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Comparative Effectiveness of Eicosapentaenoic Acid (EPA) versus Docosahexaenoic Acid (DHA) in Reducing Attention-Deficit/Hyperactivity Disorder (ADHD) Symptoms: A Systematic Review

Muhammad Suliman Sajid[1*], Sheeza Ahmed[2], Salwa Adil[3], Ameena Nasir[4], Shah Fhad[5], Hamza Sajid[6], Muhammad Haris[7], Azeem Saeed[8], Minal Fatima[9], Nabahat Shafi[10], Shair Koh[11], Kokab Jabeen[12], Rafia Javed[13], Waqas Yousaf[14] and Muhammad Zubair[15]

[1]Muhammad Suliman Sajid, Allama Iqbal Medical College, Lahore, Pakistan

[2]Sheeza Ahmed , Allama Iqbal Medical College, Lahore, Pakistan

[3]Salwa Adil, Combined Military Hospital Kharian, Kharian, Pakistan

[4]Ameena Nasir, Allama Iqbal Medical College, Lahore, Pakistan

[5]Shah Fhad, Allama Iqbal Medical College, Lahore, Pakistan

[6]Hamza Sajid, Allama Iqbal Medical College, Lahore, Pakistan

[7]Muhammad Haris, Allama Iqbal Medical College, Lahore, Pakistan

[8]Azeem Saeed, Allama Iqbal Medical College, Lahore, Pakistan

[9]Minal Fatima, Allama Iqbal Medical College, Lahore, Pakistan

[10]Nabahat Shafi, Dow University of Health Sciences, Karachi, Pakistan

[11]Shair Koh, Allama Iqbal Medical College, Lahore, Pakistan

[12]Kokab Jabeen, Allama Iqbal Medical College, Lahore, Pakistan

[13]Rafia Javed, Allama Iqbal Medical College, Lahore, Pakistan

[14]Waqas Yousaf, University of Lahore, Lahore, Pakistan

[15]Muhammad Zubair, Allama Iqbal Medical College, Lahore, Pakistan

ABSTRACT

Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is a common neurodevelopmental disorder in children, characterized by developmentally inappropriate inattention, impulsivity, and hyperactivity, leading to impaired academic and social functioning. Some evidence suggests that children with ADHD may have lower levels of omega-3 fatty acids, particularly EPA and DHA. However, it remains unclear whether either EPA or DHA is more effective in improving ADHD-related symptoms.

Objective: To compare the effectiveness of Eicosapentaenoic Acid (EPA) versus Docosahexaenoic Acid (DHA) supplementation in children with ADHD.

Methods: We searched PubMed, ScienceDirect, and Google Scholar using relevant keywords. After primary and secondary screening, only two randomized trials met the inclusion criteria. Data were extracted on ADHD symptom outcomes (Conners' Parent Rating Scales), literacy and cognitive performance, erythrocyte fatty acid levels, and subgroup analyses such as children with learning difficulties. Study quality was assessed, focusing on design, outcome measures, biomarker associations, and limitations including small sample size, dropout rates, and crossover effects.

Results: Neither trial demonstrated a significant difference between EPA and DHA supplementation in improving overall ADHD symptoms or literacy outcomes. However, increases in erythrocyte omega-3 levels—particularly DHA—were associated with better cognitive and behavioral outcomes. In one trial, increased RBC DHA significantly correlated with improved word reading ($p < 0.01$) and reduced oppositional behavior ($p < 0.01$). In another crossover trial, combined RBC EPA and DHA increases were significantly associated with improvements in spelling ($r = 0.365$, $p < 0.001$), attention ($r = -0.540$, $p < 0.001$), hyperactivity ($r = -0.310$, $p < 0.001$), and related behavioral measures.

Conclusions: Current evidence does not support a clear superiority of EPA over DHA or vice versa in treating ADHD symptoms in children. However, overall increases in omega-3 levels—particularly DHA—appear beneficial. Larger, well-designed studies are needed to clarify their independent effects.

***Corresponding author**

Muhammad Suliman Sajid, Allama Iqbal Medical College, Lahore, Pakistan.

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Keywords: Eicosapentaenoic Acid (EPA), Docosahexaenoic Acid (DHA), Omega-3 Fatty Acids, Attention Deficit Hyperactivity Disorder (ADHD), Neurodevelopmental Disorders, Comparative Effectiveness, ADHD Treatment, Pediatric ADHD, Fatty Acid Supplementation, Omega-3 Supplementation.

List of Abbreviations
ADHD: Attention-Deficit/Hyperactivity Disorder
DHA: Docosahexaenoic Acid
EPA: Eicosapentaenoic Acid
RBCs: Red Blood Cells

Introduction

Attention Deficit/Hyperactivity Disorder (ADHD) is a prevalent neurodevelopment disorder characterized by inattention, hyperactivity, and impulsivity which also leads to academic difficulties, social impairments, impulsivity, and reduced quality of life.It can have a debilitating impact on normal development, with high risk of comorbidities with other psychiatric disorders as well as emotional and social difficulties persisting also in adulthood [1]. The etiology of ADHD and comorbid disorders have genetic and environmental components. Among these, there is evidence for the role of nutrition and diet [2]. Deficiency in omega-3 polyunsaturated fatty acids (n-3 PUFAs) has been investigated as a potential pathogenetic mechanism in ADHD [3]. The global prevalence of ADHD in children and adolescents was 8.0 % (95%CI 6.0–10 %) [2]. It is also stated that the prevalence of ADHD is higher in boys (10%) than in girls (5%) (2). Standard management for ADHD involves psychostimulants (e.g., methylphenidate, amphetamines). They are considered to be first line drugs for reducing ADHD symptoms in children [4]. According to international guidelines, treatment is based on a multimodal approach that combines behavioural and pharmacological treatment [5-7]. But not all the patients respond to these drugs and there are some concerns regarding these drugs, which has prompted us to discover alternative drugs and therapies (including nutritional interventions) to treat ADHD [8,9].

Children with ADHD are frequently associated with lower circulatory levels of EPA and DHA and the low levels of these fatty acids have been correlated with attention difficulties and greater behavioral difficulties [10]. In the last decade there has been a growing interest in dietary supplementation of polyunsaturated fatty acids (PUFAs) such as Omega 3 (Ω-3) and Omega 6 (Ω-6). PUFAs are involved in different neural processes, including oxidative stress and inflammation, and their deficiency may play a putative role in ADHD pathogenesis [1-11]. Omega-3 fatty acids (eicosapentaenoic acid and docosahexaenoic acid) are crucial for normal development and functioning of the brain, neurotransmitting signaling, and anti-inflammatory pathways [12]. So, they are potential adjunctive therapies in management of ADHD [13,14]. EPA and DHA, despite being structurally similar, have different biological functions. DHA serves as a structural component of neuronal membranes and is important for neurogenesis, synaptic transmission, and long-term cognitive development; however, EPA shows strong anti-inflammatory properties and modulates neurotransmitter signaling pathways [15]. EPA is the most common form of fatty acids stored in our body and will convert to DHA when needed Several clinical trials have reported the beneficial effects of omega-3 fatty acids on ADHD symptoms, but the findings have been inconsistent [13,16-18]. Emerging evidence reported that EPA may cause greater improvement of symptoms than DHA, particularly in domains of inattention and behavioral regulation while DHA have more profound effects on cognitive outcomes in children with learning difficulties [13-16,19,20]. Though these observations were present, direct comparisons between EPA and DHA are limited and there was also an unclearity of relative impact each fatty acid on specific ADHD symptoms. So, there was a lack of systematic synthesis comparing the relative effectiveness of EPA versus DHA in reducing ADHD symptoms.

Aims

This systematic review aims to address this gap by evaluating the present evidence which compares the relative efficacy of EPA and DHA supplementation in reducing ADHD symptoms. By summarizing these results, this systematic review gives direction for future studies on nutritional interventions in ADHD.

Methods

This systematic review was conducted in accordance with the Cochrane Handbook for Systematic Reviews of Intervention and reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist The study was prospectively registered with the International Prospective Register of Systematic Reviews (PROSPERO) CRD420251126702 [21,22]

Literature Search and Search Strategy

Three independent authors conducted a comprehensive literature search using computerized indexes, including PubMed, Google Scholar, and the ScienceDirect, by utilizing specific combinations of MeSH terms and free-text keywords such as (Eicosapentaenoic Acid (EPA), Docosahexaenoic Acid (DHA), Omega-3 Fatty Acids, Attention Deficit Hyperactivity Disorder (ADHD), Neurodevelopmental Disorders, Comparative Effectiveness, ADHD Treatment, Pediatric ADHD, Fatty Acid Supplementation, Omega-3 Supplementation) and their synonyms were combined in appropriate combinations through Boolean operators and advanced searches conducted across three databases till 20th of May 2026. Reference lists of the included studies and clinical trial registries were also screened for additional studies. The exact search strategy for each database is provided in the supplementary files (Table 1).

Inclusion and Exclusion Criteria

We included only those studies in this systematic review which met the following inclusion criteria:

- Population diagnosed with ADHD.
- Pateints who were treated with either EPA or DHA supplementation, allowing for direct head-to-head comparison of these two interventions.
- Only RCTS were included, reporting the primary and secondary outcomes relevant to ADHD symptoms reduction.
- Only those RCTS were included in which participants diagnosed with ADHD received supplementation with either EPA or DHA, and the outcomes demonstrated a reduction in ADHD symptoms as assessed by validated clinical rating scales.

We Excluded Studies if they Met Any of the Following Conditions

- Nonrandomized studies, case reports, observational studies, meta-analysis, and reviews were excluded.
- We excluded those studies in which participants were not diagnosed with ADHD.
- Studies which do not report any relevant primary or secondary ADHD outcomes.
- RCTs which did not directly compare EPA and DHA supplementation with placebo.
- RCTs which involve combination treatments where the effects

of EPA and DHA could not be assessed separately.

Study Screening and Data Extraction

All the identified articles were imported on Rayyan AI. We performed systematic screening and removed duplicate articles. According to the predefined eligibility criteria, screening was performed in two different phases such as primary and secondary screening. Primary screening was performed via titles and abstracts to remove duplicate hits and ineligible designs by two authors and any conflict found was resolved by third author. Full-length articles were subsequently screened to ensure strict adherence to our inclusion criteria by two authors and any conflict found was resolved by third author. After completion of literature search, 2 studies were submitted for evaluation. Two independent authors extracted the data from included studies. A standardized data extraction sheet was used, and any discrepancy was resolved by consensus or by a third reviewer. The extraction sheet reported study details (author name, year, study type, and country), patient demographics (age, and others), intervention details, and study outcomes. Prisma is given in Figure 1.

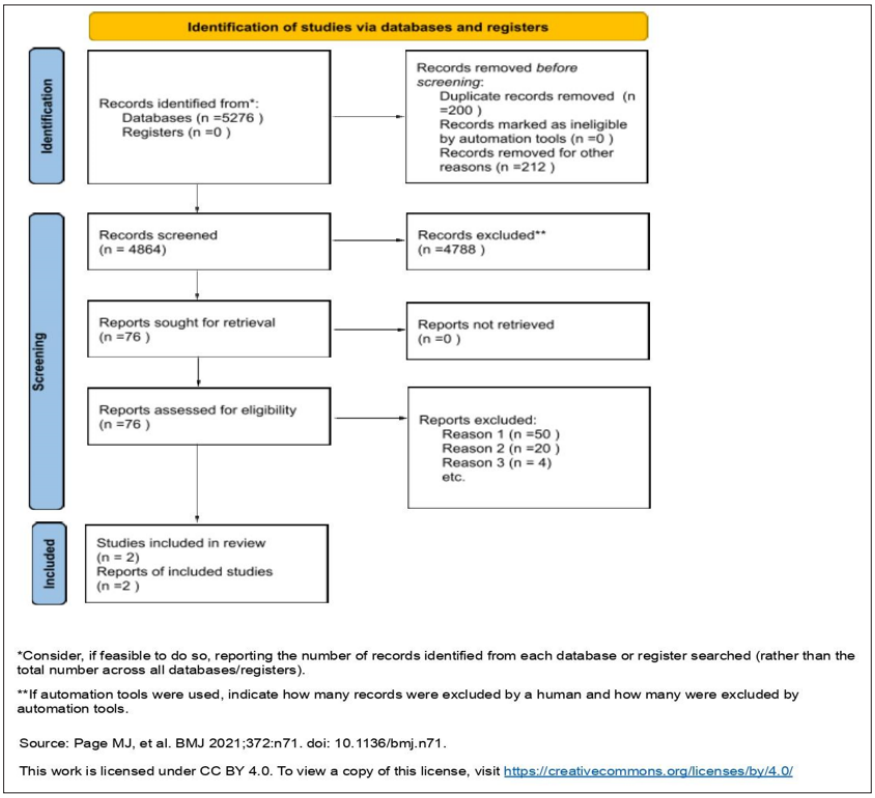

Figure 1: Prisma Flow Chart

Risk of Bias Assessment

The risk of bias of the included studies was assessed using the Cochrane RoB 2.0 tool for randomized controlled trials. Two authors conducted the assessments independently, and any discrepancy was resolved by consensus or by a third author. The risk of bias for the included studies is illustrated in a traffic light plot. (Figure 2 and 3)

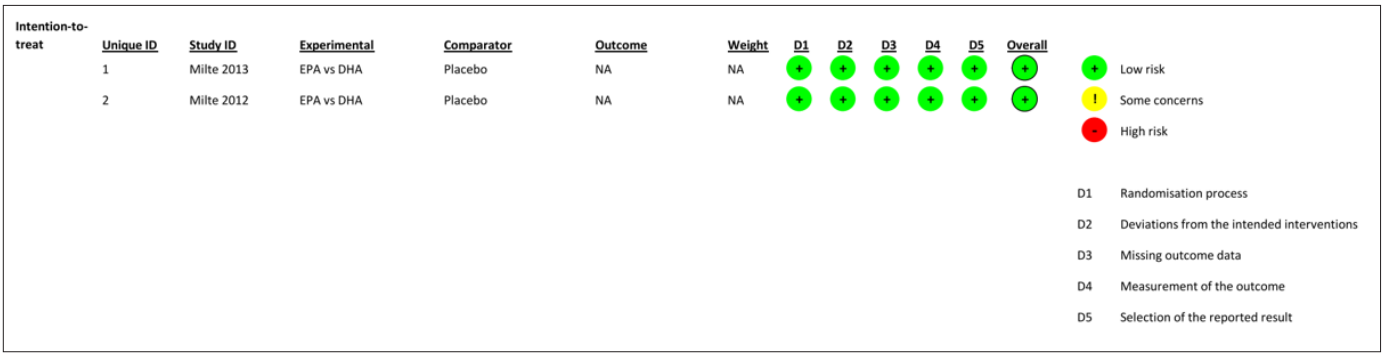

Figure 2: Summary of risk assessment by ROB 2

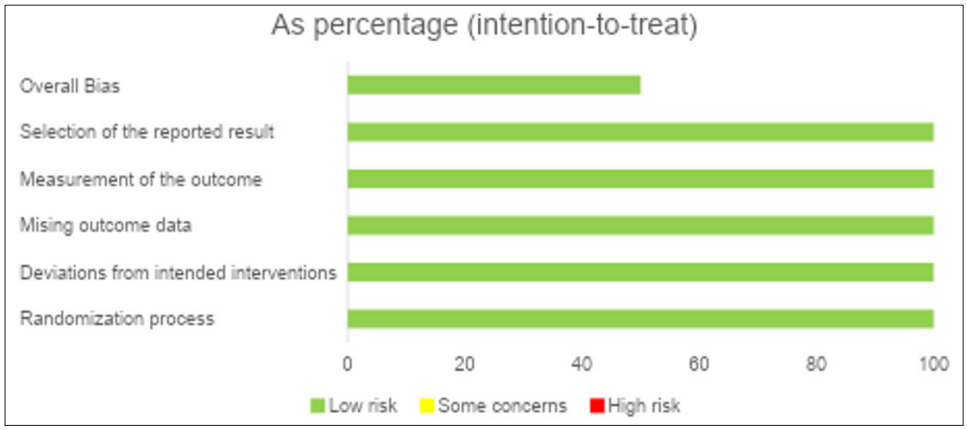

Figure 3: Risk of Bias Assessment by ROB 2

Outcomes and Measures

Our Primary Outcome of Interest was

Reduction in ADHD symptoms after supplementation with EPA or DHA

The secondary outcomes were

- Cognitive function changes
- Behavioral improvements
- Side effects of EPA vs DHA

Results

Two articles (which comprised 174 participants) were selected based on inclusion and exclusion criteria. Both randomized controlled trials were conducted in Australia, comparing EPA vs DHA rich supplementation in children aged 6 to 13 years, who had ADHD symptoms. In both studies, there were no significant differences between EPA and DHA groups in ADHD symptom improvements, as assessed by Conners parent ratings or literacy outcomes such as word reading and spelling. However, both trials showed that increase in RBC omega 3 fatty acid levels were associated with greater improvements in word reading, spelling, attention and behavior. In the 2012 trial, elevated RBC DHA level was significantly associated with better word reading ($p < 0.01$) and reduced oppositional behavior ($p< 0.01$). Moreover, in the 2013 cross trail, elevated levels of combined RBC EPA and DHA were correlated with improved spelling ($r = 0.365$, $p < 0.001$), better attention ($r = -0.540$, $p < 0.001$), and reduced hyperactivity ($r = -0,310$, $p < 0.001$), as well as other ADHD related behaviors ($r = -0.326$, $p < 0.001$).

Overall, the findings showed that achieving higher levels of omega 3 fatty acids is more important than the type of fatty acid supplemented. Moreover, EPA and DHA rich supplements did not differ in direct comparisons, children who showed greater elevation in RBC DHA or combined RBC EPA + DHA demonstrated better improvements in academic and behavioral outcomes. These results indicate that monitoring biomarker response is important, rather than focusing on a single fatty acid supplementation in ADHD.

Grade Assessment

Grade criteria rated the certainty of evidence for comparative effects of EPA vs DHA in reducing ADHD symptoms to be high. Despite the relatively small number of studies, the evidence is characterized by low risk of bias, consistent findings across both trials, and direct relevance to pediatric ADHD population. Direct comparison between EPA rich and DHA rich supplementation showed no significant difference in primary outcomes. However, the evidence strongly supports a dose response relationship between biomarker levels and clinical improvement. Moreover, significant correlations were observed between elevated RBCs omega 3 levels and improvement in word reading, spelling, hyperactivity. Though the specific isoform supplemented may not be the primary driver of efficacy, the high-certainty evidence indicates that achieving a sufficient physiological biomarker response is critical for observing behavioral and academic benefits in children with ADHD.

Summary of Findings

Comparative Effectiveness of Eicosapentaenoic Acid (EPA) versus Docosahexaenoic Acid (DHA) in Reducing Attention-Deficit/Hyperactivity Disorder (ADHD) Symptoms: A Systematic Review

Patient or population: Children with ADHD symptoms and learning difficulties

Setting: Intervention: Eicosapentaenoic acid

Comparison: Docosahexaenoic acid

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with Control (LA-rich oil)	Risk with EPA or DHA Supplementation				
ADHD Symptoms (Primary)	The mean ADHD symptoms at 4-12 months was 0	No significant difference between treatments (EPA, DHA, or control) on Conners Parent Rating Scales.	-	87 (2 RCTs)	⊕⊕⊕⊕ High	No significant differences were found between treatment groups in primary behavioral rating scales, though post-hoc correlations suggested a link between blood levels and symptom reduction.
Cognitive Function (Secondary)	The mean cognitive function at 4-12 months was 0	No significant difference between groups for cognitive measures	-	87 (2 RCTs)	⊕⊕⊕⊕ High	Standard cognitive tests (TEA-Ch) did not show significant improvement across groups, although individual increases in erythrocyte DHA correlated with better attention scores.
*T**he risk in the intervention group** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI). **CI:** Confidence Interval; **MD:** Mean Difference						
	The mean behavioral scores at 4-12 months was 0	No significant difference between treatment groups in the main analysis	-	87 (RCTs)	⊕⊕⊕⊕ High	No significant main effect was observed for literacy or behavior between EPA, DHA, and control, despite associations between higher omega-3 levels and improved spelling.

GRADE Working Group grades of evidence

High Certainty: we are very confident that the true effect lies close to that of the estimate of the effect.

Moderate Certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

Low Certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.

Very Low Certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Discussion

To the best of our knowledge, this is the first systematic review comparing the effectiveness of EPA VS DHA in reducing ADHD symptoms. Our findings aim to assess the efficacy between EPA and DHA supplementation differentially and their effects on clinical management of ADHD. Both studies investigated the role of omega-3 polyunsaturated fatty acids (n-3 PUFA), especially eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), on cognitive and behavioral outcomes in children. Milte et al. (2013) mainly emphasized children with ADHD and parent-reported learning difficulties in a 12-month randomized controlled three-way trial, whereas the other study focused on association between EPA+DHA levels and improvements in attention, behavior, and literacy in children with ADHD. This type of unique design used by Milte allowed each participant to serve as their own control and reduced the inter-individual variability. This also provided us with the opportunity to assess direct comparative effects of EPA vs DHA supplementation. We were also enabled to have a temporal understanding of how fatty acids incorporate into neural and erythrocyte membranes influencing cognitive performance over time. However, direct comparison of treatment groups (EPA-rich, DHA-rich, or control oil) which is reported in both studies did not yield any difference in literacy, attention, or parent-rated behavior statistically. Due to factors like variable compliance, small sample size, and potential carryover effects in both RCTS, we could not observe group level treatment effects.

But both studies spotlighted the significance of actual erythrocyte PUFA levels as determinants of outcomes. We found consistent association of increased erythrocyte EPA and DHA (total n-3 PUFA) with improvements in spelling, word reading, attention, hyperactivity, and oppositional behavior. Likewise, we correlated the reductions in n-6: n-3 ratio with better cognitive and behavioral outcomes. After evaluating all these findings, we come across that blood levels of n-3 PUFA, rather than mere group allocation, are important predictors of benefit which highlights the principles of personalized nutrition plans. The biological roles of higher EPA+DHA explain the cause of improvement in ADHD symptoms. DHA is found in high quantities in neural membranes and helps to enhance membrane fluidity, neurotransmission, and synaptic function while EPA is important because it serves as a precursor for anti-inflammatory eicosanoids which not only modulate brain function but also in behavior [23,24]. The negative relationship linked to higher n-6 PUFA levels showcased the adverse side effects of imbalanced n-6: n-3 ratio, which increases inflammation and negatively affects cognitive and behavioral functions. Lower red blood cells (RBCs) PUFAs (3) and a higher n-6/n-3 ratio have been reported in ADHD, and lower n-3 PUFAs levels are positively associated with the severity of ADHD symptoms in children [25-27].

Moreover, the cross-over trials that were used by Milte et al. are highly significant for omega-3 research. It enabled us to have valuable insights into pharmacokinetics and functional integration of omega-3 fatty acids. Such trials enabled us for clearer differentiation between acute vs cumulative effects of EPA and DHA on behavior and cognition, if DHA accumulates slowly in neural membranes and may exert long term synaptic benefits. However, EPA, due to its dynamic metabolism and shorter half-life, exerts more immediate functional effects. Researchers can expose the participants to both EPA and DHA rich interventions sequentially and can detect the subtle time dependent changes and interaction that parallel neurodevelopmental adaptations. This design is highly recommended for nutrient-based interventions in neuropsychiatric populations, and we can't measure these insights easily in parallel-group trials.

Recent RCTs have examined the effects of EPA vs DHA compared with controls separately to understand their individual efficacy. To distinguish the neurobehavioral and cardiometabolic effect of each fatty acid, single arm and cross over designs are highly valuable. For example, a study stated that EPA pre-dominant formulations produced greater improvements in attention and symptoms of hyperactivity than DHA alone which suggests EPA has a more pronounced anti-inflammatory and dopaminergic effect of EPA. (16) In another study, it was found that DHA has a more potential role in neuronal membrane fluidity and visual processing rather than mood regulation [28]. One study also proved that EPA-rich fish oil supplementation reduced the inflammation markers significantly with control oils which reinforce the EPA's physiological relevance in modulating systemic inflammation [29].

Both studies (Milte 2012 and 2013) were found useful in suggesting that those children having ADHD and concurrent learning difficulties may gain the most advantage from improving n-3 PUFA levels. When the sub-group analyses were performed it was indicated that children with baseline learning deficits displayed greater relation between increased erythrocyte DHA/EPA and improvements in literacy, attention, and behavior. This is aligned with the previous literature which suggests that omega-3 supplementation may be helpful for children who have attentional as well as academic challenges [13,30,31].

Limitations

The limitations of the studies are small sample size, high dropout rates, variable compliance, and crossover design without a formal washout period.These limitations have reduced the statistical power which unfortunately made us unable to detect treatment effects between groups, moreover; the crossover design which lacks a formal washout period has permitted the spillover effects, especially for DHA, which is mostly retained in neural membranes. Despite these limitations, the present study adds to evidence suggesting that increased u-3 PUFA intake can improve attention, literacy, and behavior problems in some children with ADHD

Conclusion

Both studies were useful in providing the growing evidence that greater erythrocyte levels of EPA and DHA are associated with significant improvement in literacy, attention, and behavioral outcomes in children with ADHD. However, at group level, direct supplementation effects were not found useful statistically. But such within-subject correlations are helpful in emphasizing the need for individualized nutrition tracking. Future research should highlight the optimizing dosage and duration of supplementation of EPA/DHA, assessing baseline nutritional status to identify children which may get benefit most, investigation on long term persistence of cognitive and behavioral improvements after supplementation, identifying the mechanisms linking n-3 PUFA to neural function and behavior.

These findings advocate the potential role of omega-3 fatty acids as an adjunct approach for managing ADHD symptoms and associated learning difficulties as well as highlighting the value of precision nutrition approaches in pediatric neurodevelopment. In conclusion, only two studies (2012 and 2013) by the same author have investigated the comparative effects of EPA and DHA on ADHD symptoms using this type of cross over design. This highlights a clear gap in literature so more multicentered and long-term cohorts are required to confirm these findings and evaluate the effects of omega-3 supplementation on reducing ADHD symptoms.

Conflict of Interest

The authors declare that they do not have any conflict of interest.

Fundings

No funding was received by the authors.

Ethical Statement

Not applicable.

Acknowledgements

None to declare.

Authors Contribution Statement

All authors contributed to the study conception and design.

PICO

Population	Intervention	Comparison	Outcome
All age groups	**(EPA) Eicosapentaenoic Acid**	**(DHA) Docosahexaenoic Acid**	**Reduction of adhD symptoms**
Age Group Group, Age	• Icosapent • 5,8,11,14,17-Eicosapentaenoic Acid • 5,8,11,14,17-Icosapentaenoic Acid • omega-3-Eicosapentaenoic Acid • omega 3 Eicosapentaenoic Acid • Timnodonic Acid • Eicosapentanoic Acid • Acid, Eicosapentanoic	• Acids, Docosahexaenoic • Docosahexenoic Acids • Acids, Docosahexenoic • Docosahexaenoic Acid • Acid, Docosahexaenoic • Docosahexaenoic Acid (All-Z Isomer) • Docosahexaenoic Acid, 4,7,10,13,16,19-(All-Z-Isomer) • Docosahexaenoic Acid, 4,7,10,13,16,19-Isomer, Sodium Salt • Docosahexaenoic Acid, 3,6,9,12,15,18-Isomer • Docosahexaenoic Acid, Sodium Salt • Docosahexaenoic Acid, 4,7,10,13,16,19-Isomer • Docosahexaenoic Acid, 4,7,10,13,16,19-(All-Z-Isomer), Potassium Salt • Docosahexaenoic Acid Dimer (All-Z Isomer) • Docosahexaenoic Acid, 4,7,10,13,16,19-(All-Z-Isomer), Cesium Salt • Docosahexaenoic Acid, 4,7,10,13,16,19-(All-Z-Isomer), Cerium Salt • Docosahexaenoate • Docosahexaenoic Acid, • 4,7,10,13,16,19-(Z,Z,Z,Z,Z,E-Isomer)	• ADHD • ADDH • Attention Deficit Disorders with Hyperactivity • Attention Deficit Hyperactivity Disorders • Attention Deficit Hyperactivity Disorder • Attention Deficit-Hyperactivity Disorder • Attention Deficit-Hyperactivity Disorders • Deficit-Hyperactivity Disorder, Attention • Deficit-Hyperactivity Disorders, Attention • Disorder, Attention Deficit-Hyperactivity • Disorders, Attention Deficit-Hyperactivity • Hyperkinetic Syndrome • Syndromes, Hyperkinetic • Attention Deficit Disorder • Attention Deficit Disorders • Deficit Disorder, Attention • Deficit Disorders, Attention • Disorder, Attention Deficit • Disorders, Attention Deficit • Brain Dysfunction, Minimal • Dysfunction, Minimal Brain • Minimal Brain Dysfunction

Search String:

1) ((((((((((EPA) Eicosapentaenoic acid) OR (Icosapent)) OR (5,8,11,14,17-Eicosapentaenoic Acid)) OR (5,8,11,14,17-Icosapentaenoic Acid)) OR (omega-3-Eicosapentaenoic Acid)) OR (omega 3 Eicosapentaenoic Acid)) OR (Timnodonic Acid)) OR (Eicosapentanoic Acid)) OR (Acid, Eicosapentanoic)) AND ((((((((((((((((((DHA) Docosahexaenoic Acid) OR (Acids, Docosahexaenoic)) OR (Docosahexenoic Acids)) OR (Acids, Docosahexenoic)) OR (Docosahexaenoic Acid)) OR (Acid, Docosahexaenoic)) OR (Docosahexaenoic Acid (All-Z Isomer))) OR (Docosahexaenoic Acid, 4,7,10,13,16,19-(All-Z-Isomer))) OR (Docosahexaenoic Acid, 4,7,10,13,16,19-Isomer, Sodium Salt)) OR (Docosahexaenoic Acid, 3,6,9,12,15,18-Isomer)) OR (Docosahexaenoic Acid, Sodium Salt)) OR (Docosahexaenoic Acid, 4,7,10,13,16,19-Isomer)) OR (Docosahexaenoic Acid, 4,7,10,13,16,19-(All-Z-Isomer), Potassium Salt)) OR (Docosahexaenoic Acid Dimer (All-Z Isomer))) OR (Docosahexaenoic Acid, 4,7,10,13,16,19-(All-Z-Isomer), Cesium Salt)) OR (Docosahexaenoic Acid, 4,7,10,13,16,19-(All-Z-Isomer), Cerium Salt)) OR (Docosahexaenoate)) OR (Docosahexaenoic Acid, 4,7,10,13,16,19-(Z,Z,Z,Z,Z,E-Isomer)))) AND ((((((((((((((((((((((ADHD) OR (ADDH)) OR (Attention Deficit Disorders with Hyperactivity)) OR (Attention Deficit Hyperactivity Disorders)) OR (Attention Deficit Hyperactivity Disorder)) OR (Attention Deficit-Hyperactivity Disorder)) OR (Attention Deficit-Hyperactivity Disorders)) OR (Deficit-Hyperactivity Disorder, Attention)) OR (Deficit-Hyperactivity Disorders, Attention)) OR (Disorder, Attention Deficit-Hyperactivity)) OR (Disorders, Attention Deficit-Hyperactivity)) OR (Hyperkinetic Syndrome)) OR (Syndromes, Hyperkinetic)) OR (Attention Deficit Disorder)) OR (Attention Deficit Disorders)) OR (Deficit Disorder, Attention)) OR (Deficit Disorders, Attention)) OR (Disorder, Attention Deficit)) OR (Disorders, Attention Deficit)) OR (Brain Dysfunction, Minimal)) OR (Dysfunction, Minimal Brain)) OR (Minimal Brain Dysfunction))

2) ("Eicosapentaenoic acid" OR EPA OR Icosapent OR "Timnodonic acid") AND ("Docosahexaenoic acid" OR DHA OR Docosahexaenoate) AND ("Attention Deficit Hyperactivity Disorder" OR ADHD OR "Attention Deficit Disorder" OR "Hyperkinetic syndrome") AND ("randomized controlled trial" OR "randomised controlled trial" OR RCT OR trial OR "clinical trial")

Baseline Table

Author, Year	Study Design	Intervention	Country	Sample Size (n)	Age (mean ± SD) years	Gender (male %)	Birth weight (mean ± SD) kg	Patient related health (mean ± SD)	Number of weeks breast-fed (mean ± SD)	Length of gestation (mean ± SD) weeks
Milte et al., 2012	Randomized Controlled Trial	"EPA DHA Safflower oil (control)"	Australia	"EPA = 30 DHA = 28 Control = 29"	"EPA = 8.77 ± 1.76 DHA = 8.89 ± 1.60 Control = 9.14 ± 2.03"	"EPA = 80 DHA = 75 Control = 83"	"EPA = 4.76 ± 2.18 DHA = 5.06 ± 2.58 Control = 6.03 ± 2.12"	"EPA = 4.17 ± 0.76 DHA = 3.89 ± 0.80 Control = 4.14 ± 0.83"	"EPA = 22.57 ± 34.06 DHA = 25.58 ± 27.73 Control = 14.28 ± 18.65"	"EPA = 38.63 ± 3.39 DHA = 39.42 ± 3.58 Control = 39.48 ± 3.51"
Milte et al., 2013	"Randomized Controlled Three-Way Crossover Trial"	"EPA DHA Linoleic acid (control)"	Australia	87	8.91 ± 1.729	77	5.30 ± 2.34	4.11 ± 0.81	21.7 ± 28.5	39.2 ± 3.27

Extraction sheet EPA vs DHA

Study	Year	Country	Study Design	Population (n)	Age (years)	Intervention (dose, duration)	Comparator	Outcomes Measured
Milte et al.	2012	Australia	Randomized controlled trial (4-month parallel design)	n=87	7-12	EPA-rich oil (1109 mg EPA + 108 mg DHA/day, 4 months); DHA-rich oil (264 mg EPA + 1032 mg DHA/day, 4 months)	LA-rich safflower oil (1467 mg LA/day)	Word reading, spelling, vocabulary, Conners' Parent Rating Scale, TEA-Ch attention tests, Go/No-Go inhibition test, erythrocyte PUFA profile
Milte et al.	2013	Australia	Randomized controlled three-way crossover trial (12 months)	n=87	6-13	EPA-rich oil (1109 mg EPA + 108 mg DHA/day, 4 months/phase); DHA-rich oil (264 mg EPA + 1032 mg DHA/day, 4 months/phase)	LA-rich safflower oil (1467 mg LA/day)	Word reading, spelling, attention, behavior (Conners' scales), erythrocyte PUFA profile

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