



RESEARCH ARTICLE

Clinicians' Knowledge, Attitudes, and Practices Regarding Physical Activity Interventions in Irish Child and Adolescent Mental Health Services (CAMHS)

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ABSTRACT

Objectives: Physical Activity (PA) offers significant mental health benefits for young people, yet its integration into **Child and Adolescent Mental Health Services (CAMHS)** remains limited. This study explored Irish CAMHS clinicians' knowledge, attitudes, and practices regarding **Physical Activity Interventions (PAIs)**.

Methods: A cross-sectional online survey was distributed nationally to clinicians working in CAMHS across Ireland, including consultants, **non-consultant hospital doctors (NCHDs)**, nurses, psychologists, and allied health professionals. The study-specific questionnaire assessed three domains—knowledge of Physical Activity guidelines, perceived evidence, and clinical practice—alongside personal attitudes toward Physical Activity. Non-parametric analyses were conducted to examine inter-group differences and associations between domains.

Results: While 84% agreed that incorporating Physical Activity should be a **Child and Adolescent Mental Health Services** responsibility, 65% reported that no team member currently delivered Physical Activity Interventions. Knowledge of guideline-recommended Physical Activity levels was limited (mean score = 1.2/3), and factual knowledge showed no association with practice. Perceived evidence was strongest for depression and **Attention Deficit Hyperactivity Disorder** and correlated positively with frequency of **Physical Activity Interventions** recommendations ($r = .48$, $p < .01$). Practice varied significantly by professional role ($p = .008$), with Non-Consultant Hospital Doctors recommending Physical Activity Interventions less often than consultants or nurses. Personal attitudes were uniformly positive across roles ($M = 4.1/5$).

Conclusions: Irish Child and Adolescent Mental Health Services clinicians endorse the value of physical activity but demonstrate variable implementation and limited guideline knowledge. Perceived strength of evidence for Physical Activity Interventions rather than factual knowledge, drives clinical behaviour. Enhancing clinician confidence in the evidence base and embedding structured Physical Activity training within Child and Adolescent Mental Health Services could strengthen integration of Physical Activity Interventions into youth mental healthcare.

Keywords: Child and adolescent psychiatry; physical activity; clinician attitudes; implementation; CAMHS; mental health promotion; Ireland.

Introduction

Regular physical activity is essential for maintaining and enhancing health across all age groups. It contributes to improved cardiovascular and muscular fitness, bone and cardiometabolic health, and supports mental well-being¹. Moreover, it plays a significant role in reducing the risk of non-communicable diseases such as cardiovascular diseases, type 2 diabetes, and certain cancers. Recognizing its importance, the World Health Organization has endorsed a Global Action Plan on Physical Activity aiming to reduce physical inactivity worldwide¹.

In 2023, approximately 20.3% of children aged 8 to 16 years in England were identified as having a probable mental disorder, reflecting a continued increase from previous years². Comparable data for Ireland are limited, but smaller-scale studies and clinical reports suggest similar high rates with increased post-COVID CAMHS service demand³ and emotional difficulties among youth. Using the WHO-5 Well-Being Index, 36% of Irish children were classified as having low mood or being at risk of depression—26% of boys and 46% of girls⁴. Although estimates vary depending on methodology, a recent systematic review of Irish studies reported current mental health disorder rates of up to 15.5%, with lifetime prevalence ranging from 19.9% to 31.2%⁵.

Alongside these trends, recent studies have highlighted a concerning increase in sedentary behaviour, particularly during adolescence. Globally, 81% of adolescents fail to meet the World Health Organization's recommended physical activity levels, often spending between 4 and 12 hours per day in sedentary activities^{6,7}. Accelerometer-based assessments show that average sedentary time increases from around 5 hours per day in childhood to 7.5 hours in adolescence⁸. Irish national guidelines recommend that children and adolescents engage in at least 60 minutes of moderate-to-vigorous physical activity daily and include muscle- and bone-strengthening activities at least three times per week⁹.

In Ireland, the 2022 Health Behaviour in School-aged Children (HBSC) study found that only 41% of boys and 28% of girls met the recommended threshold of engaging in vigorous physical activity

at least four times per week, while 8% of boys and 11% of girls reported participating in vigorous exercise less than once per week⁴. Physical activity declined significantly with age, and children from lower social class groups were consistently less likely to meet activity recommendations. These patterns of increasing inactivity and widening socioeconomic disparities further compound mental health risks and highlight the need for targeted, accessible interventions.

In parallel, childhood obesity remains a pressing public health issue. In England, 22.1% of children aged 10 to 11 years were classified as obese in the 2023/24 school year, with nearly one in three affected in the most deprived areas¹⁰. Irish children are similarly affected: the Childhood Obesity Surveillance Initiative (COSI) 2022–23 reported that almost a fifth (17.7%) of primary-school children were living with overweight or obesity, including 4.1% classified as obese¹¹.

Physical Activity and Mental Health:

Physical activity interventions show promising effects on mental health in young people. Meta-analyses demonstrate reductions in depression and anxiety symptoms^{12,13}. Exercise improves mood, self-esteem, and cognitive function^{14,15}. Both aerobic and strength-based activities are effective in improving mental health outcomes¹⁶. School- and community-based programs consistently yield benefits^{17,18}, potentially through neurobiological mechanisms and enhanced social interaction^{14,19}.

Despite this strong evidence base, physical activity interventions remain underused within Child and Adolescent Mental Health Services (CAMHS) settings^{20,18}. This gap is especially notable in Ireland, where formal integration of physical activity into CAMHS remains largely absent and where standardized national guidance in this area is currently lacking.

Barriers to Implementation:

Several barriers hinder the integration of physical activity interventions into CAMHS. Structural challenges such as limited resources, lack of trained staff, and time constraints are commonly cited^{20,18}. Clinicians often prioritise pharmacological and psychological treatments, influenced by traditional care models and high service

demands^{12,17}. Successful implementation depends heavily on clinician engagement and support^{16,14}. International surveys conducted in Australia and the UK report mixed levels of clinician enthusiasm and emphasize the need for additional training and organizational support^{21,22}.

However, little is known about these issues in the Irish context, where no large-scale investigations have been conducted to date. Understanding Irish CAMHS clinicians' knowledge, attitudes, perceived barriers, and support needs is essential to developing feasible and effective strategies for integrating physical activity into services.

Study Aim:

Given the sparsity of research within the Irish CAMHS setting, there is a clear need to better understand clinician perspectives. Therefore, the objective of this study was to examine Irish clinicians' knowledge, attitudes, and practice regarding the use of physical activity interventions in CAMHS services.

Study Design:

A cross-sectional survey design was employed to assess the knowledge, attitudes, and practices (KAP) of clinicians regarding physical activity interventions (PAIs) in the treatment of mental health disorders among service users in Child and Adolescent Mental Health Services (CAMHS) in Ireland. The study used a study-specific questionnaire informed by existing literature and tailored to the Irish clinical context.

Study Population and Setting:

The study population comprised clinicians working within Child and Adolescent Mental Health Services (CAMHS) in Ireland. Eligible participants included consultant psychiatrists, non-consultant hospital doctors (NCHDs), nurses, psychologists, and allied health professionals involved in the assessment and treatment of children and adolescents with mental health difficulties. Clinicians working in both public and private CAMHS settings were eligible to participate.

The study was conducted within the context of Irish CAMHS, which provides specialist, multidisciplinary mental health care to children and adolescents with

moderate to severe mental health disorders across community and inpatient settings. Recruitment focused primarily on clinicians working in public CAMHS services. In addition to national recruitment through the College of Psychiatrists of Ireland, two large CAMHS service clusters were also recruited to maximise clinician representation

Study Instrument:

A study-specific questionnaire was developed for this research, informed by existing literature examining physical activity and mental health outcomes in young people, clinician attitudes toward lifestyle interventions, and barriers to implementation within mental health services. The questionnaire was reviewed by clinicians with experience in CAMHS and physical activity research to ensure clarity, relevance, and face validity prior to dissemination.

The questionnaire consisted of 18 items organised into three domains: knowledge, practice, and attitudes toward physical activity interventions.

The knowledge domain (Items 1–7) assessed clinicians' familiarity with national physical activity guidelines and physical health considerations relevant to young people with mental disorders. These items included multiple-choice questions examining recommended daily levels of moderate-to-vigorous physical activity for children and adolescents, recommended frequency of muscle- and bone-strengthening activities, and awareness of national epidemiological data regarding the proportion of children meeting recommended physical activity levels.

The practice domain (Items 8–15) examined clinicians' use of physical activity interventions in clinical practice. Items assessed perceived responsibility of CAMHS for incorporating physical activity into treatment, frequency of recommending physical activity interventions as adjunctive treatments across diagnostic groups (psychotic disorders, anxiety disorders, depressive disorders, and attention-deficit/hyperactivity disorder), frequency of enquiring about patients' physical activity levels, provision of guidance regarding recommended activity levels, and whether physical activity interventions were delivered within participants' CAMHS services.

The attitudes domain (Items 16–18) explored clinicians' personal and professional perspectives on physical activity. These items assessed incorporation of physical activity into clinicians' own daily routines, perceived importance of exercise for maintaining personal mental wellbeing, and perceived value of physical activity interventions in counteracting metabolic side effects of antipsychotic medication in community CAMHS settings.

Knowledge items were assessed using fixed-response multiple-choice questions, while practice and attitude items were measured using five-point Likert scales. Higher scores reflected greater knowledge, more frequent clinical use of physical activity interventions, or more positive attitudes, as appropriate. The full questionnaire is available from the authors on request.

Recruitment and Data Collection Procedure

The survey was administered using a secure online platform and remained open for a predefined data collection period. Prior to accessing the survey, participants were provided with an information page outlining the aims of the study, the voluntary nature of participation, and data protection procedures. Consent was implied through completion of the questionnaire, and no identifying information was collected.

Participants were recruited primarily through the College of Psychiatrists of Ireland, with email invitations distributed to active members of the Faculty of Child and Adolescent Psychiatry, including both trainees and consultants. In addition, a convenience sampling approach was employed, with clinicians working within CAMHS teams at the Linn Dara Clinical Directorate and the Lucena Clinic also invited to participate via email. Survey links were distributed electronically through these channels, and responses were collected anonymously. Based on the number of clinicians invited through these channels, the approximate response rate was 19%.

Ethical Considerations:

Ethical approval for the study was obtained from the University College Dublin Human Research Ethics Committee – Life Sciences (HREC-LS) under

protocol number LS-LR-24-200-McNicholas. Participation was voluntary, information was provided about the study and completion of the survey implied informed consent. No identifiable personal information was collected.

Statistical Analysis:

Statistical analysis was conducted using IBM SPSS 29, with overall constructs formed by averaging individual item scores within each domain. Normality testing revealed non-normal distributions across variables, necessitating the use of non-parametric statistical procedures. Kruskal-Wallis tests were employed to examine differences between professional roles, while Spearman rank correlations were calculated to assess relationships between knowledge, perceived evidence, practice, and attitudes. For the purpose of inferential statistics, psychologists and speech and language therapists were considered along with the "Others group" due to very low sample sizes (N=2 each).

Results:

The study recruited 106 CAMHS clinicians across Ireland, with consultants representing the largest professional group (42.5%, n=45), followed by non-consultant hospital doctors (NCHDs) at 33.0% (n=35). Nursing staff comprised 15.1% (n=16) of respondents, while other disciplines including psychologists, speech and language therapists, and other professionals made up the remaining 8.5%. The overwhelming majority of participants (95.3%, n=101) worked in public sector services, with only 4.7% (n=5) in private practice.

Regarding training status, 61.3% (n=65) of respondents had completed their professional training, while 30.2% (n=32) were still in training programs. A smaller proportion (8.5%, n=9) worked as standalone practitioners or locums. Community CAMHS represented the primary workplace setting for most participants (65.1%, n=69), followed by inpatient CAMHS (13.2%, n=14) and specialist CAMHS services such as eating disorder or ADHD clinics (10.4%, n=11). Liaison CAMHS accounted for 8.5% (n=9) of respondents.

The majority of clinicians (84.0%, n=89) believed that incorporating physical activity into service users' treatment should be a CAMHS responsibility. However, among the 16.0% (n=17)

who disagreed with this position, respondents indicated that parents, schools, and general practitioners should share or assume this responsibility instead. Despite this general agreement on CAMHS responsibility, actual delivery of physical activity interventions remained limited. Nearly two-thirds of participants (65.1%, n=69) reported that no team member in their clinic was delivering physical activity interventions for mental illness treatment. Only 13.2% (n=14) indicated regular delivery of such interventions, while 12.3% (n=13) reported ad hoc provision. A notable 9.4% (n=10) were uncertain about whether their team delivered any physical activity interventions. (Table 1)

Knowledge of established physical activity guidelines among CAMHS clinicians showed considerable variation across the three assessed domains. For daily moderate-to-vigorous activity requirements, less than half of respondents (45.3%, n=48) correctly identified the 60-minute guideline, while 24.5% (n=26) underestimated the requirement at 40 minutes and 19.8% (n=21) selected 20 minutes. A smaller proportion (10.4%, n=11) overestimated the requirement at 90 minutes.

Understanding of muscle-and-bone strengthening exercise frequency was similarly limited, with only

34.9% (n=37) correctly identifying the three-times-per-week recommendation. Nearly a quarter of respondents (23.6%, n=25) believed twice weekly was sufficient, while 13.2% (n=14) thought four times weekly was necessary. More than a quarter (28.3%:n=30) incorrectly believed strengthening exercises should not be performed during the growth phase, representing a significant knowledge gap that could impact clinical recommendations.

Knowledge of national epidemiological data from the Growing Up in Ireland study, 2019, showed the strongest performance, with 38.7% (n=41) correctly identifying that only one in four children meet recommended exercise requirements by age nine. However, 35.8% (n=38) underestimated this figure at one in six, while smaller proportions selected one in two (5.7%, n=6) or one in nine (19.8%, n=21).

Nearly a quarter of clinicians (23.6%, n=25) answered none of the questions correctly, while 42.5% (n=45) achieved only one. A further quarter (25.5%, n=27) answered two correctly, and just 8.5% (n=9) achieved full marks. The mean knowledge score was 1.2 (SD = 0.9; median = 1, IQR = 1–2), indicating generally limited awareness of physical activity guidelines relevant to clinical practice (Table 1).

Table 1. Knowledge of Physical Activity Guidelines Among Irish CAMHS Clinicians

	N	N%
All children and young people (age 2-18) should be active, at a moderate to vigorous level, for at least how many minutes per day?		
20 minutes	21	19.8%
40 minutes	26	24.5%
60 minutes*	48	45.3%
90 minutes	11	10.4%
Muscle-and-bone strengthening exercises should be carried out at which of the following intervals in young people?		
2 times per week	25	23.6%
3 times per week*	37	34.9%
4 times per week	14	13.2%
Should not be carried out in the growth phase	30	28.3%
According to Growing Up in Ireland, the national longitudinal study, by the age of 9, how many children meet their recommended exercise requirements?		
1 in 2	6	5.7%
1 in 4*	41	38.7%
1 in 6	38	35.8%
1 in 9	21	19.8%
Correct Answers		
0	25	23.6%
1	45	42.5%
2	27	25.5%
3	9	8.5%
Knowledge, Mean (SD), Range/ Median (IQR)	1.2 (0.9), 0-3	1 (1-2)

*Correct answer

Perceived Evidence for Physical Activity Interventions

Clinicians' perceptions of the evidence base for PAI (rated on a 5-point scale: 1=no evidence to 5=strong evidence) varied considerably across mental health conditions. Evidence perception was lowest for psychotic disorders ($M=2.8$, $SD=1.2$), indicating clinicians viewed the evidence base as limited, with responses clustering around "reasonable evidence" (median=3.0). In contrast, perceived evidence was strongest for depressive disorders ($M=4.0$, $SD=1.0$), suggesting clinicians recognized good empirical support for physical activity interventions in this population. ADHD ($M=3.9$, $SD=1.1$) and anxiety disorders ($M=3.7$, $SD=1.1$) received similarly high evidence ratings, both with medians of 4.0. The overall perceived evidence score ($M=3.6$, $SD=0.9$) indicated that clinicians generally viewed the evidence base as between reasonable and good.

Frequency of Recommending Physical Activity Interventions

Practice patterns (rated on a 5-point scale: 1=never to 5=always) closely mirrored perceived evidence ratings across conditions. Clinicians reported recommending physical activity interventions most frequently for depressive disorders ($M=4.0$, $SD=1.0$), with a median of 4.0 indicating "often" to "always" recommendations. ADHD ($M=3.9$, $SD=1.1$) and anxiety disorders ($M=3.7$, $SD=1.1$)

showed similar recommendation frequencies. Psychotic disorders again received the lowest recommendation frequency ($M=3.1$, $SD=1.2$), consistent with lower perceived evidence. Clinicians frequently inquired about patients' activity levels ($M=3.9$, $SD=1.0$) but were less likely to provide specific instruction on activity levels ($M=3.0$, $SD=1.0$), indicating a gap between assessment and intervention guidance. The overall practice score ($M=3.6$, $SD=0.8$) suggested moderate to frequent use of physical activity recommendations.

Attitudes Toward Physical Activity

Personal attitudes toward physical activity (rated on a 5-point scale: 1=strongly disagree to 5=strongly agree) were notably positive across all domains. Clinicians showed strongest agreement that exercise interventions would be valuable for counteracting metabolic side effects of antipsychotic medication ($M=4.5$, $SD=0.8$), with a median of 5.0 indicating strong endorsement (Table 2). They also strongly agreed that exercise was important for their own personal mental wellbeing ($M=4.3$, $SD=0.8$). Personal incorporation of activity into daily schedules received more moderate ratings ($M=3.6$, $SD=1.2$), suggesting a gap between recognizing benefits and personal implementation. The overall positive attitude score ($M=4.1$, $SD=0.7$) demonstrated strong professional endorsement of physical activity's therapeutic value.

Table 2. Perceived Evidence, Practice Frequency, and Attitudes Toward Physical Activity Interventions Among Irish CAMHS Clinicians

Item	Mean (SD)	Median (IQR)
Perceived Evidence for Physical Activity		
Psychotic disorders	2.8 (1.2)	3.0 (2.0–4.0)
Anxiety disorders	3.7 (1.1)	4.0 (3.0–5.0)
Depressive disorders	4.0 (1.0)	4.0 (3.0–5.0)
ADHD	3.9 (1.1)	4.0 (3.0–5.0)
Overall perceived evidence	3.6 (0.9)	3.8 (3.0–4.3)
Frequency of Recommending Physical Activity/ Practice		
Psychotic disorders	3.1 (1.2)	3.0 (2.0–4.0)
Anxiety disorders	3.7 (1.1)	4.0 (3.0–5.0)
Depressive disorders	4.0 (1.0)	4.0 (4.0–5.0)
ADHD	3.9 (1.1)	4.0 (3.0–5.0)
Inquire about activity levels	3.9 (1.0)	4.0 (3.0–5.0)
Provide instruction on activity levels	3.0 (1.0)	3.0 (2.0–4.0)
Overall Practice	3.6 (0.8)	3.7 (3.0–4.2)
Attitudes Toward Physical Activity		
Incorporate activity into daily schedule	3.6 (1.2)	4.0 (3.0–4.0)
Exercise important for personal mental wellbeing	4.3 (0.8)	4.0 (4.0–5.0)
Exercise valuable to counteract medication effects	4.5 (0.8)	5.0 (4.0–5.0)
Overall positive attitude	4.1 (0.7)	4.0 (3.7–4.7)

Comparison between professional groups:

(I) KNOWLEDGE AND PERCEIVED EVIDENCE

No significant differences emerged between professional groups in knowledge of physical activity guidelines ($p=0.240$), with all groups showing similarly limited understanding (median=1.0 across all roles). Perceived evidence for physical activity interventions also showed no significant variation across professional roles for any mental health condition. All groups demonstrated lowest confidence in evidence for psychotic disorders (median=3.0) and highest confidence for depressive disorders and ADHD (median=4.0–4.5). The overall perceived evidence scores remained consistent across roles ($p=0.713$), suggesting uniform awareness of the evidence base regardless of professional background.

(II) PRACTICE PATTERNS SHOW SIGNIFICANT PROFESSIONAL DIFFERENCES

For psychotic disorders, consultants and nurses reported more frequent recommendations (median=3.0) compared to NCHDs (median=2.0, $p=0.022$). The most pronounced difference appeared in anxiety disorder recommendations ($p=0.007$), where consultants, nurses, and other professionals frequently recommended physical

activity (median=4.0), while NCHDs showed lower recommendation rates (median=3.0). ADHD treatment recommendations also varied significantly ($p=0.026$), with nurses showing the highest frequency (median=5.0) compared to other groups (median=4.0). The overall practice score demonstrated significant professional differences ($p=0.008$), with NCHDs showing lower overall recommendation of physical activity (median=3.2) compared to consultants (median=3.8) and nurses (median=3.9).

(III) ATTITUDES REMAIN CONSISTENT ACROSS ROLES

Despite practice differences, attitudes toward physical activity showed remarkable consistency across professional groups. All roles demonstrated strong positive attitudes, with no significant differences in personal incorporation of activity ($p=0.552$), recognition of exercise importance for wellbeing ($p=0.167$), or valuation of exercise for counteracting medication effects ($p=0.707$).

These findings suggest that while knowledge and attitudes are consistent across CAMHS professional roles, significant practice gaps exist, particularly among NCHDs who demonstrate lower recommendation of physical activity despite similar evidence perception and positive attitudes. (Table 3)

Table 3. Professional Role Differences in Knowledge, Perceived Evidence, Practice, and Attitudes Toward Physical Activity Interventions

Variable	Consultant	NCHD	Nurse	Others	p-Value
Knowledge	1.0 (1.0–2.0)	1.0 (0.0–2.0)	1.0 (1.0–2.0)	1.0 (0.0–2.0)	0.240
Perceived Evidence for Physical Activity					
Psychotic disorders	3.0 (2.0–4.0)	3.0 (2.0–3.0)	3.0 (2.0–3.5)	3.0 (3.0–4.0)	0.346
Anxiety disorders	4.0 (3.0–5.0)	4.0 (3.0–4.0)	3.5 (2.5–4.5)	4.5 (3.0–5.0)	0.481
Depressive disorders	4.0 (4.0–5.0)	4.0 (4.0–5.0)	4.0 (3.0–4.5)	4.5 (3.0–5.0)	0.613
ADHD	4.0 (3.0–5.0)	4.0 (3.0–5.0)	4.5 (3.5–5.0)	4.0 (3.0–5.0)	0.774
Overall perceived evidence	3.8 (3.3–4.5)	3.5 (2.8–4.3)	3.8 (3.0–4.3)	4.3 (3.0–4.5)	0.713
Frequency of Recommending Physical Activity/ Practice					
Psychotic disorders	3.0 (3.0–4.0)	2.0 (1.0–4.0)	3.0 (3.0–4.0)	4.0 (2.0–4.0)	0.022
Anxiety disorders	4.0 (3.0–5.0)	3.0 (2.0–4.0)	4.0 (3.0–5.0)	4.0 (4.0–5.0)	0.007
Depressive disorders	4.0 (4.0–5.0)	4.0 (3.0–5.0)	4.5 (4.0–5.0)	4.0 (4.0–5.0)	0.227
ADHD	4.0 (4.0–5.0)	4.0 (3.0–4.0)	5.0 (4.0–5.0)	4.0 (3.0–5.0)	0.026
Inquiry into physical activity	4.0 (3.0–5.0)	4.0 (3.0–4.0)	4.0 (4.0–4.5)	4.5 (4.0–5.0)	0.221
Providing instruction on activity	3.0 (2.0–4.0)	3.0 (2.0–3.0)	3.0 (3.0–4.0)	3.0 (3.0–3.0)	0.189
Overall practice	3.8 (3.3–4.3)	3.2 (2.7–3.8)	3.9 (3.4–4.3)	3.8 (3.3–4.2)	0.008
Attitudes Toward Physical Activity					
Incorporate into daily schedule	4.0 (3.0–4.0)	4.0 (2.0–5.0)	4.0 (3.5–4.0)	4.0 (3.0–5.0)	0.552
Exercise important for wellbeing	4.0 (4.0–5.0)	4.0 (4.0–5.0)	4.0 (4.0–5.0)	5.0 (5.0–5.0)	0.167
Valuable for counteracting medication side-effects	5.0 (4.0–5.0)	5.0 (4.0–5.0)	4.5 (4.0–5.0)	5.0 (4.0–5.0)	0.707
Overall attitude	4.0 (3.7–4.7)	4.0 (3.7–4.3)	4.0 (4.0–4.5)	4.5 (4.0–5.0)	0.556

The correlation analysis revealed that knowledge of physical activity guidelines operates independently from other domains, showing weak and non-significant relationships with perceived evidence, practice, and attitudes. This suggests that factual knowledge alone does not drive clinical behaviour or professional perspectives regarding physical activity interventions.

The strongest relationship emerged between perceived evidence and practice ($r=.48$, $p<.01$),

indicating that clinicians who view the evidence base as stronger are significantly more likely to recommend physical activity interventions in their clinical work.

Attitudes toward physical activity showed a moderate positive correlation with practice ($r=.27$, $p<.01$), suggesting that clinicians with more favourable personal views of physical activity are more likely to incorporate these interventions into patient care. (Table 4).

Table 4. Correlations Between Knowledge, Perceived Evidence, Practice, and Attitudes Toward Physical Activity Interventions

Variable	1	2	3	4
1. Knowledge	—			
2. Overall Evidence	.04	—		
3. Overall Practice	.13	.48**	—	
4. Attitude	.08	.16	.27**	—

Note. $N=106$. Spearman’s rho correlations reported.
 $p < .01$ (**)

1. Relationship Between Knowledge of Childhood Exercise Compliance and Clinical Practice
The correlation analysis revealed no significant relationship between clinicians’ knowledge of exercise recommendations for 9-year-olds and their overall clinical practice scores ($r=.02$, $p>.05$).

This extremely weak correlation indicates that knowing the correct statistic about how many children meet exercise requirements has virtually no impact on how frequently clinicians recommend physical activity interventions in their practice. (Table 5)

Table 5. Spearman’s Correlation Between Knowledge of Exercise Recommendations and Overall Practice

Variable	1	2
1. Exercise knowledge (age 9)	—	.02
2. Overall practice	.02	—

$p > .05$ for all correlations.

Personal attitudes about exercise and beliefs regarding metabolic side effects

The correlation analysis with separated attitude constructs revealed distinct patterns between personal attitudes and professional beliefs about exercise interventions. Knowledge remained weakly correlated with all other variables, showing no significant relationships with overall evidence ($r=.04$), practice ($r=.13$), metabolic side effects beliefs ($r=-.06$), or personal attitudes ($r=.11$). This confirms the persistent knowledge-practice gap identified throughout the study.

Overall evidence showed the strongest correlation with practice ($r=.48$, $p<.01$), reinforcing that

clinicians who perceive stronger evidence are more likely to recommend physical activity interventions. Evidence perception also correlated significantly with beliefs about exercise countering metabolic side effects ($r=.32$, $p<.01$),

Practice patterns correlated moderately with both attitude constructs, showing significant relationships with personal attitudes ($r=.23$, $p<.05$) and beliefs about metabolic benefits ($r=.19$, $p<.05$). The two attitude constructs themselves were moderately correlated ($r=.30$, $p<.01$), indicating that clinicians with positive personal exercise attitudes also tend to value exercise for counteracting medication side effects, though these represent distinct constructs.

Table 6. Correlations between study variables

	Knowledge	Overall Evidence	Overall Practice	Metabolic side effect	Personal attitude
Knowledge	1.00	.04	.13	-.06	.11
Overall Evidence	.04	1.00	.48**	.32**	.07
Overall Practice	.13	.48**	1.00	.19*	.23*
Exercise counters metabolic SE	-.06	.32**	.19*	1.00	.30**
Personal attitude	.11	.07	.23*	.30**	1.00

Note. $p < .05^*$, $p < .01$, no asterisk = $p > .05$.

Alignment of perceived evidence for interventions with established evidence base.

Utilising the scoping review carried out by Haran et al, 2024, clinicians assigned a level of evidence rating for the listed conditions as follows, in order to evaluate how the views of clinicians surveys aligned: Psychosis 2.5/5, Depression 4/5, Anxiety 3/5, ADHD 3.5/5

The analysis compared clinicians' perceptions of evidence strength against established evidence ratings for physical activity interventions across mental health disorders. For psychotic disorders, where the established evidence level is 2.5/5, clinicians' perceptions closely aligned with this benchmark across all professional roles. Consultants (M=2.9, SD=1.2), NCHDs (M=2.5, SD=1.1), nurses (M=3.1, SD=1.2), and other professionals (M=3.2, SD=1.2) all demonstrated accurate awareness of the limited evidence base, with NCHDs showing the most precise alignment to the established rating.

Depression showed strong concordance between perceived and established evidence levels (4/5), with all professional groups correctly rating evidence strength appropriately high. Consultants (M=4.1, SD=1.0), NCHDs (M=4.0, SD=1.0), nurses (M=3.9, SD=0.8), and others (M=4.0, SD=1.2) all clustered around the established benchmark, indicating accurate recognition of the evidence base for physical activity interventions in treating childhood depression.

However, clinicians consistently overrated the evidence strength for both anxiety disorders and ADHD compared to established levels. For anxiety disorders (established level 3/5), all groups showed inflated perceptions, with means ranging from 3.5 to 4.0 across roles. Similarly, for ADHD (established level 3.5/5), clinicians rated evidence strength higher than warranted, with means between 3.8 and 4.1.

No significant differences emerged between professional roles for any disorder (all $p > 0.05$), indicating that evidence overestimation for anxiety and ADHD occurs consistently across the CAMHS workforce regardless of training background or clinical experience.

Characteristics of Clinicians Delivering Physical Activity Interventions

The analysis examined whether the 13% of clinicians whose teams delivered physical activity interventions (regularly) possessed unique characteristics compared to those without such services. No significant differences emerged across any measured domain.

Knowledge scores remained consistently low across all groups (median=1.0), with no significant differences between those offering interventions and those who did not ($p=0.511$). This finding indicates that teams delivering physical activity interventions do not possess better understanding of established guidelines compared to teams without such services. Similarly, overall evidence perception showed no meaningful variation ($p=0.842$), with all groups demonstrating moderate confidence in the evidence base regardless of their team's intervention delivery status.

Practice patterns and attitudes also failed to distinguish between groups. Overall practice scores were remarkably similar across intervention delivery categories ($p=0.435$). Personal attitudes toward exercise ($p=0.184$) and beliefs about exercise value in counteracting metabolic side effects ($p=0.961$) showed no significant differences, indicating that positive individual attitudes do not necessarily translate into team-level service provision.

Table 7. Median (IQR) Scores by Physical Activity Intervention Delivery in CAMHS Clinics

Variable	No	Yes, Regular	Yes, Ad hoc	Don't know	p-Value
Knowledge	1.0 [0.0–2.0]	1.0 [1.0–2.0]	1.0 [0.0–2.0]	1.0 [0.0–2.0]	0.511
Overall Evidence	3.8 [3.0–4.3]	3.5 [2.8–4.5]	4.0 [3.5–4.0]	3.8 [3.5–4.3]	0.842
Overall Practice	3.7 [3.2–4.2]	3.8 [3.0–4.7]	3.8 [3.5–4.3]	3.6 [3.0–4.0]	0.435
Value of Exercise Interventions	5.0 [4.0–5.0]	4.0 [4.0–5.0]	4.0 [4.0–5.0]	4.0 [4.0–5.0]	0.961
Personal Attitude	4.0 [3.0–5.0]	4.0 [4.0–5.0]	4.0 [3.5–4.5]	3.8 [3.0–4.5]	0.184

Note. Values are presented as *Median [Interquartile Range]*. "Value of Exercise Interventions" refers to perceived usefulness of exercise interventions in counteracting metabolic side effects.

Discussion:

This study provides the first national examination of clinicians' knowledge, attitudes, and practice regarding physical activity interventions within Irish Child and Adolescent Mental Health Services (CAMHS). Overall, clinicians demonstrated strong endorsement of the value of physical activity for young people's mental health, yet reported limited and inconsistent implementation of physical activity interventions within routine clinical care. Knowledge of guideline-recommended physical activity levels and epidemiological data was low across professional groups and showed no meaningful association with clinical practice, highlighting a persistent knowledge–practice gap.

A key finding of this study is that clinicians' perceived strength of the evidence base, rather than factual knowledge of guidelines, was the strongest predictor of clinical behaviour. Clinicians who viewed the evidence for physical activity interventions as stronger were significantly more likely to recommend such interventions across diagnostic groups. This finding is consistent with implementation science literature demonstrating that knowledge acquisition alone rarely leads to behaviour change in clinical practice, and that clinicians' beliefs about capability, opportunity, and motivation are central determinants of implementation^{23,24}. Educational initiatives that focus solely on disseminating guidelines may therefore be insufficient unless they also address clinicians' appraisal of the quality, relevance, and applicability of the evidence.

Attitudinal factors also played a meaningful, though secondary, role in shaping practice. Clinicians reported uniformly positive attitudes toward physical activity, both in terms of personal wellbeing and perceived therapeutic value for young people. These attitudes were moderately associated with clinical practice, suggesting that

clinicians who personally value physical activity may be more inclined to integrate it into patient care. However, the consistency of positive attitudes across professional roles, contrasted with variability in practice, indicates that favourable attitudes alone are insufficient to ensure implementation. This aligns with prior research in mental health services showing that positive clinician attitudes frequently coexist with low intervention uptake in the absence of organisational support and service-level enablement²⁵.

Comparison of clinicians' perceived evidence ratings with established evidence benchmarks revealed notable patterns. Perceptions aligned closely with the evidence base for depressive disorders and psychotic disorders, suggesting appropriate appraisal of areas where evidence is either strong or limited. In contrast, clinicians consistently overestimated the strength of evidence for physical activity interventions in anxiety disorders and ADHD. While physical activity is widely recognised as beneficial for general wellbeing, overestimation of disorder-specific evidence may lead to unrealistic expectations regarding clinical outcomes. This finding highlights the importance of targeted training that improves clinicians' confidence in accurately interpreting and applying the evidence base, rather than assuming that enthusiasm for physical activity translates into evidence-informed practice²⁶.

Differences in practice patterns between professional groups were most evident among non-consultant hospital doctors (NCHDs), who reported lower frequencies of recommending physical activity interventions compared with consultants and nurses. This discrepancy occurred despite similar levels of knowledge, perceived evidence, and attitudes across groups. These findings likely reflect differences in role structure, continuity of care, and opportunities for lifestyle counselling

within CAMHS. Nurses often have more sustained contact with patients through medication monitoring and follow-up appointments, facilitating greater integration of physical activity advice into routine care. Similar role-dependent differences in lifestyle intervention delivery have been described in youth mental health services internationally²⁷.

Importantly, clinicians working in services that reported regular delivery of physical activity interventions did not differ in knowledge, perceived evidence, or attitudes from those working in services without such interventions. This finding suggests that the presence of physical activity interventions within CAMHS is unlikely to be driven by individual clinician characteristics alone. Instead, it points toward service-level determinants, such as organisational priorities, leadership support, availability of trained staff, and access to appropriate resources. This interpretation is strongly supported by implementation frameworks that emphasise organisational context as a primary driver of sustained practice change²⁴.

Several limitations should be acknowledged. The cross-sectional design precludes causal inference, and reliance on self-reported data may introduce social desirability or recall bias. The response rate, while consistent with other web-based surveys of specialist clinicians, limits generalisability, and some professional groups were underrepresented. Additionally, the study employed a study-specific questionnaire that was not formally validated; however, it was grounded in existing literature and expert review and was appropriate for the exploratory aims of the study.

Despite these limitations, this study has several strengths, including its national scope, inclusion of multiple professional disciplines, and detailed examination of the relationships between knowledge, evidence perception, attitudes, and practice. The findings offer valuable insights into the factors that shape the implementation of physical activity interventions within Irish CAMHS and identify clear targets for future educational and organisational interventions.

Conclusion

This national survey demonstrates that while Irish Child and Adolescent Mental Health Services

(CAMHS) clinicians strongly value physical activity as a therapeutic intervention, its implementation in routine practice remains inconsistent. Knowledge of physical activity guidelines was limited and did not influence clinical behaviour, highlighting a persistent knowledge–practice gap.

Clinicians' perceived strength of the evidence base, rather than factual knowledge, was the strongest predictor of whether physical activity interventions were recommended. This suggests that implementation strategies should prioritise strengthening clinicians' confidence in the evidence and its clinical applicability, rather than focusing solely on guideline dissemination. Differences in practice between professional roles and the lack of association with individual clinician characteristics further indicate that organisational and service-level factors are central to successful integration.

Overall, embedding physical activity interventions within CAMHS will require coordinated educational and structural supports. Addressing these factors may enhance the consistent use of physical activity interventions and improve mental and physical health outcomes for young people accessing CAMHS in Ireland.

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