample of community mental health providers. Admin Pol Ment Health. 2007;34(5):465–9.
14. Aarons GA, Glisson C, Hoagwood K, Kelleher K, Landsverk J, Cafri G. Psychometric properties and U.S. national norms of the evidence-based practice attitude scale (EBPAS). Psychol Assess. 2010;22(2):356–65.
15. Burgess AM, Okamura KH, Izmirian SC, Higa-McMillan CK, Shimabukuro S, Nakamura BJ. Therapist attitudes towards evidence-based practice: a joint factor analysis. J Behav Health Serv Res. 2017;44(3):414–27.
16. Nakamura BJ, Higa-McMillan CK, Okamura KH, Shimabukuro S. Knowledge of and attitudes towards evidence-based practices in community child mental health practitioners. Adm Policy Ment Health Ment Health Serv Res. 2011;38(4):287–300.
17. Mah AC, Hill KA, Cicero DC, Nakamura BJ. A Psychometric Evaluation of the Intention Scale for Providers-Direct Items. J Behav Health Serv Res. 2020; 47(2):245–63.
18. Ashcraft RG, Foster SL, Lowery AE, Henggeler SW, Chapman JE, Rowland MD. Measuring practitioner attitudes toward evidence-based treatments: a validation study. J Child Adolesc Subst Abuse. 2011;20(2):166–83.
19. Aarons GA, Glisson C, Green PD, Hoagwood K, Kelleher KJ, Landsverk JA, Weisz JR, Chorpita B, Gibbons R, Glisson C, et al. The organizational social context of mental health services and clinician attitudes toward evidence-based practice: a United States national study. Implement Sci. 2012;7:56.
20. Powell BJ, Mandell DS, Hadley TR, Rubin RM, Evans AC, Hurford MO, Beidas RS. Are general and strategic measures of organizational context and leadership associated with knowledge and attitudes toward evidence-based practices in public behavioral health settings? A cross-sectional observational study. Implement Sci. 2017;12(1):64.
21. Saldana L, Chapman JE, Henggeler SW, Rowland MD. The organizational readiness for change scale in adolescent programs: criterion validity. J Subst Abus Treat. 2007;33(2):159–69.
22. Aarons GA, Green AE, Miller E. Researching Readiness for Implementation of Evidence-Based: A comprehensive review of the evidence-based practice attitude scale (EBPAS). In: PD KB, editor. Handbook of Implementation Science for Psychology in Education. Cambridge and New York: Cambridge University Press; 2012. p. 150.
23. Becker EM, Smith AM, Jensen-Doss A. Who's using treatment manuals? A national survey of practicing therapists. Behav Res Ther. 2013;51(10): 706–10.
24. Beidas R, Skriner L, Adams D, Wolk CB, Stewart RE, Becker-Haimes E, Williams N, Maddox B, Rubin R, Weaver S, et al. The relationship between consumer, clinician, and organizational characteristics and use of evidence-based and non-evidence-based therapy strategies in a public mental health system. Behav Res Ther. 2017;99:1–10.
25. Wiltsey Stirman S, Gutner CA, Crits-Christoph P, Edmunds J, Evans AC, Beidas RS. Relationships between clinician-level attributes and fidelity-consistent and fidelity-inconsistent modifications to an evidence-based psychotherapy. Implement Sci. 2015;10:115.
26. Becker-Haimes EM, Okamura KH, Wolk CB, Rubin R, Evans AC, Beidas RS. Predictors of clinician use of exposure therapy in community mental health settings. J Anxiety Disord. 2017;49:88–94.
27. Beidas RS, Edmunds J, Ditty M, Watkins J, Walsh L, Marcus S, Kendall P. Are inner context factors related to implementation outcomes in cognitive-behavioral therapy for youth anxiety? Admin Pol Ment Health. 2014;41(6): 788–99.
28. Beidas RS, Marcus S, Wolk CB, Powell B, Aarons GA, Evans AC, Hurford MO, Hadley T, Adams DR, Walsh LM, et al. A prospective examination of clinician and supervisor turnover within the context of implementation of evidence-based practices in a publicly-funded mental health system. Admin Pol Ment Health. 2016;43(5):640–9.
29. Lau AS, Lind T, Crawley M, Rodriguez A, Smith A, Brookman-Frazee L. When do therapists stop using evidence-based practices? Findings from a mixed method study on system-driven implementation of multiple EBPs for children. Admin Pol Ment Health. 2020;47(2):323–37.
30. Wolf DAPS, Dulmus CN, Maguin E, Fava N. Refining the evidence-based practice attitude scale: an alternative confirmatory factor analysis. Soc Work Res. 2014;38(1):47–58.
31. Keyser D, Harrington D, Ahn H. A confirmatory factor analysis of the evidence-based practice attitudes scale in child welfare. Child Youth Serv Rev. 2016;69:158–65.
32. van Sonsbeek MA, Hutschemaekers GJ, Veerman JW, Kleinjan M, Aarons GA, Tiemens BG. Psychometric properties of the Dutch version of the evidence-based practice attitude scale (EBPAS). Health Res Policy Syst. 2015;13:69.
33. Melas CD, Zampetakis LA, Dimopoulou A, Moustakis V. Evaluating the properties of the evidence-based practice attitude scale (EBPAS) in health care. Psychol Assess. 2012;24(4):867–76.
34. Cook CR, Davis C, Brown EC, Locke J, Ehrhart MG, Aarons GA, Larson M, Lyon AR. Confirmatory factor analysis of the evidence-based practice attitudes scale with school-based behavioral health consultants. Implement Sci. 2018;13(1):116.
35. Ringle JL, James S, Ross JR, Thompson RW: Measuring youth residential care provider attitudes: a confirmatory factor analysis of the evidence-based practice attitude scale. 2017.
36. Egeland KM, Ruud T, Ogden T, Lindstrom JC, Heiervang KS. Psychometric properties of the Norwegian version of the evidence-based practice attitude scale (EBPAS): to measure implementation readiness. Health Res Policy Syst. 2016;14(1):47.
37. Sousa VD, Rojjanasrirat W. Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. J Eval Clin Pract. 2011;17(2):268–74.
38. Reise SP. The rediscovery of bifactor measurement models. Multivar Behav Res. 2012;47(5):667–96.
39. Chen FF, West SG, Sousa KH. A comparison of bifactor and second-order models of quality of life. Multivar Behav Res. 2006;41(2):189–225.
40. Tabachnick BG, Fidell LS, Ullman JB. Using multivariate statistics, vol. 5: Pearson Boston, MA; 2007.

41. IBM Corp. Released 2016. IBM SPSS statistics for windows VA. NY: IBM Corp; 2016.
42. Muthén LK, Muthén BO. The comprehensive modelling program for applied researchers: user's guide. Mplus User's Guide. Seventh (Ed). Los Angeles: Muthén & Muthén; 1998-2015.
43. Sass DA, Schmitt TA, Marsh HW. Evaluating model fit with ordered categorical data within a measurement invariance framework: a comparison of estimators. Struct Equ Model Multidiscip J. 2014;21(2):167–80.
44. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Struct Equ Model Multidiscip J. 1999;6(1):1–55.
45. Rodriguez A, Reise SP, Haviland MG. Evaluating bifactor models: calculating and interpreting statistical indices. Psychol Methods. 2016;21(2):137.
46. Chen FF, Hayes A, Carver CS, Laurenceau JP, Zhang Z. Modeling general and specific variance in multifaceted constructs: a comparison of the bifactor model to other approaches. J Pers. 2012;80(1):219–51.
47. Hughes FPITBDJ. The Wiley handbook of psychometric testing : a multidisciplinary reference on survey, scale, and test development. First ed. Hoboken, NJ ; Chichester, West Sussex: John Wiley & Sons; 2018.
48. Rye M, Torres EM, Friborg O, Skre I, Aarons GA. The Evidence-based Practice Attitude Scale-36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. Implementation Science. 2017;12(1):44.
49. Rye M, Friborg O, Skre I. Attitudes of mental health providers towards adoption of evidence-based interventions: relationship to workplace, staff roles and social and psychological factors at work. BMC Health Serv Res. 2019;19(1):110.
50. Uppdrag Psykisk Hälsa S. Kartläggning Barn- och ungdomspsykiatrin 2016. In. SALAR Swedish Association of Local Authorities and Regions/ SKL Sveriges kommuner och landsting; 2017. https://www.uppdragpsykiskhalsa.se/assets/uploads/2017/11/Kartla%CC%88ggning-2016-%E2%80%93-Barn-och-ungdomspsykiatri.pdf.

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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 non-academic 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 research-based 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 ≥ 45 years), educational attainment (bachelor's degree and lower vs master's degree and higher), and clinical experience (< 5 years vs ≥ 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 between-group 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

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

Scale	Swedish		USA Norms[1]		*t*	*Df*	Cohen's *d*
	M	*SD*	*M*	*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

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

*** $p < .0001$

[a] Aarons [14]

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

EBPAS scales	Requirements		Appeal		Openness		Divergence		EBPAS total	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*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_a	0.81	3.18_a	0.57	2.83_b	0.59	1.26_b	0.65	2.87_b	0.46

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

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

	Requirements				**Appeal**				**Openness**				**Divergence**				**Total**			
	Simple		**Multiple R^2 = .099**		**Simple**		**Multiple R^2 = .107**		**Simple**		**Multiple R^2 = .115**		**Simple**		**Multiple R^2 = .124**		**Simple**		**Multiple R^2 = .172**	
Characteristic	R^2	β	Sr Unique	β	R^2	β	Sr Unique	β	R^2	β	Sr Unique	β	R^2	β	Sr Unique	β	R^2	β	Sr Unique	β
Gender	.021	.145***	.13	.125***	.022	.147***	.13	.122***	ns	ns		ns	.007	-.081*	**ns**	ns	.024	.155***	**.13**	.117***
Age	ns	ns		ns	.024	-.155***	-.11	-.122**	.04	-.205***	**-.12**	-.128**	.022	.148***	**.11**	.118**	.026	-.161***	**-.10**	-.109**
Educational level	ns	ns		ns	ns	ns	ns	ns	.013	.113**		ns	.025	-.157***	-.12	-.118**	.010	.098**	ns	ns
Experience	ns	ns		ns	.007	-.086*	ns	ns	.024	-.154***	-.11	-.117**	.011	.112**		ns	.017	-.129***	ns	ns
Profession	.024				ns				.013				ns				ns			
Other		.092*	.096	.104**		ns	ns	ns		-.091*		ns		ns		ns		ns	ns	ns
Nurse		.161***	.147	.157***		ns	ns	ns		-.106**		ns		ns		ns		ns	ns	ns
Social worker		ns		ns		ns	ns	ns		-.085*		ns		ns		ns		ns	ns	ns
Psychiatrist		ns		ns		ns	-.11	-.122**		ns		ns		ns		ns		ns	ns	ns
Benefit of diagnosis	.045	.211***	.209	.212***	.038	.195***	.21	.214***	.05	.228***	.22	.220***	.09	-.293***	-.27	-.278***	.108	.329***	.33	.328**
Service	ns	ns		ns	.015	.123***	.10	.098**	.013	.112*	.10	.092*	ns	ns	ns	ns	.01	.102*	.08	.073*
Org. readiness	.015	-.121***	-.11	-.107**	.006	-.074*	ns	ns	ns	ns	ns	ns	.004	ns	.007		**.011**	-.113**	-.09	-.083*

Reference groups for dummy coded variable are as follows: gender = male, age = younger, educational level = low, Experience = short, Service = non-academic clinic Sr = semi partial correlations

*** $p < .001$

** $p < .01$

* $p < .05$

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 certain patient groups, and providing evidence of their feasibility and effectiveness might mitigate this potential barrier for EBP uptake [17, 34, 36, 50].

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) evidence-based 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 over- or 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 evidence-based 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
StaRI	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; all authors (AS, RH, MB, PG, HJ, and SP) edited and revised 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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References

1. Garland AF, Bickman L, Chorpita BF. Change what? Identifying quality improvement targets by investigating usual mental health care. Adm Policy Ment Health. 2010;37(1–2):15–26.
2. Merikangas KR, He JP, Burstein M, Swendsen J, Avenevoli S, Case B, Georgiades K, Heaton L, Swanson S, Olfson M. Service utilization for lifetime mental disorders in U.S. adolescents: results of the National Comorbidity Survey-Adolescent Supplement (NCS-A). J Am Acad Child Adolesc Psychiatry. 2011;50(1):32–45.

3. Peters-Corbett A, Parke S, Bear H, Clarke T. Barriers and facilitators of implementation of evidence-based interventions in children and young people's mental health care - a systematic review. Child Adolesc Ment Health. 2024;29(3):242–65.
4. Chorpita BF, Daleiden EL, Ebesutani C, Young J, Becker KD, Nakamura BJ, Phillips L, Ward A, Lynch R, Trent L. Evidence-based treatments for children and adolescents: an updated review of indicators of efficacy and effectiveness. Clin Psychol Sci Pract. 2011;18(2):154–72.
5. Williams NJ, Beidas RS. Annual Research Review: The state of implementation science in child psychology and psychiatry: a review and suggestions to advance the field. J Child Psychol Psychiatry. 2019;60(4):430–50.
6. Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. BMJ. 1996;312(7023):71–2.
7. Institute of Medicine Committee on Quality of Health Care in A: Crossing the Quality Chasm: A New Health System for the 21st Century. Washington (DC): National Academies Press (US), 2001.
8. American Psychological Association. Policy statement on evidence-based practice in psychology. 2021. https://www.apa.org/practice/guidelines/evidence-based-statement.
9. Spring B. Evidence-based practice in clinical psychology: What it is, why it matters; what you need to know. J Clin Psychol. 2007;63(7):611–31.
10. Harvey AG, Gumport NB. Evidence-based psychological treatments for mental disorders: modifiable barriers to access and possible solutions. Behav Res Ther. 2015;68:1–12.
11. First MB, Rebello TJ, Keeley JW, Bhargava R, Dai Y, Kulygina M, Matsumoto C, Robles R, Stona A-C, Reed GM. Do mental health professionals use diagnostic classifications the way we think they do? A global survey World Psychiatry. 2018;17(2):187–95.
12. Powell BJ, Mandell DS, Hadley TR, Rubin RM, Evans AC, Hurford MO, Beidas RS. Are general and strategic measures of organizational context and leadership associated with knowledge and attitudes toward evidence-based practices in public behavioral health settings? A cross-sectional observational study. Implement Sci. 2017;12(1):64.
13. Aarons GA. Mental health provider attitudes toward adoption of evidence-based practice: the Evidence-Based Practice Attitude Scale (EBPAS). Ment Health Serv Res. 2004;6(2):61–74.
14. Aarons GA, Glisson C, Green PD, Hoagwood K, Kelleher KJ, Landsverk JA, Research Network on Youth Mental H, Weisz JR, Chorpita B, Gibbons R, et al. The organizational social context of mental health services and clinician attitudes toward evidence-based practice: a United States national study. Implement Sci. 2012;7:56.
15. Ajzen I. The theory of planned behavior. Organ Behav Hum Decis Process. 1991;50(2):179–211.
16. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. Psychol Rev. 1977;84(2):191–215.
17. Becker EM, Smith AM, Jensen-Doss A. Who's using treatment manuals? A national survey of practicing therapists. Behav Res Ther. 2013;51(10):706–10.
18. Becker-Haimes EM, Franklin M, Bodie J, Beidas RS. Feasibility and acceptability of a toolkit to facilitate clinician use of exposure therapy for youth. Evid Based Pract Child Adolesc Ment Health. 2017;2(3–4):165–78.
19. Aarons GA, Glisson C, Hoagwood K, Kelleher K, Landsverk J, Cafri G. Psychometric properties and U.S. National norms of the Evidence-Based Practice Attitude Scale (EBPAS). Psychol Assess. 2010;22(2):356–65.
20. Aarons GA, McDonald EJ, Sheehan AK, Walrath-Greene CM. Confirmatory factor analysis of the Evidence-Based Practice Attitude Scale in a geographically diverse sample of community mental health providers. Adm Policy Ment Health. 2007;34(5):465–9.
21. Dorsey CN, Mettert KD, Puspitasari AJ, Damschroder LJ, Lewis CC. A systematic review of measures of implementation players and processes: Summarizing the dearth of psychometric evidence. Implement Res Pract. 2021;2:26334895211002470.
22. Landsverk NG, Olsen NR, Brovold T. Instruments measuring evidence-based practice behavior, attitudes, and self-efficacy among healthcare professionals: a systematic review of measurement properties. Implement Sci. 2023;18(1):42.
23. Egeland KM, Ruud T, Ogden T, Lindstrom JC, Heiervang KS. Psychometric properties of the Norwegian version of the Evidence-Based Practice Attitude Scale (EBPAS): to measure implementation readiness. Health Res Policy Syst. 2016;14(1):47.
24. van Sonsbeek MA, Hutschemaekers GJ, Veerman JW, Kleinjan M, Aarons GA, Tiemens BG. Psychometric properties of the Dutch version of the Evidence-Based Practice Attitude Scale (EBPAS). Health Res Policy Syst. 2015;13:69.
25. Santesson AHE, Bäckström M, Holmberg R, Perrin S, Jarbin H. 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 Med Res Methodol. 2020;20(1):254.
26. Becker-Haimes EM, Okamura KH, Wolk CB, Rubin R, Evans AC, Beidas RS. Predictors of clinician use of exposure therapy in community mental health settings. J Anxiety Disord. 2017;49:88–94.
27. Farahnak LR, Ehrhart MG, Torres EM, Aarons GA. The Influence of Transformational Leadership and Leader Attitudes on Subordinate Attitudes and Implementation Success. Journal of Leadersh Organ Stud. 2020;27(1):98–111.
28. Frazier SL, Bearman SK, Garland AF, Atkins MS: Dissemination and implementation in children's mental health: Closing the research to training gap. In: Dissemination and implementation of evidence-based practices in child and adolescent mental health. edn. New York, NY, US: Oxford University Press; 2014: 98–123.
29. Ashcraft RGP, Foster SL, Lowery AE, Henggeler SW, Chapman JE, Rowland MD. Measuring practitioner attitudes toward evidence-based treatments: a validation study. J Child Adolesc Subst Abuse. 2011;20(2):166–83.
30. Rye M, Friborg O, Skre I. Attitudes of mental health providers towards adoption of evidence-based interventions: relationship to workplace, staff roles and social and psychological factors at work. BMC Health Serv Res. 2019;19(1):110.
31. Melas CD, Zampetakis LA, Dimopoulou A, Moustakis V. Evaluating the properties of the Evidence-Based Practice Attitude Scale (EBPAS) in health care. Psychol Assess. 2012;24(4):867–76.
32. Nilsen P. Making sense of implementation theories, models and frameworks. Implement Sci. 2015;10:53.
33. Izmirian SC, Nakamura BJ. Knowledge, Attitudes, Social Desirability, and Organizational Characteristics in Youth Mental Health Services. J Behav Health Serv Res. 2016;43(4):630–47.
34. Beidas R, Skriner L, Adams D, Wolk CB, Stewart RE, Becker-Haimes E, Williams N, Maddox B, Rubin R, Weaver S, et al. The relationship between consumer, clinician, and organizational characteristics and use of evidence-based and non-evidence-based therapy strategies in a public mental health system. Behav Res Ther. 2017;99:1–10.
35. Becker-Haimes EM, Williams NJ, Okamura KH, Beidas RS. Interactions between clinician and organizational characteristics to predict cognitive-behavioral and psychodynamic therapy use. Adm Policy Ment Health. 2019;46(6):701–12.
36. Beidas RS, Marcus S, Aarons GA, Hoagwood KE, Schoenwald S, Evans AC, Hurford MO, Hadley T, Barg FK, Walsh LM, et al. Predictors of community therapists' use of therapy techniques in a large public mental health system. JAMA Pediatr. 2015;169(4):374–82.
37. Meza RD, Triplett NS, Woodard GS, Martin P, Khairuzzaman AN, Jamora G, Dorsey S. The relationship between first-level leadership and inner-context and implementation outcomes in behavioral health: a scoping review. Implement Sci. 2021;16(1):69.
38. Danielson M, Månsdotter A, Fransson E, Dalsgaard S, Larsson JO. Clinicians' attitudes toward standardized assessment and diagnosis within child and adolescent psychiatry. Child Adolesc Psychiatry Ment Health. 2019;13(1):9.
39. Santesson A, Holmberg R. Bäckström M Gustafsson, P; Perrin, S; Jarbin H: Multilevel barriers to guideline implementation - a nationwide multi-professional cross- sectional study within child and adolescent psychiatry. Child Adolesc Psychiatry Ment Health. 2024;18:115.
40. Santesson AHE, Jarbin H, Holmberg R, Gustafsson P, Perrin S, Bäckström M: The Swedish version of the Barrier and Facilitator Assessment Instrument: translation, adaptation and initial psychometric testing in a large and nationwide sample. 2024.
41. Lehman WE, Greener JM, Simpson DD. Assessing organizational readiness for change. J Subst Abuse Treat. 2002;22(4):197–209.
42. Billsten J, Fridell M, Holmberg R, Ivarsson A. Organizational Readiness for Change (ORC) test used in the implementation of assessment instruments and treatment methods in a Swedish National study. J Subst Abuse Treat. 2018;84:9–16.

43. Pinnock H, Epiphaniou E, Sheikh A, Griffiths C, Eldridge S, Craig P, Taylor SJ. Developing standards for reporting implementation studies of complex interventions (StaRI): a systematic review and e-Delphi. Implement Sci. 2015;10:42.
44. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Ann Intern Med. 2007;147(8):573–7.
45. IBM: IBM SPSS statistics for windows In., 27 edn. Armonk, NY; 2020.
46. Cohen J. Statistical power and analysis for behavioral sciences, 2nd. ed. New York: Lawrence Erlbaum Associates; 1988.
47. Tabachnick BG, Fidell LS: Using multivariate statistics: Allyn & Bacon/Pearson Education; 2007.
48. Barnett M, Brookman-Frazee L, Regan J, Saifan D, Stadnick N, Lau A. How Intervention and implementation characteristics relate to community therapists' attitudes toward evidence-based practices: a mixed methods study. Adm Policy Ment Health. 2017;44(6):824–37.
49. Cook JM, Thompson R, Simiola V, Wiltsey Stirman S, Schnurr PP. Provider general attitudes versus specific perceptions of evidence-based psychotherapies for PTSD. Psychol Serv. 2020;17(1):46–53.
50. Lau AS, Lind T, Crawley M, Rodriguez A, Smith A, Brookman-Frazee L. When Do Therapists Stop Using Evidence-Based Practices? Findings from a Mixed Method Study on System-Driven Implementation of Multiple EBPs for Children. Adm Policy Ment Health. 2020;47(2):323–37.
51. Lee P, Lang JM, Vanderploeg JJ, Marshall T. Evidence-based treatments in community mental health settings: use and congruence with children's primary diagnosis and comorbidity. Res Child Adolesc Psychopathol. 2022;50(4):417–30.
52. Aarons GA, Hurlburt M, Horwitz SM. Advancing a conceptual model of evidence-based practice implementation in public service sectors. Admin Policy Ment Health Ment Health Serv Res. 2011;38(1):4–23.
53. Rogers EM: Diffusion of Innovation, 3rd ed. edn. New York: London: Free Press; 1983.
54. Uppdrag Psykisk Hälsa S: Kartläggning Barn- och ungdomspsykiatrin 2016 In. https://www.uppdragpsykiskhalsa.se/assets/uploads/2017/11/Kartla%CC%88ggning-2016-%E2%80%93-Barn-och-ungdomspsykiatri.pdf: SALAR Swedish Association of Local Authorities and Regions/ SKL Sveriges kommuner och landsting; 2017.
55. Ekelöf K, Sæther E, Santesson A, Wilander M, Patriksson K, Hesselman S, Thies-Lagergren L, Rabe H, Andersson O. A hybrid type I, multi-center randomized controlled trial to study the implementation of a method for Sustained cord circulation And VEntilation (the SAVE-method) of late preterm and term neonates: a study protocol. BMC Pregnancy Childbirth. 2022;22(1):593.

Publisher's Note

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RESEARCH

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Multilevel barriers to guideline implementation: a nationwide multi-professional cross-sectional study within child and adolescent psychiatry

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Abstract

Background Despite efforts to promote guideline use, guideline adoption is often suboptimal due to failure to identify and address relevant barriers. Barriers vary not only between guidelines but also between settings, intended users, and targeted patients. Multi-professional guidelines are often used in child and adolescent mental health services (CAMHS), making the implementation process more difficult. Despite this, there is a lack of knowledge about which barriers to consider or if barriers vary by profession. The aim of this study was to address these gaps by examining barriers to adopting a multi-professional depression guideline in the context of a nationwide implementation study.

Methods 440 CAMHS clinicians across Sweden (52%) completed the Barriers and Facilitators Assessment Instrument (BFAI) ahead of an implementation endeavour. BFAI is a widely used and validated measure of guideline implementation on four scales: Innovation, Provider, Context, and Patient. Barriers were calculated at scale and at item levels. ANOVA and chi-square tests were used to analyse differences by profession and effect sizes were calculated.

Results Overall, clinicians were optimistic about guideline uptake, particularly about guideline characteristics and their own adoption ability. Barriers were related to the patient and the context domains, as well as to individual clinician knowledge and training. Perceptions differed across professions; psychiatrists were most, and counsellors were least positive about guideline embeddedness.

Conclusion This large-scale quantitative study suggests that CAMHS clinicians have an overall favourable attitude towards guideline adoption but highlights the need for adaptations to certain patient groups. Strategies to improve guideline use should primarily address these patient issues while securing proper support to the implementation. Implementation efforts, particularly those targeting staff knowledge, training, and involvement, may benefit from being tailored to different professional needs. These findings may inform implementation projects in CAMHS and future research.

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Keywords Adolescents, Young people, Mental health, Depression, Guideline, Implementation, Barriers, Facilitators, Needs assessment, Multiprofessiona

Background

Clinical practice guidelines have the potential to improve the quality of care, but their uptake is slow and inconsistent due to multilevel barriers [1–3]. This also seems to apply to guidelines for youth depression in child and adolescent mental health services (CAMHS) [4, 5]. Compliance varies substantially across guideline recommendations, depression severity and patient groups [5, 6]. To implement new guidelines into routine practice, (CAMHS) clinicians often need to make substantial changes to their practice behaviour and are therefore particularly important stakeholders [3]. Yet, not much is known about which factors they perceive as most important nor if there are any differences due to professional background.

Youth depression is a critical and increasing public health problem with a range of negative outcomes and long-term effects, yet youths with depression still have significant unmet needs and are disadvantaged in receiving optimal care [7–9]. Evidence-based treatments exist but reach few and are often delivered in "sub-optimal" formats in routine care, and thus may be less effective compared to the outcomes achieved under research conditions [4, 6, 8, 10]. Clinical practice guidelines for depression aim to bring routine care practices more in line with the evidence base, particularly regarding assessment and assignment to, delivery of, and monitoring of evidence-based treatments [10–13].

Guidelines will only achieve their aims if they are used, and this will be largely (but not solely) dependent upon the attitudes of the individuals responsible for adopting and implementing the guidelines [14, 15]. The ability to adopt and sustain guideline use may be hampered by a range of factors some of which are related to the professional, such as awareness, training, and involvement [1, 2, 15, 16]. Clinicians' beliefs about the clinical applicability and utility of guidelines, and how these relate to the individual needs of their particular patients, as well as the perceived complexity of the guidelines, and views about organisational supports for implementation are all likely to influence guideline adoption [1, 2, 17, 18]. Identification of guideline-related views may help in improving stakeholder involvement through more tailored adoption strategies [1, 17, 19]. For example, studies from (mental) health settings suggest that there may be differences in perceived barriers by profession; physicians seem to be more familiar with and ready to use guidelines [1, 2, 20–22]. However, little is known about potential enablers and obstacles to guideline implementation in CAMHS, including any variation between profession, about the applicability of care guidelines, and how they are best implemented. Currently, only a handful of studies have been carried out to examine CAMHS clinicians' attitudes towards guidelines [5, 23–25]. In spite of depression being one of the most common condition treated in CAMHS, most studies on depression guideline adoption have been qualitative and retrospective, often involving small and non-representative samples, have not been able to study differences between professions, and take a pessimistic view [4, 5, 24]. There is a need for larger and more representative studies involving quantitative methods.

The Barriers and Facilitators Assessment Instrument (BFAI) is a theory-based measure that was developed to investigate modifiable barriers for implementation [26]. It measures individual barriers and facilitators as well as clusters of determinants in four domains: Innovation, Provider, Patient and Context. The BFAI is one of few instruments of guideline implementation that has been used in a range of implementation research projects including those targeting depression and mental health [17, 27–30].

Project Deplyftet is a nationwide implementation program that began in 2014 with the aim of improving the quality of care for depressed youth in Swedish CAMHS [31]. All publicly funded CAMHS were invited to participate, and implementation was carried out in 15 clinics across Sweden employing more than 1400 clinicians [32]. As part of that program, the BFAI was administered at the start of the implementation program.

The aim of the present study is to address a gap in the literature concerning CAMHS clinicians´ attitudes towards guideline implementation. Albeit important for patients, families, clinicians and society, evidence in implementing guidelines in CAMHS are scarce. This study will investigate CAMHS clinicians' overall view on the feasibility of adopting a clinical guideline, which factors they perceive as most important and any professional differences. We report the scores on the BFAI, including its scales, and how these relate to professional status of the clinicians.

Methods

Design and setting

This cross-sectional study used a subsample of data drawn from clinicians working at 10 of 31 eligible CAMHS serving about 550 000 youth (26% of Swedish children) from 2016 to 2018 [32, 33]. The participating CAMHS represent all types of publicly owned and funded CAMHS serving similar-sized catchment areas

(25,000–100,000) as the remaining CAMHS (i.e., average = 65,000 youth, range = 41,000–125,000).

All first-line clinicians in the participating CAMHS received to their work-e-mail a secure link to an electronic questionnaire. Up to five reminders were sent (if necessary).

Participants/adopters

The sample consisted of 440 of 854 eligible clinicians resulting in a response rate of 52% (Supplemental Fig. 1 + Table S1). The typical participant was female (84%), had a bachelor's degree (61%) and had five or less years in child and adolescent psychiatry (47%) (Table 1). For more detailed information on background characteristics per professional group, please see Supplemental Table 2 (S2).

The innovation

The Swedish National Board of Health and Welfare (NBHW) published a depression and anxiety guideline 2010 aimed at decision-makers with the purpose to support politicians and healthcare managers at the regional level to identify evidence-based treatments that should be prioritised and to allocate adequate resources for delivering these treatments [34]. The Swedish Association for Child and Adolescent Psychiatry, an association under the Swedish Medical Association, developed a clinical practice guideline in 2014 based on the NBHW guideline [35]. This multidisciplinary guideline with a stepped-care approach, including check lists and recommendations to clinicians, has many similarities with other youth guidelines regarding the care pathway, assessment and treatment processes [11]. Compared to other guidelines, the Swedish guideline recommends brief psychosocial intervention as a first step for mild to but also to moderate depression [36]. The brief intervention corresponds to the brief psychosocial intervention delivered in the IMPACT -study [37].

Table 1 Background characteristics of respondents with at least one item response ($n = 440$)

		n	%
Gender			
	Male	69	15.9
	Female	364	84.1
Age group			
	< 35 years	90	20.8
	36–44 years	111	25.6
	45–55 years	117	27.0
	> 55 years	115	26.6
Education			
	Low	11	2.5
	Bachelor	291	67.1
	Master	115	26.5
	PhD	17	3.9
Profession			
	Auxiliary nurse	11	2.5
	Nurse	61	13.9
	Counsellor	121	27.6
	Psychologist	128	29.2
	Psychiatrist	57	13.0
	Other	60	13.7
Tenure child Mental health			
	< 5 years	207	47.9
	5–10 years	62	14.4
	11–15 years	51	11.8
	16–20 years	47	10.9
	> 20 years	65	15.0
	Don´t know	52	12.3

Sample sizes vary slightly due to missing data

*Psychiatrists include child psychiatrists, residents, and MDs without specialist training

The implementation program

The implementation program "Deplyftet" was co-designed with clinicians, managers, academics, national authorities, and patient representatives, based on the Grol and Wensing Implementation of change model [17, 31]. This process model is often used in guideline implementation studies [5, 17]. It uses different feedback loops for formative evaluation during the implementation process, thus involving adopters and end-users in the implementation process.

Measures

The web survey included questions about the respondent's age, gender, and professional background, followed by the Barrier and Facilitator Assessment Instrument [26].

The Barrier and Facilitator Assessment Instrument

The BFAI is a flexible instrument consisting of 27 items in two parts [26, 38]. Part 1(items 1–16) are intended for guideline implementation and part 2 (items 17–27) for preventive care. Items are rated on a Likert scale ranging from 1 *(fully disagree)* to 5 *(fully agree)*. Researchers are free to add items and to add an extra response option "Not applicable" (N/A). The BFAI consists of four scales: (1) *Innovation*, (2) *Provider*, (3) *Patient*, and (4) *Context.* A higher composite score indicates more barriers. To compute scale scores, positively worded items (##1–3 and #16) are reversed. Internal consistency for the scales ranged from Cronbach alpha (α) 0.63–0.68 but was not reported for the total scale [26, 38]. Nevertheless, a BFAI Total score has been used [29, 39]. Estimated time for completion is about 15 min.

The BFAI has been translated and adapted for use in Sweden [33]. The Swedish version of the BFAI (S-BFAI)

used the items intended for guideline implementation and five items from the preventive care part, the 5-point Likert scale and the extra N/A response category. S-BFAI has been tested for basic psychometrics using the same benchmarks as the developers. Item qualities and internal consistency was adequate and on par with or slightly better than the original version: Innovation α=0.74; Provider α=0.73; Context α=0.70; Patient α=0.73 and BFAI total scale α=0.85 [33]. The dimensionality of the Swedish version was supported by factor analyses, although the Context scale had some issues due to the intra- and inter-domain correlations. All items were kept as they all were increasing content validity.

Data analysis

SPSS statistical software version 27 along with Mplus version 8 for Generalized Linear Modelling (GLM) [40, 41]. Prior to the analyses, we examined items and scales for missing values, outliers and normality, homogeneity of variance, linearity, and multicollinearity, for a detailed description please see supplemental material. The N/A response option was hereafter treated as missing. Continuous data are presented with means and standard deviations and categorical data with frequencies and percentages. We recoded some demographic variables. At the item level, according to the instructions for use, barriers were defined by collapsing response categories 1 and 2 for positively worded items and 4 and 5 for negatively worded items, facilitators were defined the opposite way around [38]. Scale scores were the means of test items, using the original 1–5 scale, provided at least 50% of scale items had valid data.

We used Generalized Linear Modelling (GLM) to investigate differences between scale means, Chi Square, and one-way ANOVA to test for between-group differences and correlation analyses to test the relationship between continuous and ordinal variables. We applied a Bonferroni correction to control for Type 1 error given multiple comparisons. To estimate the magnitude of the effect, we used Cramér's V (V) and eta squared (η^2). The following benchmarks were used: small V=0.10, medium V=0.30, large V=0.50; small η^2=0.01, medium η^2=0.09, large η^2=0.25 respectively [42, 43]. In the event of significant main effects in the ANOVAs, post-hoc comparisons were computed using Tukey HD tests. 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 [44, 45].

Results

Clinician's perceptions of barriers and facilitators toward guideline implementation

Domain level barriers and facilitators

Composite scores for the scales were all below a neutral score of 3 (a higher score indicate more barriers) (Table 2). The Patient scale had the highest score followed by the Context, Provider and lastly the Innovation. The Patient and Context scale scores differed from the Provider and Innovation scores, but the mean differences were small (Table 3).

Item level barriers and facilitators

At the item level, patient cultural background, and financial issues (from the context domain) were only the fifth and fourth most important barriers respectively (Table 4). Main individual barriers were on the level of the provider and related to knowledge, training, and involvement. The three most important facilitators concerned changing routines, working according to protocols and involvement in the implementation planning process. Furthermore, support from managers and flexibility of the guideline were the fourth and fifth most important facilitators, respectively.

Table 2 also presents means and standard deviations at single item level, a higher mean score indicates more barriers except for positive formulated items in the Innovation scale (##1–3+16). Top five barriers and facilitators were about the same, with a slight difference in their order.

Differences in perceptions of barriers and facilitators by profession

The results for each scale presented by demographic groups and professions are depicted in Supplemental Table S5. In general, psychiatrists scored lower (perceived less barriers) than other professions, (see below). Gender, age, and years of experience were not found to have significant correlations with any of the scales (S6). Educational level had a weak and negative correlation (–0.13) with the Provider scale.

Domain level differences by profession

There were statistical differences by profession for BFAI Total and Innovation, Provider, and Patient scale (Table 5). The effect ranged from small (Innovation and Patient, η^2=0.05) to medium (Provider, η^2=0.10 and Total, η^2=0.09). Psychiatrists perceived less barriers than other professions, except for patient domain where there were no significant differences between psychiatrists and psychologists.

Table 2 Descriptive statistics for scales and items of the Barrier and Facilitators Assessment Instrument

BFAI subscales and total and items within each subscale	Fully disagree %	Disagree %	Neutral %	Agree %	Fully agree %	*N*/A %	Miss %	M	SD	*N*
Innovation*								2.56	0.54	391
1. This guideline leaves enough room for me to make my own conclusion*	0.5	4.5	45.8	42.4	6.8	9.8	3.9	3.51	0.70	440
2. This guideline leaves enough room to weigh the wishes of the patient*	0.5	5.2	46.9	40.3	7.1	10.0	3.2	3.48	0.72	382
3. This guideline is a good starting point for self-study*	0.8	4.0	51.9	34.1	9.1	11.4	4.1	3.47	0.74	372
13. Working according to this guideline is too time consuming	7.9	34.2	45.1	10.9	1.9	13.4	3.4	2.65	0.85	366
14. This this guideline does not fit into my ways at working at my practice	8.5	39.1	42.0	8.5	1.9	11.1	3.4	2.56	0.84	376
16. The layout of this guideline makes it handy to use*	0.3	5.6	55.9	32.2	5.9	16.4	3.2	3.38	0.66	354
Provider								2.62	0.63	421
4. I did not truly read nor remember this guideline	16.5	26.7	32.8	14.3	9.7	3.9	2.5	2.74	1.18	412
5. I wish to know more about the guideline before I decide to apply it	7.0	16.2	15.2	38.4	23.2	1.8	1.1	3.55	1.20	427
6. I have problems changing my old routines	26.1	50.8	18.1	4.5	0.5	1.8	1.6	2.02	0.82	425
7. I thinks parts of the guideline are incorrect	13.7	31.9	47.7	5.6	1.1	12.0	2.5	2.49	0.84	373
8. I have a general resistance to working according to protocols	35.4	39.1	16.9	8.0	0.7	1.1	1.8	2.00	0.95	427
21. It is difficult to give care according to the guideline because I'm not trained	10.7	19.2	24.9	30.7	14.5	5.2	3.6	3.19	1.21	401
22. It is difficult to give care according to the Guideline because I'm not involved in setting it up	21.6	37.1	29.8	9.3	2.3	5.2	4.1	2.34	0.99	399
Context								2.64	0.64	356
9. Colleagues do not cooperate in applying the guideline	8.8	31.6	47.8	11.0	0.8	13.0	4.3	2.63	0.82	364
10. Other do not cooperate in applying the guideline	8.1	33.1	46.7	11.7	0.6	13.0	5.2	2.64	0.81	360
11. Managers do not cooperate in applying the guideline	15.3	35.8	38.0	10.1	0.8	11.8	5.0	2.45	0.90	366
15. Working according to this guideline require financial compensation	7.0	21.8	51.7	15.1	4.5	7.0	3.6	2.88	0.90	358
Patient								2.69	0.62	366
12. Patients do not cooperate in applying the guideline	9.7	32.0	53.4	4.6	0.3	14.8	5.7	2.54	0.74	350
23. It is difficult to give care according to the Guideline to patients with different cultural background	5.6	27.3	48.3	17.5	1.1	14.1	5.0	2.81	0.83	355
25. It is difficult to give care according to the guideline to patients with low socioeconomic status	7.8	36.6	42.9	10.5	2.2	12.7	5.2	2.63	0.86	361
26. It is difficult to give care according to the guideline to younger patients < 13 years	6.8	36.8	47.9	12.5	2.8	14.3	5.9	2.75	0.87	351
BFAI total								2.65	0.43	371

Note: Items scores could range from 1 to 5. N/A = Not applicable, Miss = missing. A higher mean score indicates more barriers except for positive formulated items (##1–3 + 16). Seven multivariate outliers were excluded. Scale scores are mean scores provided that 50% of scale items had valid data. To calculate scale scores for the Innovation subscale items ## 1–3 + 16 were reversed

Item level differences by profession

There were significant differences between perceived barriers at the item level in the provider domain by profession but not regarding financial issues and patient cultural background (Table 6). Psychiatrists differed from the other professions on item #5 "wish to know more" by being less likely to perceive it as a barrier. Counsellors perceived more training barriers compared to

Table 3 Pairwise comparison of subscales by generalized linear model

Subscale		Mean difference	STD error	*P*[a]	CI for differences	
					Lower	Higher
Innovation	Provider	0.00	0.03	1.00	− 0.079	0.079
	Context	− 0.11*	0.04	0.02	− 0.213	− 0.013
	Patient	− 0.14*	0.03	< 0.001	− 0.225	− 0.048
Provider	Context	− 0.11*	0.04	0.04	− 0.222	0.003
	Patient	− 0.14*	0.03	< 0.001	− 0.225	− 0.048
Context	Patient	0.024	0.04	1.00	− 0.127	0.080

Note, $n = 336$, STD error = standard error

*The mean difference is significant at the 0.05 level

[a]Bonferroni Adjustments for multiple comparison

Table 4 Top 5 barriers and facilitators at the item level

Item	Top 5 Barriers	(Fully) agree	
		n	%
5.	I wish to know more about the guideline before I decide to apply it. *(Provider knowledge and motivation)*	261	61.6
21.	It is difficult to give care according to the guideline because I am not trained in giving care according to the guideline *(Provider training)*	181	45.1
4.	I did not truly read nor remember this guideline. *(Provider involvement)*	98	24.0
15.	Working according to this guideline requires financial compensation. *(Context financial compensation)*	70	19.6
23.	It is difficult to give care according to the guideline to patients with different cultural background. *(Patient cultural background)*	66	18.6
Item	**Top 5 Facilitators**	**(Fully) *dis*agree**	
		n	**%**
6.	I have problems changing my old routines. *(Provider working style)*	327	76.9
8.	I have a general resistance to working according to protocols. *(Provider role perception)*	317	74.5
22.	It is difficult to give care according to the guideline because I'm not involved in setting it up. (*Provider involvement)*	234	58.6
11.	Managers do not cooperate in applying the guideline. *(Context managers support)*	186	51.1
1.	This guideline leaves enough room for me to make my own conclusion* *(Innovation flexibility)*	187	49.2

Note. Barriers were defined by collapsing the response category fully disagree with disagree for items ##1–3 + 16 and fully agree with agree for ##4–15, 21 – 13 and 25–26

Facilitators were defined the opposite way around

*Item 1 is reversed

psychiatrists and psychologists. Finally, counsellors and psychologists more often "did not thoroughly read nor remember the guideline" compared with psychiatrists. However, the effect sizes were small (V ranging from 0.17 to 0.29).

Psychiatrists were more positive about guideline flexibility compared with the other professions and were more involved in the implementation planning process compared to nurses and counsellors (Table 7). Again, the effect sizes were small (V = 0.25 and 0.19 respectively). The other three top facilitators did not differ by profession.

Discussion

This is the first large-scale study examining barriers and facilitators to the implementation of a clinical practice guideline (depression) in a nation-wide sample of child and adolescent mental health clinicians. CAMHS clinicians were overall positive about adopting the depression guideline. At the domain level, they perceived fewer barriers regarding the characteristics of the guideline and their own ability to adopt the guideline, but more barriers regarding the context and patient characteristics. These findings suggest that CAMHS clinicians, despite carrying a positive attitude towards the guideline itself and the implementation, have concerns about support and clinical utility of the guideline for certain subgroups of patients. At the individual determinant level, the main facilitators to adoption concerned the clinician's own role perception and working style, while lack of knowledge and training were main barriers, all in the provider domain.

Psychiatrists were in general more positive compared to other professions, and most so compared to counsellors. Psychiatrist perceived less barriers and more facilitators regarding their own capability to adopt the guideline, particularly concerning guideline awareness, training needs, and involvement.

Table 5 Means, standard deviations, and one-way ANOVA analyses of BFAI domains and total

BFAI subscales and total	All		Psychiatrist		Nurse		Social worker		Psychologist		Other*		F	df	*p*	η^2
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*				
Innovation	2.57	0.52	2.34_a	0.54	2.62_b	0.47	2.67_b	0.53	2.52_b	0.53	2.61_b	0.47	5.15	4,370	< 0.001	0.05
Provider	2.63	0.63	2.15_a	0.63	2.78_b	0.56	2.75_b	0.59	2.61_b	0.63	2.68_b	0.57	10.7	4,405	< 0.001	0.10
Context	2.64	0.64	2.51_a	0.64	2.61_a	54	2.68_a	0.66	2.58_a	0.69	2.82_a	0.59	2.01	4,351	0.09	0.02
Patient	2.69	0.63	2.38_a	0.63	2.76_b	0.55	2.87_b	0.62	2.64_{ab}	0.62	2.73_b	0.64	5.09	4,349	< 0.001	0.06
Total barrier	2.65	0.43	2.36_a	0.42	2.68_b	0.42	2.75_b	0.39	2.63_b	0.43	2.71_b	0.38	8.39	4,364	< 0.001	0.09

* included auxiliary nurses. Note: Seven multivariate outliers were excluded. Scale scores are mean scores provided that 50% of scale items had valid data. Means not sharing subscripts differ significantly at $\alpha < 0.05$ as indicated by Tukey's HD

Clinician's perceptions of barriers and facilitators toward guideline implementation

Overall view on the feasibility of guideline implementation

Overall, participants were positive to the guideline and its adoption adding to and at odds with previous qualitative studies on depression guideline implementation in CAMHS and youth mental health, mostly finding barriers [5, 24, 25]. Previous guideline studies using the BFAI have suggested a link between the overall perception of barriers and guideline use and adherence, a lower general barrier score was associated with higher use and better compliance [29, 46].

Main barriers and facilitators at the domain level

A challenge in guideline implementation is concerns about guideline usefulness and ability to account for real world complexity [47]. It is problematic since perceived utility also seems to be linked to use in the context of CAMHS [23, 24]. In our study, clinicians held a positive view of the guideline as opposed to the results of the Westerlund study in which the NBHW guideline was perceived considerably less helpful, possibly because it was developed externally, not connected to the child mental health professional community, and did not take clinical expertise into account [24]. Successful implementation may be enhanced when guidelines are produced by experts in collaboration with the adopters with more of a bottom-up rather than a top-down approach [1]. Other possible explanations are differences regarding the innovation studied (clinical practice guideline versus guideline), their scope (depression among children, versus anxiety and depression across all ages), whom it was aimed at (clinicians versus decision makers) and content (stepwise recommendations how to care for the patients and checklist versus recommendation on how to prioritize between interventions) [24].

Guidelines are often criticised for focusing on the" average patient" and for not addressing the needs of vulnerable patient groups [1, 2, 48]. Although mainly positive, clinicians in our study held somewhat less positive attitude related to the patient domain, i.e. the difficulty of using the guideline with certain patient groups. This is in keeping with the studies of Westerlund et al. and Hetrick et al. where the most prominent barriers identified were at the patient level and the perceived fit between the guideline and the patients [24, 25]. However, the study of Hermens et al. found barriers at the context and provider level and not so much regarding the guideline itself or the patients [5].

Main barriers and facilitators at the individual determinant level

Main individual barriers concerned provider knowledge, involvement, and training, in line with previous studies

Table 6 Top five barriers at the item level and difference by profession

BFAI item	All		Psychiatrist		Nurse		Counsellor		Psychologist		Other*		X^2 (4)	*p*	V
	n	%	n	%	n	%	n	%	n	%	n	%			
5. I wish to know more about the guideline before I decide to apply it	261	61.4	16_a	28.1	46_b	76.7	71_b	60.2	80_b	65.0	48_b	71.6	36.35	< 0.001	0.29
21. It is difficult to give care according to the guideline because I am not trained in giving	181	45.3	17_a	30.4	26_{ab}	47.3	61_b	57.0	43_a	37.4	34_b	50.7	14.76	0.005	0.19
4. I did not truly read nor remember this guideline	98	23.9	4_a	7.3	15_{ab}	25.9	34_b	30.9	31_b	25.8	14_{ab}	20.9	12.03	0.02	0.17
15. Working according to this guideline requires financial compensation	70	19.6	8_a	15.1	15_a	28.3	15_a	16.5	20_a	19.4	12_a	21.1	3.87	0.42	0.10
23. It is difficult to give care according to the guideline to patients with different cultural background	66	18.6	6_a	11.1	13_a	25.5	16_a	17.6	18_a	18.0	13_a	22.5	4.23	0.38	0.11

* included auxiliary nurses. Note. V = Cramér's V. Barriers were defined by collapsing the response category fully disagree with disagree for items # #1–3 + 16 and fully agree with agree for items ##4–15, 21 – 13 and 25–26. A binary choice design was chosen; barriers were compared to non–barriers (neutral plus facilitators). Two participants did not report their profession. No cells have an expected count less than 5. Frequencies not sharing subscripts differ significantly at $\alpha < 0.05$

[5, 24, 25]. Familiarity with and intention to adopt the guideline were generally low in the Westerlund study [24]. Lack of training and availability of capable professionals were among the main barriers in the studies of Hermens and Hetrick [5, 25]. Our key facilitators were attitudes to follow guidelines and protocols, working style, and involvement in the implementation planning process. These aspects were not mentioned in the previous studies, but may be fundamental when designing strategies to enhance guideline adoption [2].

Differences in perceptions of barriers and facilitators by profession

Not much is known about professional differences in attitudes toward guideline uptake in CAMHS. Previous studies suggest a relatively high concordance despite staff mix and different philosophies but did not investigate differences due to profession as such [24, 25]. We found important differences in the general view, across all except the context domain, and regarding half of the top barriers and facilitators. Overall, psychiatrists were more positive about the possibility of implementing the guideline and they were notably more positive about their own ability to adopt the guideline. A more fine-grained analysis showed that psychiatrists perceived less awareness, training, and involvement barriers than counsellors, but also compared to the other groups. Furthermore, psychiatrists perceived less patient domain barriers compared to counsellors, nurses and others but not compared to psychologists. However, regarding patient cultural background barrier, the perception did not differ across professions.

Psychiatrists were also more positive regarding characteristics of the guideline, although the magnitude was small. Notably, psychiatrists perceived the guideline as more flexible than the others, giving them more room to make their own conclusions. There are no comparable studies in CAMHS, but results are in line with a study in adult mental health, which found that psychiatrists held more favourable attitudes and less knowledge related barriers compared to the other professional groups [21]. A possible explanation for psychiatrists overall more positive attitudes may relate to the guideline being produced by the medical professional association, perhaps leading to a sense of ownership [46]. In addition, psychiatrists had been informed about the guideline during the development and were early on invited to comment drafts and hence may have reached another stage in the implementation process [1, 21].

Implications for guideline implementation projects

An important aspect of determination frameworks is that different barriers imply different types of measures and play a role for guideline development and stakeholder

Table 7 Top five facilitators at the item level and difference by profession

	All		Psychiatrist		Nurse		Counsellor		Psychologist		Other*		$\chi^2(4)$	*P*	V
	n	%	n	%	n	%	n	%	n	%	n	%			
6. I have problems changing my old routines	327	77.3	40_a	71.4	44_a	74.6	91_a	78.4	93_a	75.6	59_a	85.5	4.29	0.369	0.10
8. I have a general resistance to working according to protocols	317	74.6	46_a	80.7	42_a	70.0	80_a	69.6	95_a	76.0	$54_{a,}$	79.4	4.29	0.369	0.10
22. It is difficult to give care according to the guideline because I'm not involved in setting it up	234	58.9	41_a	74.5	25_b	45.5	54_b	50.9	76_{ab}	66.1	38_{ab}	57.6	14.95	0.005	0.19
11. Managers do not cooperate in applying the guideline	186	51.1	35_a	62.5	29_a	55.8	44_a	47.3	56_a	52.8	22_a	38.6	7.59	0.011	0.14
1.This guideline leaves enough room for me to make my own conclusion	187	49.5	43_a	78.2	22_b	38.6	41_b	42.3	55_b	50.5	26_b	43.3	23.79	0.001	0.25

* included auxiliary nurses. Note. V = Cramér's V. Facilitators were defined by collapsing the response category "fully agree" with "agree" for items ##1–3+ 16 and "fully disagree" and "disagree" for items #4–15, 21–23 and 25–26. A binary choice design was chosen; facilitators were compared to non-facilitators (barrier plus neutral). Two participants did not report their profession. No cells had an expected count less than 5

Frequencies not sharing subscripts differ significantly at $\alpha < 0.05$

involvement. Our key findings expand on the previous results from youth depression implementation studies, which have found generally negative attitudes among clinicians towards implementation. In this study, CAMHS clinicians held an overall positive attitude toward guideline uptake, particularly about the characteristics of the guideline. However, they were somewhat less positive about patient factors, implying a need for information about how guideline recommendations might be adapted to vulnerable patients. The results at the individual determinant level also stress the importance of clear information about core components and to offer adequate education and training to improve guideline adoption. For guidelines to be implemented it may be necessary to clarify possible differences among professions [1]. This nationwide study allowed us to make these comparisons. While a consensus was observed about the context, there were differences in perceptions about important barriers across all other domains, notably regarding the provider. The results suggest that implementation efforts might benefit from being customized to the different needs of professional groups. To enhance guideline adoption, implementation participation and ownership issues should be addressed. Collaboration with more skeptical provider groups and inclusion of their perspective can inform the design, selection, and implementation of strategies to enhance the uptake of the guideline.

Implications for research

More research is needed to investigate whether the barriers at the domain and determinants levels found in our and previous studies are so-called core determinants common to other guideline implementation studies in CAMHS or whether they are unique to youth depression guideline studies in general or specific to this study [49]. Further research should study CAMHS clinicians overall perception of the possibility of implementation and carefully distinguish which barriers are important for different professional groups and evaluate the effect of perceived barriers on the uptake of the guideline in daily practice A promising area for further research is to evaluate various tailored approaches to dissemination and implementation to calibrate interventions and develop cost effective and sustainable approaches. These and previous results also point to the need for inclusion of more vulnerable patients in treatment studies informing adolescent depression guidelines [4, 24, 25].

Strengths and limitations

The present study benefitted from the use of a standardised and validated self-report measure of views on implementation in a large sample of front-line CAMHS clinicians representing various professions. The participants were recruited from a geographically diverse area

covering a third of Sweden's CAMHS and representing a third of the Swedish regions (counties), with the sample's characteristics being similar to available national data describing the CAMHS workforce [50]. The response rate of slightly over 50% is commonly viewed as sufficient for e-mailed surveys, and the sample size sufficiently large for the number and type of statistical analyses that were carried out.

A limitation was lack of descriptive data for non-respondents to investigate any potential selection bias, such that barriers could be over- or underestimated. The missing data pattern was not completely at random, which can introduce uncertainty and may reduce generalizability [42]. However, we did not find any differences between participants with complete versus incomplete data in demographic or profession. Reflecting the nature of the CAMHS workforce in Sweden, the professional groups differed in size [50]. Generally, professions with a more negative view outnumbered the more positive ones resulting in a more negative view for the entire sample. Finally, our findings are based entirely on a self-report measure. While validated in previous studies, we may have obtained different findings with another self-report measure and/or interviews. In any study of this kind, the influence of social desirability on responses cannot be excluded. In our case it might have reduced the scores for some of the facilitators in the Provider scale. Although previous studies have found a link between guideline attitudes and (non-) adherence, attitudes in this study may not reflect actual behaviour. Therefore, an audit is underway to investigate compliance with the guideline [51]. Finally, while the Swedish version has preliminary support for its dimensionality and reliability, the psychometric properties of the scales need further examination. The Context scale is brief, consisting of three homogeneous items. The fourth item, "Requires financial compensation", may be an outlier but adds to content validity and was rated as a top barrier. Another limitation is the use of a sum score for all BFAI items. It is unclear whether the BFAI Total should be viewed as a scale with theoretically correlated variables (reflective indicators) tapping a common trait (latent variable), as an index composed of a list of variables (formative indicators), or as a combination of both, i.e., an index of four scales.

Conclusions

Guidelines, if adopted, are likely to be important to the delivery (and adherence to) evidence-based treatments in CAMHS, but their adoption may be hampered by multilevel barriers. Our results suggest an overall positive attitude toward the adoption of this depression guideline in CAMHS in Sweden. Nevertheless, there are issues that need to be addressed to enhance guideline adoption and achieve an equitable care, namely the possibility of adaptation of guideline components to meet the needs of specific patient groups and the need for staff education and training. In addition, our results suggests that strategies for enhancing guideline use should be somewhat tailored by profession.

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Abbreviations

ANOVA	Analysis of variance
BFAI	Barriers and facilitators assessment instrument
CAMHS	Child and adolescent mental health services
GLM	Generalized Linear Modelling
N/A	Not applicable
NBHW	Swedish National Board of Health and Welfare
S-BFAI	The Swedish version of the Barriers and facilitators assessment instrument
StaRI	Standards of Reporting Implementation Studies
STROBE	The Strengthening the Reporting of Observational Studies in Epidemiology

Supplementary Information

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Supplementary Material 1

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Author contributions

HJ is the principal investigator, responsible for the design of the overall project, including this study. AS and MB conceptualized the specific research questions and the analytic approach for this manuscript. Analyses were conducted by AS and MB. AS wrote the first draft of the manuscript; all authors (AS, RH, MB, PG, SP, and HJ) edited and revised the manuscript and provided critical commentary. All authors (AS, RH, MB, PG, SP, and HJ) read and approved the final manuscript.

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Data availability

No datasets were generated or analysed during the current study.

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 was approved by the Regional Ethical Review Board in Umeå, dep for 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 used to be a part of the faculty of medicine of the regional University until 2004. Between 2004 and 2019 the Regional ethical boards were independent authorities. From 1 January 2019, applications for ethical examination of research are scrutinized by the new Swedish Ethical Review Authority.

Consent for publication

Not applicable.

Competing interests

Håkan Jarbin was first author for the depression guideline within Swedish Association for Child and Adolescent Psychiatry. The other authors declare that they have no competing interests.

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.

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References

1. Francke AL, Smit MC, de Veer AJ, Mistiaen P. Factors influencing the implementation of clinical guidelines for health care professionals: a systematic meta-review. BMC Med Inform Decis Mak. 2008;8:38.
2. Correa VC, Lugo-Agudelo LH, Aguirre-Acevedo DC, Contreras JAP, Borrero AMP, Patiño-Lugo DF, Valencia DAC. Individual, health system, and contextual barriers and facilitators for the implementation of clinical practice guidelines: a systematic metareview. Health Res Policy Syst. 2020;18(1):74.
3. Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. Lancet. 2003;362(9391):1225–30.
4. Hetrick SE, Thompson A, Yuen K, Finch S, Parker AG. Is there a gap between recommended and 'real world' practice in the management of depression in young people? A medical file audit of practice. BMC Health Serv Res. 2012;12:178.
5. Hermens ML, Oud M, Sinnema H, Nauta MH, Stikkelbroek Y, van Duin D, Wensing M. The multidisciplinary depression guideline for children and adolescents: an implementation study. Eur Child Adolesc Psychiatry. 2015;24(10):1207–18.
6. Pile V, Shammas D, Smith P. Assessment and treatment of depression in children and young people in the United Kingdom: Comparison of access to services and provision at two time points. Clin Child Psychol Psychiatry. 2020;25(1):119–32.
7. Mojtabai R, Olfson M, Han B: National Trends in the Prevalence and Treatment of Depression in Adolescents and Young Adults. *Pediatrics* 2016, 138(6).
8. Avenevoli S, Swendsen J, He JP, Burstein M, Merikangas KR. Major depression in the national comorbidity survey-adolescent supplement: prevalence, correlates, and treatment. J Am Acad Child Adolesc Psychiatry. 2015;54(1):37-44. e32.
9. Herrman H, Patel V, Kieling C, Berk M, Buchweitz C, Cuijpers P, Furukawa TA, Kessler RC, Kohrt BA, Maj M, et al. Time for united action on depression: a Lancet-World Psychiatric Association Commission. Lancet. 2022;399(10328):957–1022.
10. Walter HJ, Abright AR, Bukstein OG, Diamond J, Keable H, Ripperger-Suhler J, Rockhill C: Clinical Practice Guideline for the Assessment and Treatment of Children and Adolescents With Major and Persistent Depressive Disorders. *J Am Acad Child Adolesc Psychiatry* 2022.
11. Hopkins K, Crosland P, Elliott N, Bewley S. Clinical Guidelines Update Committee B: Diagnosis and management of depression in children and young people: summary of updated NICE guidance. BMJ. 2015;350:h824.
12. Thapar A, Eyre O, Patel V, Brent D. Depression in young people. Lancet. 2022;400(10352):617–31.
13. Birmaher B, Brent D, Bernet W, Bukstein O, Walter H, Benson RS, Chrisman A, Farchione T, Greenhill L. Hamilton J *et al*: Practice parameter for the assessment and treatment of children and adolescents with depressive disorders. J Am Acad Child Adolesc Psychiatry. 2007;46(11):1503–26.
14. Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PA, Rubin HR. Why don't physicians follow clinical practice guidelines? A framework for improvement Jama. 1999;282(15):1458–65.
15. Flottorp SA, Oxman AD, Krause J, Musila NR, Wensing M, Godycki-Cwirko M, Baker R, Eccles MP. A checklist for identifying determinants of practice: a systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. Implement Sci. 2013;8:35.
16. Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay CR, Vale L, Whitty P, Eccles MP, Matowe L. Shirran L *et al*: Effectiveness and efficiency of guideline dissemination and implementation strategies. Health Technol Assess. 2004. https://doi.org/10.3310/hta8060.
17. Grol R WM, Eccles M, Davis D,: Improving patient care: the implementation of change in health care; 2013.
18. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement Sci. 2009;4:50.
19. Baker R, Camosso-Stefinovic J, Gillies C, Shaw EJ, Cheater F, Flottorp S, Robertson N, Wensing M, Fiander M. Eccles MP *et al*: Tailored interventions to address determinants of practice. Cochrane Database Syst Rev. 2015;2015(4):Cd005470.
20. Michie S, Pilling S, Garety P, Whitty P, Eccles MP, Johnston M, Simmons J. Difficulties implementing a mental health guideline: an exploratory investigation using psychological theory. Implement Sci. 2007;2:8.
21. Gaigl G, Täumer E, Merz K, Zöscher S, Wagner S, Kösters M, Falkai P, Leucht S, Hasan A. Multifactorial barriers in the implementation of schizophrenia and psychosocial therapies guidelines: A quantitative study across different professions. Schizophr Res. 2021;228:425–34.
22. Levelink B, Walraven L, Dompeling E, Feron FJM. van Zeben-van der Aa DMCB: Guideline use among different healthcare professionals in diagnosing attention deficit hyperactivity disorder in Dutch children; who cares? BMC Psychology. 2019;7(1):43.
23. Gatej AR, Lamers A, van Domburgh L, Vermeiren R. Perspectives on clinical guidelines for severe behavioural problems in children across Europe: a qualitative study with mental health clinicians. Eur Child Adolesc Psychiatry. 2020;29(4):501–13.
24. Westerlund A, Ivarsson A, Richter-Sundberg L. Evidence-based practice in child and adolescent mental health services–The challenge of implementing national guidelines for treatment of depression and anxiety. Scandinavian Journal of Caring Sciences. 2021;35(2):476–84.
25. Hetrick SE, Simmons M, Thompson A, Parker AG. What are specialist mental health clinician attitudes to guideline recommendations for the treatment of depression in young people? Aust N Z J Psychiatry. 2011;45(11):993–1001.
26. Peters MAJ HM, Laurant MGH, Wensing M: Ruimte voor verandering? Knelpunten en mogelijkheden voor verandering in de patiëntenzorg [Room for improvement? Barriers to and facilitators for improvement of patient care]. In. Nijmegen: Centre for Quality of Care Research (WOK), Radboud University Nijmegen Medical Centre; 2002.
27. Chaudoir SR, Dugan AG, Barr CHI. Measuring factors affecting implementation of health innovations: a systematic review of structural, organizational, provider, patient, and innovation level measures. Implementation Science. 2013;8(1):22.
28. Willson ML, Vernooij RWM, Gagliardi AR. Questionnaires used to assess barriers of clinical guideline use among physicians are not comprehensive, reliable, or valid: a scoping review. J Clin Epidemiol. 2017;86:25–38.
29. Smolders M, Laurant M, Verhaak P, Prins M, van Marwijk H, Penninx B, Wensing M, Grol R. Which Physician and Practice Characteristics are Associated With Adherence to Evidence-Based Guidelines for Depressive and Anxiety Disorders? Medical Care. 2010;48(3):240–8.
30. Versteeg MH, Laurant MG, Franx GC, Jacobs AJ, Wensing MJ. Factors associated with the impact of quality improvement collaboratives in mental healthcare: an exploratory study. Implement Sci. 2012;7:1.
31. The Deplyftet Implementation Program, [https://slf.se/sfbup/riktlinjer/deplyftet/]
32. Santesson AHE, Bäckström M, Holmberg R, Perrin S, Jarbin H. 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 Med Res Methodol. 2020;20(1):254.
33. Santesson AHE, Jarbin H, Holmberg R, Gustafsson P, Perrin S, Bäckström M: The Swedish version of the Barrier and Facilitator Assessment Instrument: translation, adaptation and initial psychometric testing in a large and nationwide sample. In. Edited by University L. BMC Health Services Research; 2024.
34. Socialstyrelsen: Nationella riktlinjer för vård vid depression och ångestsyndrom 2010- stöd för styrning och ledning. In. Stockholm: Socialstyrelsen 2010.
35. Jarbin H, von Knorring A-L, Zetterquist M: Riktlinje Depression. In: *Riktlinjer.* Edited by Svenska Föreningen för Barn- och Ungdomspsykiatri, vol. 2022, 1 edn. https://slf.se/sfbup/riktlinjer/:%20Sveriges%20läkarförbund; 2014: Clinical practice guideline.
36. National Institute for Health and Clinical Excellence: Depression in children and young people: identification and management. In: *NICE clinical guideline*

No 134 [NG134] vol. 2022 https://www.nice.org.uk/guidance/ng134: National Institute for Health and Clinical Excellence 2019 This guideline updates and replaces NICE guideline CG28 (September 2005).
37. Goodyer IM, Reynolds S, Barrett B, Byford S, Dubicka B, Hill J, Holland F, Kelvin R, Midgley N. Roberts C *et al*: Cognitive-behavioural therapy and short-term psychoanalytic psychotherapy versus brief psychosocial intervention in adolescents with unipolar major depression (IMPACT): a multicentre, pragmatic, observer-blind, randomised controlled trial. Health Technol Assess. 2017;21(12):1–94.
38. Harmsen M PM, Wensing M: Barriers and facilitators assessment instrument, Introduction, instructions and instrument. In.: Radboud University Nijmegen Medical Centre. 2005.
39. van der Wees PJ, Zagers CA, de Die SE, Hendriks EJ. Nijhuis-van der Sanden MW, de Bie RA: Developing a questionnaire to identify perceived barriers for implementing the Dutch physical therapy COPD clinical practice guideline. BMC Health Serv Res. 2013;13:159.
40. IBM: IBM SPSS statistics for windows In., 27 edn. Armonk, NY; 2020.
41. Muthén LK, Muthén BO: Mplus User's Guide, eight edn. Los Angeles: Muthén & Muthén; 1998–2017.
42. Tabachnick BG, Fidell LS: Using multivariate statistics: Allyn & Bacon/Pearson Education; 2007.
43. Cohen J: Statistical power and analysis for behavioral sciences, 2nd ed edn. New York: Lawrence Erlbaum Associates; 1988.
44. Pinnock H, Epiphaniou E, Sheikh A, Griffiths C, Eldridge S, Craig P, Taylor SJ. Developing standards for reporting implementation studies of complex interventions (StaRI): a systematic review and e-Delphi. Implement Sci. 2015;10:42.
45. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Ann Intern Med. 2007;147(8):573–7.
46. Lugtenberg M, Burgers JS, Besters CF, Han D, Westert GP. Perceived barriers to guideline adherence: A survey among general practitioners. BMC Family Practice. 2011;12(1):98.
47. Woolf SH, Grol R, Hutchinson A, Eccles M, Grimshaw J. Clinical guidelines: potential benefits, limitations, and harms of clinical guidelines. Bmj. 1999;318(7182):527–30.
48. Girlanda F, Fiedler I, Becker T, Barbui C, Koesters M. The evidence-practice gap in specialist mental healthcare: systematic review and meta-analysis of guideline implementation studies. Br J Psychiatry. 2017;210(1):24–30.
49. Williams NJ, Beidas RS. Annual Research Review: The state of implementation science in child psychology and psychiatry: a review and suggestions to advance the field. J Child Psychol Psychiatry. 2019;60(4):430–50.
50. Uppdrag Psykisk Hälsa S: Kartläggning Barn- och ungdomspsykiatrin 2016 In. https://www.uppdragpsykiskhalsa.se/assets/uploads/2017/11/Kartla%CC%88ggning-2016-%E2%80%93-Barn-och-ungdomspsykiatri.pdf: SALAR Swedish Association of Local Authorities and Regions/ SKL Sveriges kommuner och landsting; 2017.
51. Remvall, SS. Santesson, AHE. Bäckström, M. Hofvander, B. Jarbin, H.: Diagnostic Assessments of Depression in Child and Adolescent Psychiatry: Exploration of Quality Indicators– Occurrences, Correlations and Predictors in a Nationwide Swedish Outpatient Cross-Sectional Medical Record Review. In. Edited by Department of Child and Adolescent Psychiatry FoCS, Lund, Lund University, Lund, Sweden; 2024.

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