青魚を食べて
自分を責めるのをやめよう

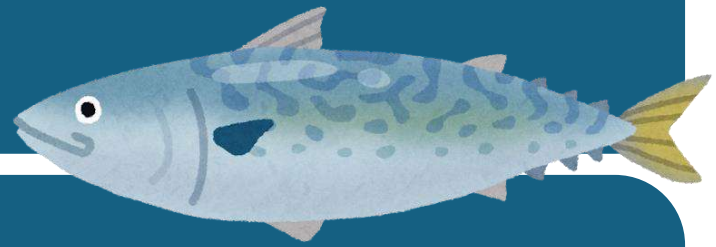
泉　寿彦

大分大学医学部　精神神経医学講座

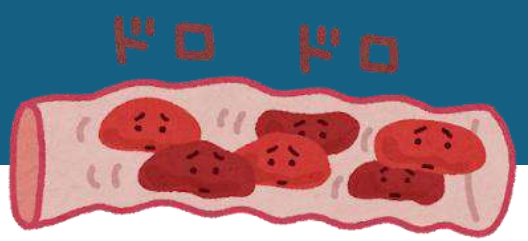
2024年11月10日市民公開講座

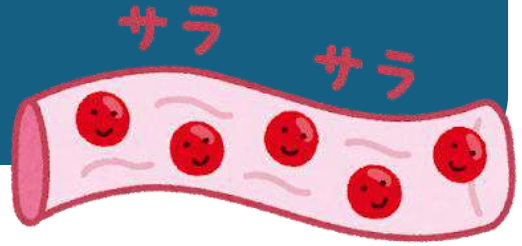
青魚は健康に良い

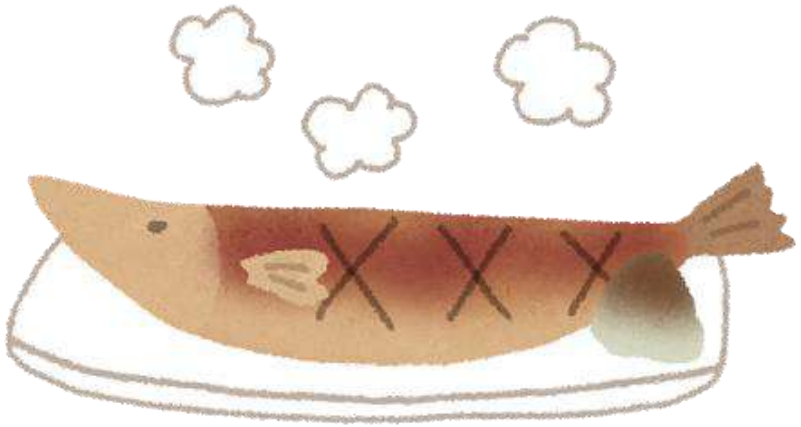
青魚(アジ、サバ、イワシ、サンマなど)はエイコサペンタエン酸(EPA)やドコサヘキサエン酸(DHA)といった不飽和脂肪酸、ビタミンB12、ビタミンAやEを豊富に含む。



不飽和脂肪酸はコレステロールや中性脂肪を低下させ、血液をサラサラにする効果がある。







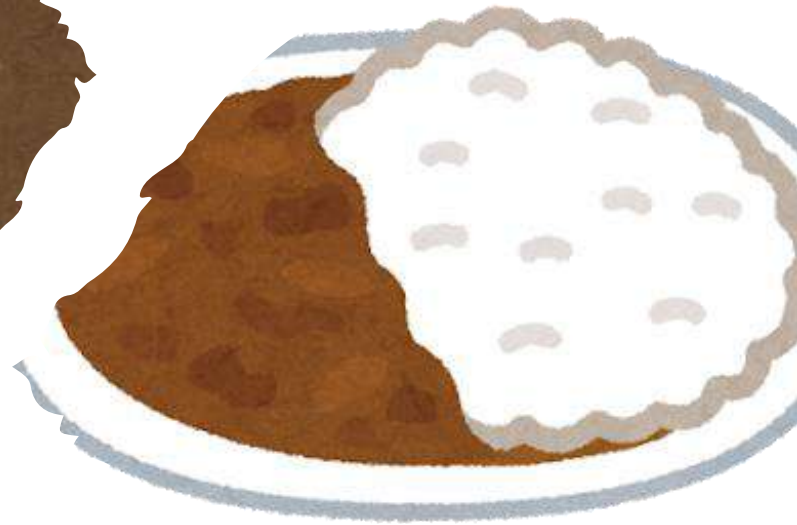
青魚は健康に良い

- ビタミンB12は神経障害の予防に、ビタミンA、Eは抗酸化作用による生活習慣病の予防に役立つ。

- EPAやDHAは体内で生成できない必須脂肪酸であり、食事によって体内に取り込む必要がある。

魚類缶詰(鯖缶)ブーム

- 2017年に複数のテレビ番組で鯖缶が取り上げられ、栄養価の高さと健康効果などに注目が集まるようになった。
- 一時的に店頭で品薄状態になるほど需要が高まった。
- 以降、鯖缶と利用したレシピなどがたくさん生まれた。



魚類缶詰(鯖缶)ブーム

鯖缶の健康効果にEPAやDHAが関わっている。

→鯖(青魚)が体の健康に良いのはよく知られいる。

青魚は頭にもよい？

- スーパーの魚介コーナーに行くと「サカナを食べるとアタマが良くなる」といったフレーズの歌が流れている。
- DHAはEPAが体内で変換されるか、直接摂取で得ることが出来る。
- DHAは学習や記憶や学習といった脳の機能に重要な役割を果たしていると言われる。
- →だから「サカナを食べるとアタマが良くなる」と言われる。

青魚(EPAとDHA)が身体の健康に良いことは分かった

→精神(メンタル、気持ち)への影響はどうだろうか

ELSEVIER

Journal of Affective Disorders 104 (2007) 217–223

JOURNAL OF AFFECTIVE DISORDERS

www.elsevier.com/locate/ja

Brief report

Depressed mood and dietary fish intake: Direct relationship or indirect relationship as a result of diet and lifestyle?☆

K.M. Appleton [a,*], J.V. Woodside [b], J.W.G. Yarnell [b], D. Arveiler [c], B. Haas [c], P. Amouyel [d], M. Montaye [d], J. Ferrières [e], J.B. Ruidavets [e], P. Ducimetiere [f], A. Bingham [f], A. Evans [b] for the PRIME Study Group

[a] School of Psychology, Queen's University Belfast, 18-30 Malone Road, Belfast, BT9 5BP, United Kingdom
[b] School of Medicine and Dentistry, Queen's University Belfast, BT12 6BJ, United Kingdom
[c] The Strasbourg MONICA Project, Department of Epidemiology and Public Health, EA1801, Strasbourg, France
[d] The Lille Monica Project, INSERM U744, Lille, France
[e] The Toulouse MONICA Project, INSERM U558, Toulouse, France
[f] The Coordinating Center, INSERM U780, Hôpital Paul Brousse, Villejuif, France

Received 18 October 2006; received in revised form 23 March 2007; accepted 23 March 2007
Available online 1 May 2007

Abstract

Previous studies have suggested an association between depressed mood and the dietary intake of fish. In all cases, however, dietary fish intake has been considered at the exclusion of all other aspects of the diet. This analysis investigates associations between depressed mood and dietary fish intake, while also concurrently investigating intake of a number of other dietary components. The analysis is conducted on data from 10,602 men from Northern Ireland and France screened for inclusion into the PRIME cohort study. Depressed mood was assessed using a self-report questionnaire based on the Welsh Pure Depression sub-scale of the Minnesota Multiphasic Personality Inventory, diet was assessed using a Food Frequency Questionnaire, and limited demographics were also measured. Using regression, depressed mood is initially inversely associated with dietary fish intake. On inclusion of all other dietary variables, the strength of this relationship reduces but remains, and significant associations with a number of other foods are also found. On additional inclusion of all demographic variables, the strength of the above relationships again reduces, and associations with various measures of socio-economic status and education are also significant. These findings suggest that depressed mood is associated with fish intake both directly, and indirectly as part of a diet that is associated with depression and as part of a lifestyle that is associated with depression. Additional support for these conclusions is also provided in the pattern of associations between depressed mood and diet in the two countries. The relative contributions of fish intake to depressed mood both directly and indirectly are yet to be determined. However, while diet is not measured and until lifestyle can

Table 1
Coefficients for all regression models — Northern Ireland sample

Variable	Linear term			Non-linear term		
	Standardized beta	p	95% confidence intervals	Standardized beta	p	95% confidence intervals
Model 1						
Fish	**−0.16**	**0.01**	**−3.13, −0.96**	**0.10**	**0.02**	**0.33, 3.09**
Model 2						
Fish	**−0.11**	**0.02**	**−2.48, −0.27**	0.08	0.07	−0.09, 2.70
Cake	**−0.11**	**0.05**	**−0.42, −0.00**	0.08	0.14	−0.01, 0.10
Cheese	−0.01	0.76	−0.52, 0.38	−0.01	0.95	−0.28, 0.26
Eggs	**0.07**	**0.03**	**0.07, 1.01**	−0.01	0.71	−0.34, 0.23
Fruit	**−0.14**	**<0.01**	**−0.39, −0.10**	0.07	0.12	−0.01, 0.06
Nuts	−0.02	0.55	−1.07, 0.57	0.01	0.81	−0.62, 0.80
Offal	**0.08**	**0.01**	**0.51, 4.45**	−0.05	0.14	−6.10, 0.89
Potatoes boiled/baked	−0.14	0.08	−1.76, 0.09	0.12	0.15	−0.17, 1.13
Potatoes fried	−0.01	0.76	−1.12, 0.82	0.07	0.16	−0.33, 2.03
Vegetables raw	**−0.13**	**<0.01**	**−1.44, −0.26**	0.06	0.20	−0.17, 0.80
Vegetables cooked	−0.05	0.49	−0.91, 0.43	0.05	0.48	−0.28, 0.60
Model 3						
Fish	**−0.09**	**0.05**	**−2.25, −0.01**	0.07	0.13	−0.32, 2.51
Cake	−0.06	0.25	−0.33, 0.09	0.05	0.33	−0.03, 0.09
Cheese	−0.01	0.91	−0.48, 0.42	−0.01	0.90	−0.29, 0.25
Eggs	0.05	0.14	−0.11, 0.84	−0.01	0.94	−0.29, 0.27
Fruit	**−0.10**	**0.02**	**−0.33, −0.03**	0.04	0.34	−0.02, 0.05
Nuts	0.01	0.98	−0.82, 0.84	−0.01	0.81	−0.80, 0.63
Offal	0.06	0.06	−0.03, 3.93	−0.04	0.22	−5.68, 1.31
Potatoes boiled/baked	−0.13	0.11	−1.69, 0.16	**0.11**	0.19	−0.21, 1.08
Potatoes fried	−0.02	0.65	−1.21, 0.76	0.06	0.22	−0.44, 1.94
Vegetables raw	**−0.13**	**0.01**	**−1.41, −0.22**	0.06	0.22	−0.18, 0.78
Vegetables cooked	−0.02	0.81	−0.76, 0.59	0.04	0.57	−0.31, 0.56
Age	−0.04	0.07	−0.05, 0.01			
Housing type	−0.02	0.32	−0.06, 0.02			
Number of toilets	0.03	0.26	−0.08, 0.29			
Number of baths	−0.04	0.10	−0.46, 0.04			
Number of cars	**−0.08**	**<0.01**	**−0.27, −0.07**			
Work type	**−0.06**	**0.01**	**−0.26, −0.03**			
Years at school	0.03	0.38	−0.02, 0.06			
Level of education	−0.02	0.43	−0.17, 0.07			

Significant predictors of depressed mood ($p<0.05$) are highlighted in bold.

Table 2
Coefficients for all regression models — French sample

Variable	Linear term			Non-linear term		
	Standardized beta	p	95% confidence intervals	Standardized beta	P	95% confidence intervals
Model 1						
Fish	**−0.25**	**<0.01**	**−4.30, −2.85**	**0.21**	**<0.01**	**3.30, 5.34**
Model 2						
Fish	**−0.18**	**<0.01**	**−3.38, −1.87**	**0.16**	**<0.01**	**2.19, 4.29**
Cake	0.01	0.89	−0.26, −0.29	0.03	0.20	−0.06, 0.26
Cheese	**−0.14**	**<0.01**	**−0.66, −0.19**	**0.12**	**<0.01**	**0.06, 0.24**
Eggs	0.01	0.59	−0.47, 0.82	0.04	0.13	−0.17, 1.28
Fruit	−0.01	0.85	−0.10, 0.09	0.01	0.86	−0.02, 0.02
Nuts	**−0.09**	**<0.01**	**−1.43, −0.47**	**0.12**	**<0.01**	**0.73, 1.59**
Offal	0.02	0.29	−0.44, 1.49	0.02	0.27	−0.66, 2.33
Potatoes boiled/baked	−0.01	0.76	−0.36, 0.26	0.03	0.39	−0.09, 0.24
Potatoes fried	0.04	0.10	−0.09, 1.12	0.02	0.35	−0.41, 1.15
Vegetables raw	**−0.18**	**<0.01**	**−1.10, −0.49**	**0.13**	**<0.01**	**0.13, 0.44**
Vegetables cooked	−0.06	0.07	−0.59, 0.02	0.06	0.08	−0.02, 0.30
Model 3						
Fish	**−0.14**	**<0.01**	**−2.73, −1.17**	**0.13**	**<0.01**	**1.60, 3.75**
Cake	0.03	0.24	−0.11, 0.44	0.01	0.88	−0.15, 0.17
Cheese	**−0.10**	**0.01**	**−0.55, −0.07**	**0.10**	**0.02**	**0.02, 0.21**
Eggs	0.03	0.29	−0.30, 1.01	0.03	0.36	−0.39, 1.07
Fruit	0.00	0.99	−0.10, 0.10	−0.01	0.76	−0.02, 0.02
Nuts	**−0.06**	**0.01**	**−1.13, −0.17**	**0.09**	**<0.01**	**0.44, 1.30**
Offal	0.01	0.96	−0.95, 1.00	0.03	0.18	−0.47, 2.51
Potatoes boiled/baked	−0.02	0.48	−0.42, 0.20	0.03	0.34	−0.09, 0.25
Potatoes fried	0.03	0.22	−0.23, 1.01	0.02	0.46	−0.49, 1.07
Vegetables raw	**−0.11**	**<0.01**	**−0.79, −0.17**	**0.08**	**0.03**	**0.02, 0.34**
Vegetables cooked	−0.04	0.25	−0.49, 0.13	0.04	0.28	−0.07, 0.25
Age	−0.02	0.07	−0.03, 0.01			
Housing type	**−0.10**	**<0.01**	**−0.13, −0.07**			
Number of toilets	−0.02	0.22	−0.16, 0.04			
Number of baths	−0.01	0.97	−0.11, 0.11			
Number of cars	**−0.07**	**<0.01**	**−0.23, −0.10**			
Work type	**−0.03**	**0.02**	**−0.18, −0.02**			
Years at school	**−0.07**	**<0.01**	**−0.06, −0.02**			
Level of education	0.01	0.86	−0.08, 0.10			

Significant predictors of depressed mood ($p<0.05$) are highlighted in bold.

北アイルランドとフランス男性の魚摂取・ライフスタイルと抑うつ気分の関連を調べた。

→両国それぞれで抑うつ気分に関連する食事摂取に違いを認めたが、抑うつ気分が強いほど魚摂取が少ないことは共通であった。

Fish consumption and major depression

Sir—WHO estimates that major depression is the greatest single cause of disability worldwide.[1] The annual prevalence of major depression shows nearly a 60-fold variation across countries,[2] in a pattern similar to cross-national differences in mortality from coronary artery disease, which suggest that similar dietary risk factors could be important.

Among healthy volunteers, low plasma concentrations of an essential fatty acid found in fish, docosahexaenoic acid, predict low concentrations of a marker of brain serotonin turnover, cerebrospinal fluid 5-hydroxyindolacetic acid (CSF 5-HIAA).[3] The finding that low concentrations of CSF 5-HIAA are strongly associated with depression and suicide have been widely replicated. Since docosahexaenoic acid is selectively concentrated in neural tissues and important for nervous-system function, we tested the hypothesis that a high consumption of fish could be correlated with a lower annual prevalence of major depression (figure).

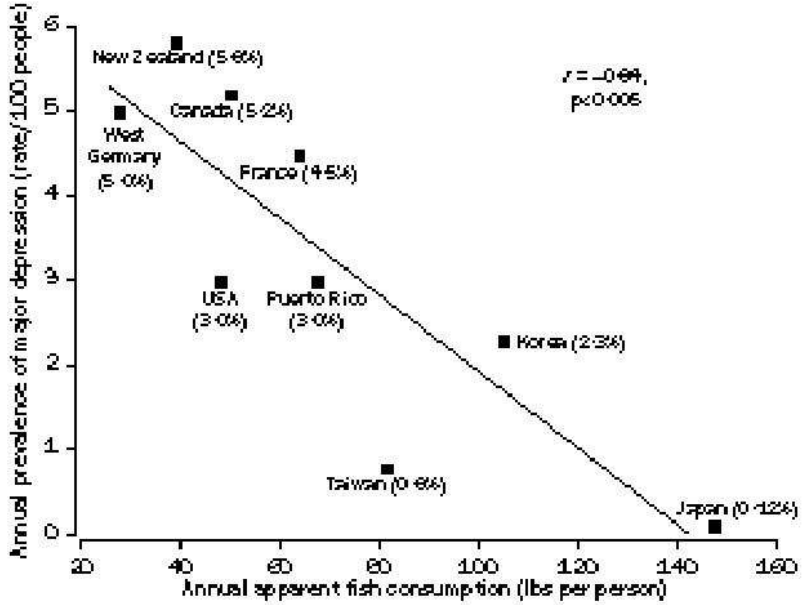
The cross-national comparisons of the prevalence of major depression reported by Weissman and colleagues[2] are among the most reliable cross-national data available. The rigorous methodologies used in these studies—large sample size (35 000), random prospective design, repeat sampling techniques, multiple community sampling, and use of a structured clinical interview with uniform internationally accepted diagnostic criteria—create confidence in the validity and comparability of these data. The structured interviews were independently verified as culturally appropriate for each community. The core biological symptoms that define major depression were the main factors used to determine the differences in prevalence of major depression across countries, rather than mood ratings which are prone to cultural bias. The economic data on apparent fish consumption was calculated by fish catch plus imports minus exports and are not as reliable as data from direct dietary surveys or tissue analyses, but do provide a comparable estimate across countries. The data on the annual prevalence of major depression reported by the Ministry of Welfare in Japan included 130 000 individuals, but did not use structured instruments for diagnosis or randomised population-sampling methods. However, exclusion of these Japanese data did not significantly affect the correlation analysis (r=0·77, p<0·03).

The direction and power of the correlation between apparent fish consumption and major depression accords with recent clinical reports of individuals that higher concentrations of docosahexaenoic acid in red-blood-cell membranes (r=−0·80, p<0·01),[4] as well as higher ratios of eicosapentaenoic acid to arachidonic acid in plasma (r=−0·73, p<0·01),[5] predict less severe symptoms of depression.

This correlation between apparent fish consumption and lower annual prevalence of major depression does not show that fish consumption can cause differences in the prevalence of major depression or that eating fish or fish oils are useful in treatment. Various cultural, economic, social, and other factors can confound this simple correlational relation.

Joseph R Hibbeln
Outpatient Clinic, National Institute on Alcohol Abuse and Alcoholism, Rockville, MD 20852, USA

1 Murray CJL, Lopez AD, eds. Global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020. Boston MA: Harvard University Press, 1996.
2 Weissman MM, Bland RC, Canino GJ, et al. Cross-national epidemiology of major depression and bipolar disorder. *JAMA* 1996; **276**: 293–99.
3 Hibbeln JR, Umhau JC, George DT, Salem N Jr. Do plasma polyunsaturates predict hostility and violence? *World Rev Nutr Diet* 1996; **82**: 175–86.
4 Edwards R, Peet M, Shay J, Horrobin D. Omega-3 polyunsaturated fattyacid levels in the diet and in red blood cell membranes of depressed patients. *J Affect Dis* (in press).
5 Adams PB, Lawson S, Sanigorski A, Sinclair AJ. Arachidonic to eicosapentaenoic acid ratio in blood correlates positively with clinical symptoms of depression. *Lipids* 1996; **31**: S-167–76.



Fish consumption and prevalence of major depression
Simple correlational model with Pearson product moment analysis indicates a potentially substantial interaction between the nearly 60-fold range in annual prevalence rates of major depression and the over 100-fold range of apparent fish consumption, in a multinational comparison.
1 lb=0·4536 kg.

DHAが低いと、うつ病や自殺に強く関連していると言われる５－HIAAが低いと予測されDHAは魚から摂取される。

各国の魚の消費量とうつ病の年間有病率は負の相関を示す。
→魚食べてる方がうつ病が少ない

Liao et al. *Translational Psychiatry* (2019)9:190
https://doi.org/10.1038/s41398-019-0515-5

Translational Psychiatry

REVIEW ARTICLE Open Access

Efficacy of omega-3 PUFAs in depression: A meta-analysis

Yuhua Liao[1], Bo Xie[1], Huimin Zhang[1], Qian He[1], Lan Guo[2], Mehala Subramanieapillai[3], Beifang Fan[1], Ciyong Lu[2] and Roger S. McIntyre[3]

Abstract

We conducted this meta-analysis of double-blind randomized placebo-controlled trials to estimate the efficacy of omega-3 polyunsaturated fatty acids (PUFAs), especially docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), in the improvement of depression. We applied a systematic bibliographic search in PubMed and EMBASE for articles published prior to 20 December 2017. This meta-analysis was performed using RevMan 5.3 and R 3.4.3, and means and standard deviations were calculated in fixed- or random-effects models based on the results of the Q-test. A sensitivity analysis was also conducted to evaluate the stability of the results, and publication bias was evaluated by a funnel plot and Egger's linear regression analysis. Our search resulted in 180 articles; we analyzed 26 studies, which included 2160 participants. The meta-analysis showed an overall beneficial effect of omega-3 polyunsaturated fatty acids on depression symptoms (SMD = −0.28, $P = 0.004$). Compared with placebo, EPA-pure (=100% EPA) and EPA-major formulations (≥60% EPA) demonstrated clinical benefits with an EPA dosage ≤1 g/d (SMD = −0.50, $P = 0.003$, and SMD = −1.03, $P = 0.03$, respectively), whereas DHA-pure and DHA-major formulations did not exhibit such benefits. Current evidence supports the finding that omega-3 PUFAs with EPA ≥ 60% at a dosage of ≤1 g/d would have beneficial effects on depression. Further studies are warranted to examine supplementation with omega-3 PUFAs for specific subgroups of subjects with inflammation, severity of depression, and the dose response for both EPA and DHA supplementation.

「うつ病」「オメガ3脂肪酸」「ランダム化比較試験」をキーワードにオメガ3脂肪酸(EPAとDHA)の役割を検討した研究を検索しまとめた。

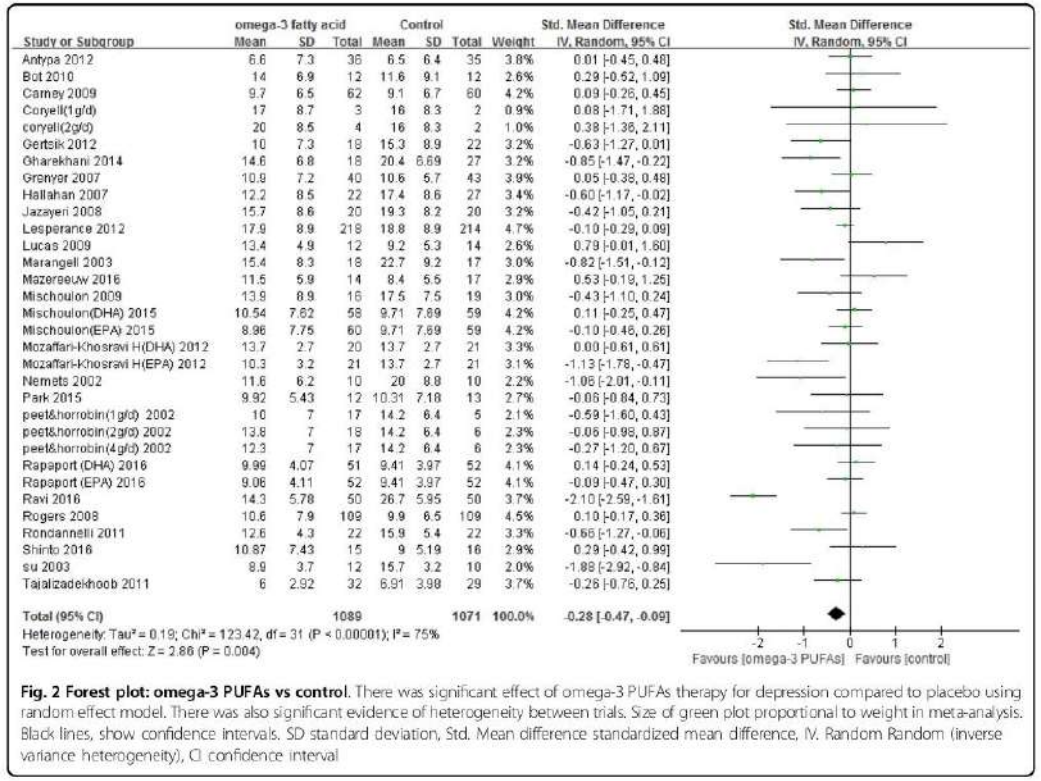


Fig. 2 Forest plot: omega-3 PUFAs vs control. There was significant effect of omega-3 PUFAs therapy for depression compared to placebo using random effect model. There was also significant evidence of heterogeneity between trials. Size of green plot proportional to weight in meta-analysis. Black lines, show confidence intervals. SD standard deviation, Std. Mean difference standardized mean difference, IV. Random Random (inverse variance heterogeneity), CI confidence interval

→EPAやDHAの摂取はうつ病に有益であることが示唆された。

Prostaglandins, Leukotrienes and Essential Fatty Acids 192 (2023) 102572

Contents lists available at ScienceDirect

Prostaglandins, Leukotrienes and Essential Fatty Acids

journal homepage: www.elsevier.com/locate/plefa

Effects of long-chain omega-3 polyunsaturated fatty acids on reducing anxiety and/or depression in adults; A systematic review and meta-analysis of randomised controlled trials

Christos F. Kelaiditis [a,*], E.Leigh Gibson [b], Simon C. Dyall [a]

[a] School of Life and Health Sciences, University of Roehampton, London, UK
[b] School of Psychology, University of Roehampton, London, UK

ARTICLE INFO

Keywords:
Anxiety
Depression
Eicosapentaenoic acid
Docosahexaenoic acid
Systematic review
Meta-analysis

ABSTRACT

The omega-3 polyunsaturated fatty acids (PUFAs) eicosapentaenoic- (EPA), docosahexaenoic- (DHA) and docosapentaenoic acid (DPAn-3) are promising therapeutic options in reducing the severity of anxious and depressive symptoms. However, meta-analyses of randomised controlled trials (RCTs) yield mixed findings. This systematic review and meta-analysis reviewed the evidence and assessed the efficacy of EPA, DHA and DPAn-3 in reducing the severity of anxiety and depression with specific consideration to methodological complications unique to the field e.g., dose and ratio of omega-3 PUFAs and placebo composition. Random-effects meta-analysis of ten RCTs comprising 1426 participants revealed statistically significant reduction in depression severity with EPA-enriched interventions at proportions ≥ 60% of total EPA + DHA (SMD: -0.36; 95% CI: -0.68, -0.05; $p = 0.02$) ($I^2 = 86\%$) and EPA doses between ≥ 1 g/day and < 2 g/day (SMD: -0.43; 95% CI: -0.79, -0.07; $p = 0.02$) ($I^2 = 88\%$); however, EPA doses ≥ 2 g/day were not associated with significant therapeutic effects (SMD: -0.20; 95% CI: -0.48, 0.07; $p = 0.14$). Only one study reported significant reduction in anxiety severity with 2.1 g/day EPA (85.6% of total EPA + DHA), therefore meta-analysis was not possible. No trials administering DPAn-3 were identified. Visual examination of the funnel plot revealed asymmetry, suggesting publication bias and heterogeneity amongst the trials. These results support the therapeutic potential of EPA in depression at proportions ≥ 60% of total EPA + DHA and doses ≥ 1 g/day and < 2 g/day. The observed publication bias and heterogeneity amongst the trials reflect the need for more high-quality trials in this area with consideration to the unique nature of omega-3 PUFAs research, to more fully elucidate the therapeutic potential of EPA, DHA and DPAn-3.

EPA＋DHAの合剤でEPAの割合が60%以上で抗うつ効果を認める。60%未満では効果なし。

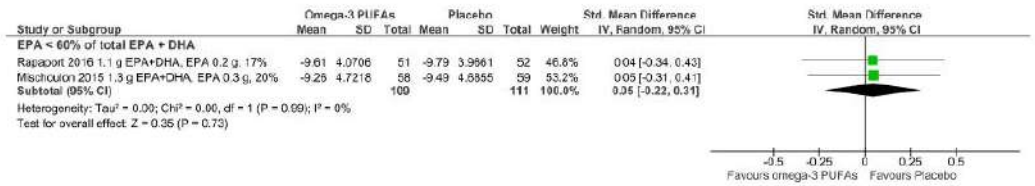


Fig. 3. Pooled estimate of effect of subgroups of trials administering interventions comprising EPA proportions < 60% of total EPA + DHA and reporting their findings as mean change from baseline values on measures of depression.

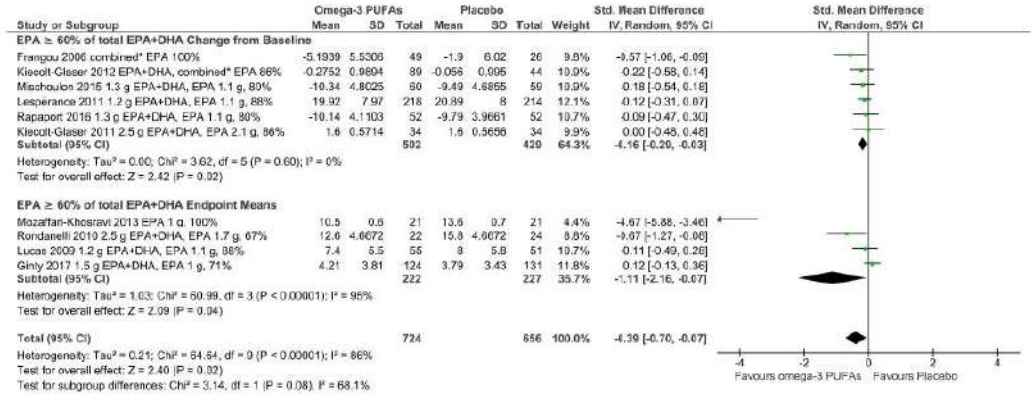


Fig. 4. Pooled estimate of effect of subgroups of trials administering EPA-enriched interventions comprising EPA proportions ≥ 60% of total EPA + DHA and reporting their findings as mean change from baseline and endpoint mean values on measures of depression. *Frangou et al., (2006) and Kiecolt-Glaser et al., (2012) comprised two active treatment arms administering 1 g and 2 g EPA, and 1 g and 2.1 g EPA respectively; RevMan 5.4 Calculator was used to combine the respective arms into a single arm, within their respective trial, to calculate the combined effect of each trial's active intervention.

→DHAではなくEPAに抗うつ効果があることが示唆された。

EPAに抗うつ効果があるのであれば、
自傷行為にも効果があるのではないか

EPA等の不飽和脂肪酸の自傷行為予防効果の調査

- EPAが抗うつ効果があることは様々な研究で示唆されてきた。
- 人は本来安楽を求め、苦痛は避けたいと願うものである。
- 時に自分を傷つける行為に及んでしまうことがあり、気分の落ち込みがその要因として大きい

→仮説：抑うつ効果があるEPAは自傷行為を軽減するのではないか

アラキドン酸(AA)とうつ病の脳内炎症仮説

- アラキドン酸(AA)は不飽和脂肪酸のひとつ。

- 乳児の脳や体の発達に必要不可欠な成分で血圧やコレステロールのコントロールにも良い影響がある。

アラキドン酸(AA)と
うつ病の脳内炎症仮説

- 一方で酸化・代謝されるなかで炎症を引き起こす前駆物質となる。
- うつ病の発症仮説に『脳内炎症仮説』があり、ストレスによって慢性的な炎症が発生すると炎症物質が情動や思考を司る脳神経細胞に悪影響を与え、抑うつや興味意欲の低下、思考制止につながるのでは、というもの

→炎症関わるAAはうつ病を惹起し自傷や自殺のリスクとなるのでは？

EPAやDHA、AAの自傷行為、自殺企図への影響を調査した研究

- EPAやDHA、Li、AAの自傷や自殺に対する影響を調査
- 大分大学高度救命救急センターと大分県立病院精神医療センターを受診した中毒・外傷患者が対象
- 上記物質を投薬されておらず自然摂取のみの患者
- 自殺企図群39名、自傷群29名、コントロール群166名でEPA、DHA、Li、AAの血中濃度を比較

frontiers | Frontiers in Psychiatry

TYPE Original Research
PUBLISHED 16 December 2022
DOI 10.3389/fpsyt.2022.1083739

OPEN ACCESS

EDITED BY
Hikaru Hori,
Fukuoka University, Japan

REVIEWED BY
Asuka Katsuki,
University of Occupational and Environmental Health, Japan
Yuta Okamoto,
Fukuoka University, Japan

*CORRESPONDENCE
Takeshi Terao
terao@oita-u.ac.jp

SPECIALTY SECTION
This article was submitted to Mood Disorders, a section of the journal Frontiers in Psychiatry

RECEIVED 29 October 2022
ACCEPTED 28 November 2022
PUBLISHED 16 December 2022

CITATION
Izumi T, Kanehisa M, Terao T, Shiotsuki I, Shirahama M, Satoh M, Muronaga M, Kohno K, Hirakawa H, Etoh M and Matsukawa T (2022) Naturally absorbed lithium may prevent suicide attempts and deliberate self-harm while eicosapentaenoic acid may prevent deliberate self-harm and arachidonic acid may be a risk factor for deliberate self-harm: The updated different findings in new analyses. *Front. Psychiatry* 13:1083739. doi: 10.3389/fpsyt.2022.1083739

Naturally absorbed lithium may prevent suicide attempts and deliberate self-harm while eicosapentaenoic acid may prevent deliberate self-harm and arachidonic acid may be a risk factor for deliberate self-harm: The updated different findings in new analyses

Toshihiko Izumi[1], Masayuki Kanehisa[2], Takeshi Terao[1]*, Ippei Shiotsuki[2], Masanao Shirahama[2], Moriaki Satoh[2], Masaaki Muronaga[1], Kentaro Kohno[1], Hirofumi Hirakawa[1], Masaki Etoh[1] and Takehisa Matsukawa[3,4]

[1]Department of Neuropsychiatry, Oita University Faculty of Medicine, Oita, Japan, [2]Psychiatric Medical Center, Oita Prefectural Hospital, Oita, Japan, [3]Department of Epidemiology and Environmental Health, Juntendo University School of Medicine, Tokyo, Japan, [4]Department of Forensic Medicine, Juntendo University School of Medicine, Tokyo, Japan

Background: Since our previous investigation on the effects of trace lithium, eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), and arachidonic acid (AA) on deliberate self-harm and suicide attempts in 2018, to our knowledge, no replication study has been conducted on this topic.

Subjects and methods: We increased 37 new patients and totally 234 patients were re-analyzed to further investigate the association of suicide-related behaviors with levels of trace lithium, EPA, DHA, and AA in a different way to avoid multicollinearity.

Results: Higher lithium levels were significantly associated with fewer suicide attempts and deliberate self-harm, higher EPA levels were significantly associated with fewer deliberate self-harm, and higher AA levels were significantly associated with more deliberate self-harm.

Discussion: Although the sample size was only slightly larger than the previous study, the present results were clearly different from the previous ones due to the use of different statistical analyses to avoid multicollinearity.

(Izumi et al, Frontiers Psychiatry, 2022)

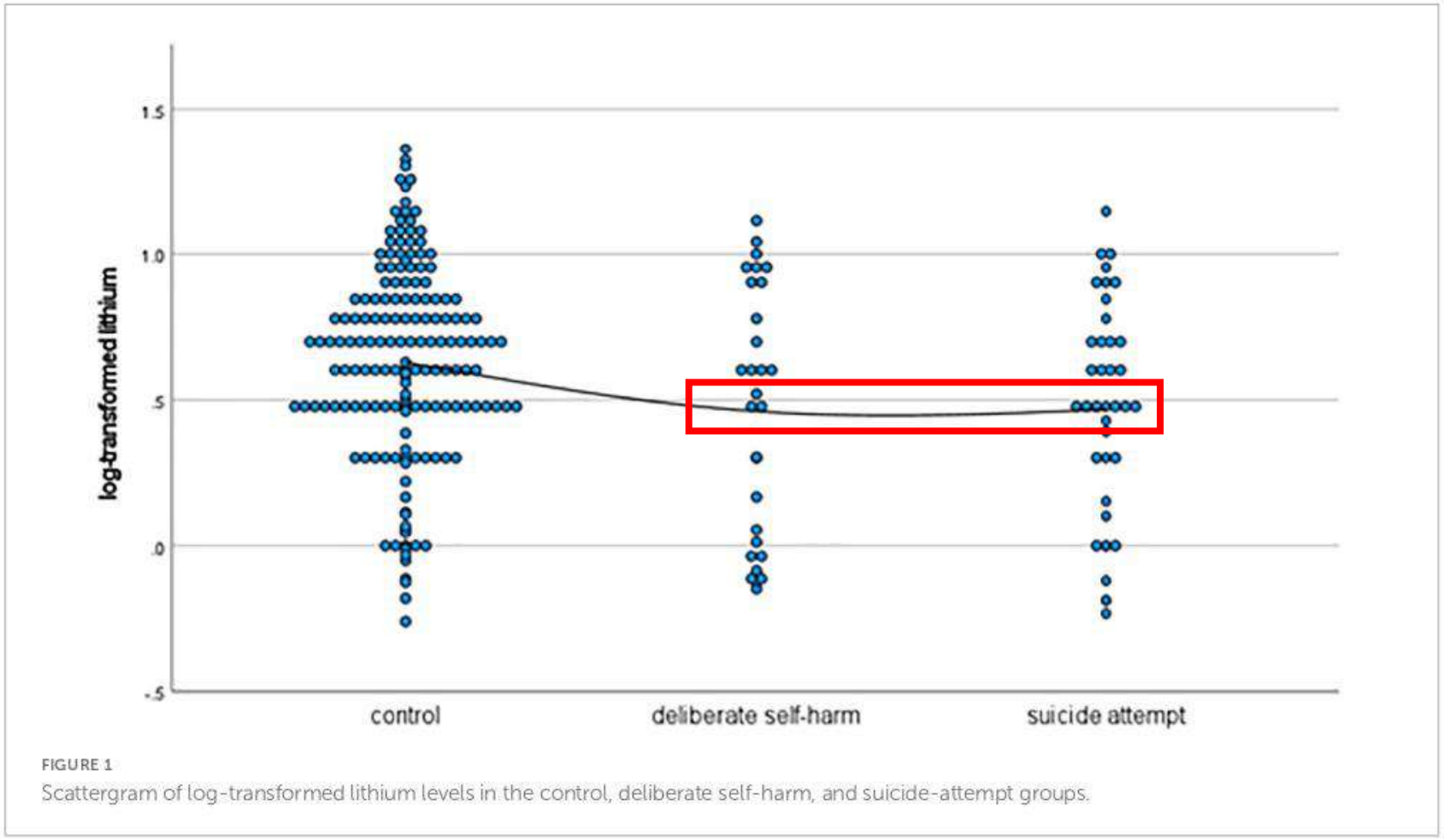


FIGURE 1
Scattergram of log-transformed lithium levels in the control, deliberate self-harm, and suicide-attempt groups.

コントロール群と比較して自傷群や自殺企図群でLi濃度は低い

(Izumi et al, Frontiers Psychiatry, 2022)

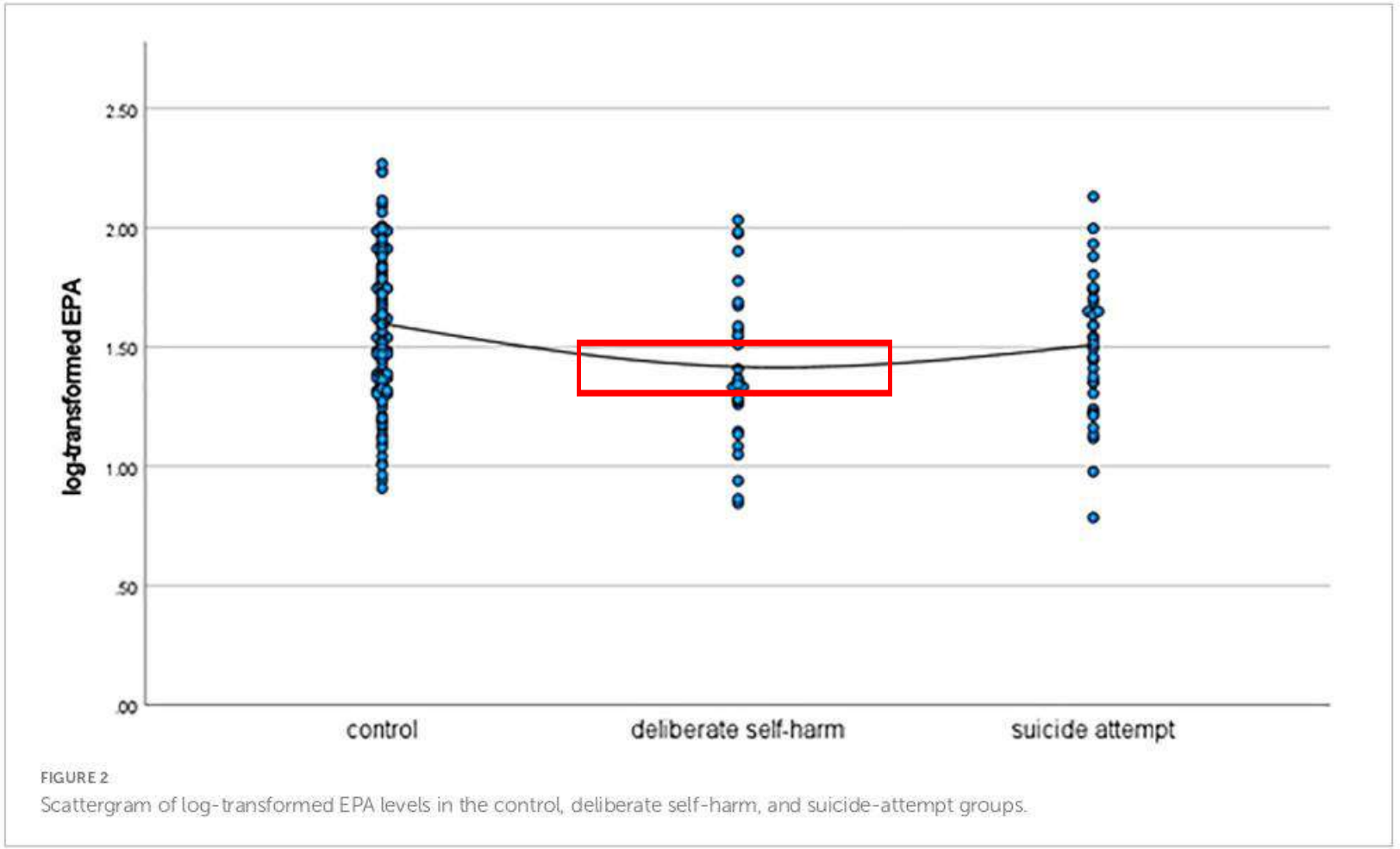


FIGURE 2
Scattergram of log-transformed EPA levels in the control, deliberate self-harm, and suicide-attempt groups.

コントロール群と比較して自傷群でEPA濃度は低い

(Izumi et al, Frontiers Psychiatry, 2022)

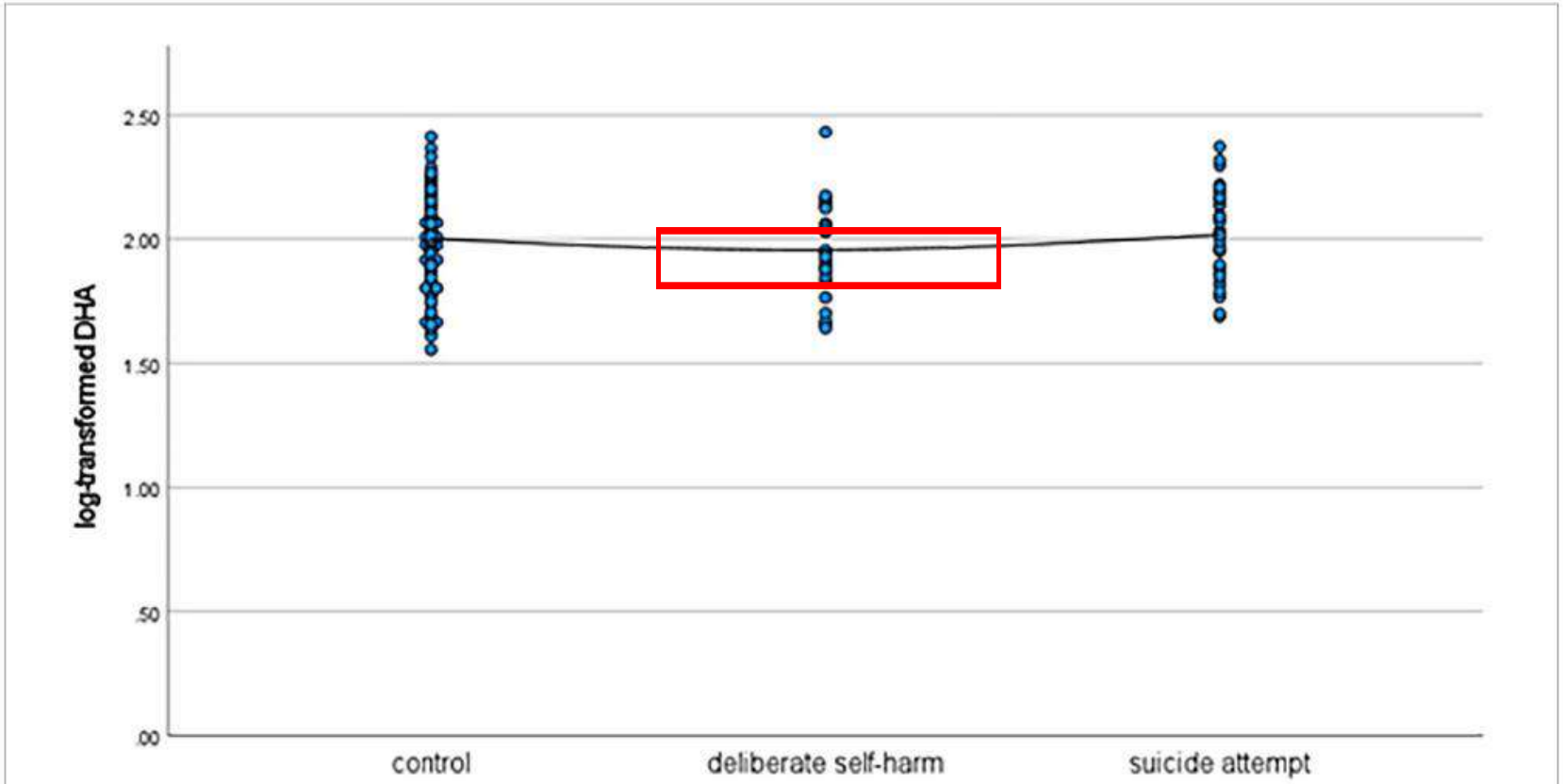


FIGURE 3
Scattergram of log-transformed DHA levels in the control, deliberate self-harm, and suicide-attempt groups.

コントロール群と比較して自傷群・自殺企図群ともにDHAは有意差がない

(Izumi et al, Frontiers Psychiatry, 2022)

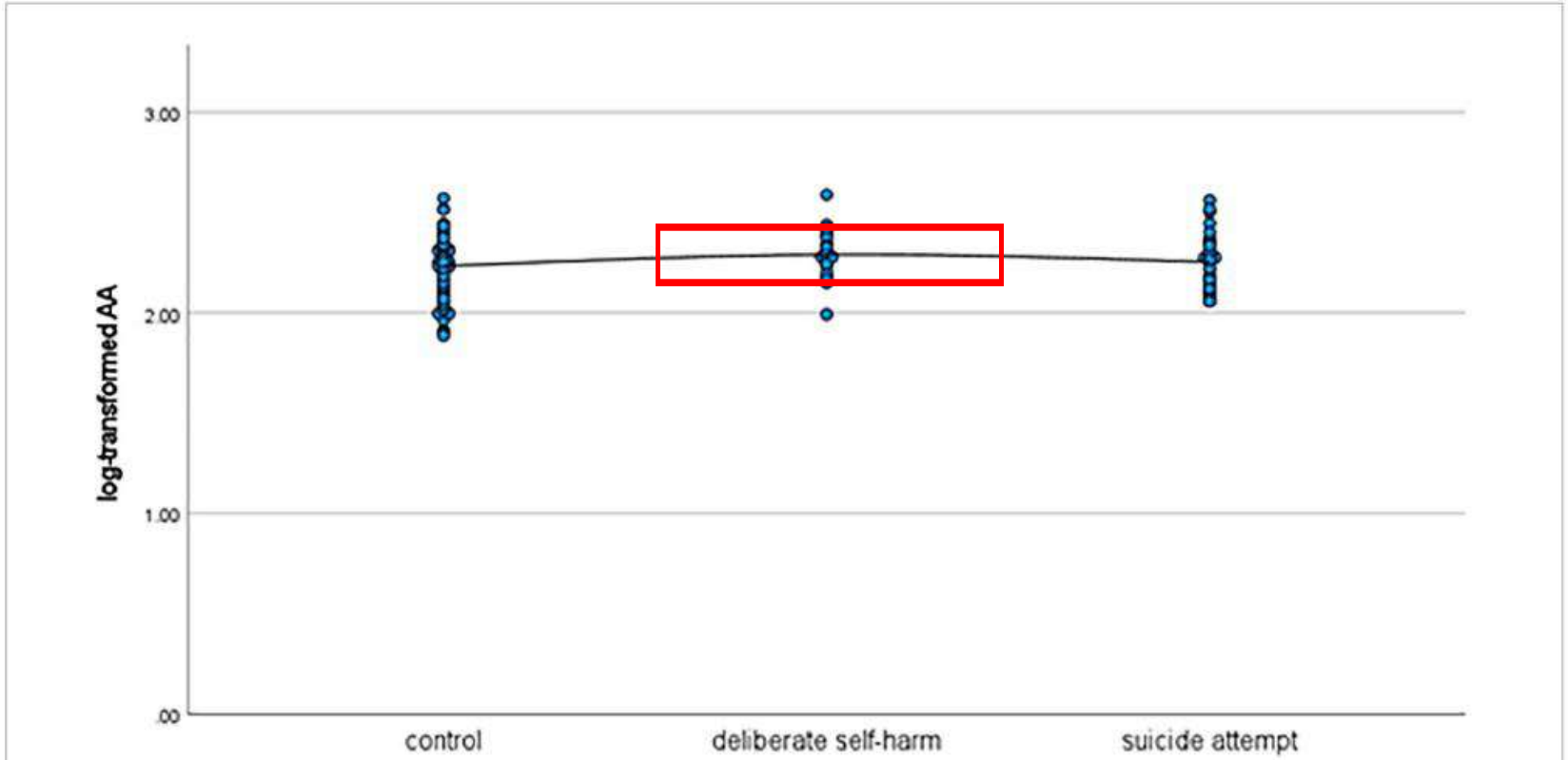


FIGURE 4
Scattergram of log-transformed AA levels in the control, deliberate self-harm, and suicide-attempt groups.

コントロール群と比較して自傷群でAA濃度は高い

(Izumi et al, Frontiers Psychiatry, 2022)

EPA、DHA、AAはお互いに高い相関を認めたためLiをペアにして性や年齢で補正を行った。

リチウムとEPA

	Odds ratio (95% CI)	p
Suicide attempt group		
age	1.00 (0.98 -1.02)	0.63
gender (female=0, male=1)	1.40 (0.67 -2.91)	0.37
log-transformed lithium	0.32 (0.12 -0.86)	0.023
log-transformed EPA	0.46 (0.11 -1.89)	0.28
Deliberate self-harm group		
age	0.99 (0.96 -1.01)	0.28
gender (female=0, male=1)	3.34 (1.42 -7.84)	0.006
log-transformed lithium	0.36 (0.11 -1.13)	0.08
log-transformed EPA	0.18 (0.032 -0.98)	0.047

リチウムとDHA

	Odds ratio (95% CI)	p
Suicide attempt group		
age	0.98 (0.96 -1.00)	0.097
gender (female=0, male=1)	1.30 (0.62 -2.71)	0.48
log-transformed lithium	0.29 (0.11 -0.77)	0.013
log-transformed DHA	5.57 (0.51 -61.4)	0.16
Deliberate self -harm group		
age	0.98 (0.95 -1.00)	0.051
gender (female=0, male=1)	3.12 (1.34 -7.26)	0.008
log-transformed lithium	0.31 (0.10 -0.96)	0.042
log-transformed DHA	0.91 (0.05 -15.2)	0.95

リチウムとAA

	Odds ratio (95% CI)	p
Suicide attempt group		
age	0.99 (0.97 -1.01)	0.29
gender (female=0, male=1)	1.37 (0.66 -2.85)	0.40
log-transformed lithium	0.30 (0.11 -0.81)	0.017
log-transformed AA	3.09 (0.17 -54.9)	0.44
Deliberate self -harm group		
age	0.98 (0.95 -1.00)	0.026
gender (female=0, male=1)	3.33 (1.42 -7.81)	0.006
log-transformed lithium	0.32 (0.10 -0.98)	0.045
log-transformed AA	45.3 (1.22 -1681.2)	0.039

まとめると・・・・

血中EPA濃度が高いと自傷が減り、血中AA濃度が高いと自傷が増える可能性が示唆された。血中DHA濃度はこの研究では自傷や自殺と関係なかった。

- この研究では薬物、サプリメントとしてEPA、DHA等を摂っていない人が対象であった。

- つまり、普段の食事から得られるEPAをはじめとする不飽和脂肪酸が精神やその行動(自傷)に影響を与える可能性がある。

- 先行研究も含めると落ち込んだ気分や自傷欲求の予防に普段の食事が大切な役割を持つ。

- 典型的なうつ病になりやすい性格としてメランコリー親和型性格や執着気質がある。

- どちらも生真面目で責任感が強く自分で抱え込んでしまう傾向がある。

- 物事や対人関係で自分を責めてしまうことが多々あり、結果抑うつに至りやすい。

うつ病にならないために・・・・
自分を責めず、青魚でも食べて気楽に構えよう

青魚食べる上での注意点！

- バランスの良い食事を。過ぎたるは及ばざるが如し。
  食べすぎは塩分等の過剰摂取に。
  野菜・炭水化物など一緒に摂って体も健康に。

- アニサキス症、ヒスタミン食中毒に注意！
  アニサキス対策はしっかり加熱。
  ヒスタミン食中毒は加熱処理で無効化出来ない。
  新鮮なうちに冷凍加熱。

魚の調理って面倒・・・・

- お惣菜や缶詰を有効活用

- ただ食べるのに飽きてきたら
  『鯖缶　レシピ　簡単』でネット検索

- 缶詰の処分も面倒・・・・
  パウチタイプも売っているので生活スタイルに合わせて