

Welcome to the Dietician Connection podcast. My name is Tim Crowe, and I'm pleased to be joining you today to give you the first instalment of a range or a series of podcasts where we go through a journal club format. The aim is to have an example paper, to go through and critique it, look at the key areas to focus on to get some pertinent results, to look at them in a positive and negative light of where the strengths and weaknesses of the paper are, but importantly, to have some practical take-home messages from the research to how you could implement this in your practise. The first paper we're covering today is, hopefully you'll have the resources for this in this podcast, but if you've come across this randomly, the title paper is A Randomised Controlled Trial of Dietary Improvement for Adults With Major Depression, the SMILES trial.

If you're trying to track this paper down, it was published in BMC Medicine in 2017. The first author is Felice Jacka. The surname is J-A-C-K-A, and it was volume 15, paper number 23, so you should be able to track it down. If you do have the paper with you, certainly have it open while you listen to this podcast because I'll actually work through the format of the paper where I'll be focusing on particular sections and graphs and tables to give you some important information. On with the podcast. Broadly, I could title today's podcast Eating Yourself Happy because it's all about the role of diet and depression, and particularly, one of the first studies of its kind, a randomised controlled trial looking at the effects of good nutrition in helping to treat some of the symptoms of depression.

We know that food nourishes the body and mind, so it could potentially be an effective way to treat depression, which is certainly quite a novel and innovative way to look at things. I've given you details of the paper. The key authors, we'll look at the authors, the first author is Felice Jacka, and hopefully that's a name that's known to quite a few of you. Felice Jacka is based at Deakin University. She has an extensive research programme in the role of food and mood, and she's certainly a leading, not only Australian, but international authority in this particular area of, so if you're seeing her name as a first author, it gives you a lot of confidence this is coming from a fairly big research team.

There's quite a lot of names on the paper as well. There's been a lot of people involved in this work. The paper was published in BMC Medicine, which has an impact factor of 7.2. If you're not familiar with impact factors, that number may not mean much to you, but an impact factor of 7.2 is a very high impact factor, so generally, the best quality, highest impact research goes in the highest impact journals. That's where researchers want to be publishing their work, so the fact already that this has been published in a high-impact journal gives a bit of a clue that this is probably going to be fairly important research. A first proof of concept

study may not have addressed implications for practise today, but if it's new and novel, it can still get published in a high-impact journal, which is where the study fits into things.

We've got our impact factor, I've got the title, now the abstract. The abstract gives you the key points of what the study found. This was a 12-week parallel randomised controlled trial, which was single-blinded. In this case, the researchers undertaking the assessment of depression were blinded. The patients were not blinded. It's very difficult to blind dietary interventions. The patient group was people with severe to moderate depression. This was the group they are trying to see if there is a therapeutic benefit to treating depression with diet. They did have a control group. In this case, the control group was a social support group. It's important to have contact with people in a control group because social connection in itself can be of benefit in treating depression.

If you have a dietary intervention group and they're seeing regularly a dietician, in this case there was seven visits with a dietitian, irrespective of diet, having that contact with a health professional could improve depression. It was important to have a control group that also got some level of social support, but without any dietary advice. The major outcome or the primary outcome measures was an assessment tool called the Montgomery-Åsberg Depression Rating Score, or MADRS. This is a psychiatrist-administered tool. It is a diagnostic questionnaire with 10 different questions to measure the severity of depression in patients with mood disorders. It's been widely used and accepted in the field.

In total, 55 completed the study. There were a few dropouts on the way. Really the key point, and I'll be talking about this as I delve into the study in more detail, is that there was a really dramatic improvement in depression scores in the group receiving the dietary therapy, and I'll talk a bit about what that dietary therapy was a little bit later. That was, in itself, a fairly remarkable finding in the context of the study. On its own, the abstract, it gives you the key points about the trial. Let's get a little bit into the background for this work. Before this work, there was already lots of observational work to show that the people who have diets that are higher in plant foods, lots of vegetables, fruits, legumes, and grains, and so on, and less of highly processed food, are less likely to have depression.

That's an association. We know that people who eat like this generally have less cases of depression. That doesn't of course mean that the diet itself is preventing depression. It could also be that people who are depressed have a poor diet, so the depression leads to poor diets, whereas if you don't have depression, it's easier to eat healthy. That's a very valid observation to make from the cross-sectional research. But even when we look at that observational research with its flaws, these associations between diet and depression do stand up when you adjust for socioeconomic status, education level, and other potential variables. That gives you a bit of a clue that diet may have a role to play, and certainly no one's arguing that there are dietary factors that could be important in depression.

There's been a little bit of more in-depth cohort studies to show that at least from a Mediterranean diet perspective, people that adhere more to this diet have a 30%

less risk of developing depression over time. That's an important point because the dietary intervention that was used in the study was a modified form of the Mediterranean diet. There's an observational research to show that potentially, diet should be of benefit, but really there's no robust interventional studies that have been done so far to really show that diet itself can improve depression. The closest we have got to is a very large-scale dietary intervention that looked at the role of a Mediterranean diet, which had lots of extra virgin olive oil, and mixed nuts versus a low-fat control diet to see if it could reduce the risk of cardiovascular disease, so it wasn't designed to look at depression.

But that was actually one of the outcomes that were measured in the study, and even though it wasn't powered to detect this, there was a hint, albeit not significant, that those that were more closely following a Mediterranean-style diet who were randomised to follow such had a reduced risk of depression. That's interesting, but the study wasn't designed to look at the role of the Mediterranean diet in reducing depression, but again, a few hints that it might be worth pursuing this. And hence we are here today with this randomised controlled trial.

How was the study designed? Now I'm into the methods section of the paper, which is page number two of your PDF for this. It was a 12-week, parallel group, single-blinded RCT, so two groups randomised to either the dietary intervention or the social support group, fairly straightforward. The social support group, which you could call the placebo group in some ways, was a befriending group. The people in this group had regular appointments with a researcher assistant who undertook activities with them, playing board games, speaking about their lives, giving some level of social support, but without trying to counsel or treat the depression, and certainly without giving any specific dietary advice.

It's important they did have that social connection because the intervention group did have ongoing contact with a dietitian. To be included in this study, it was fairly tight inclusion criteria, which is great to have a controlled study, but it also is a deficiency of the application of this research later on, so bear this in mind. People had to be over the age of 18 and have a DSM-IV diagnosis of depression. I'm now actually on page number three of the study in the participants inclusion criteria section. A DSM-IV of depression, but also their scoring of the Montgomery-Åsberg Depression Rating Scale, or the MADRS, needed a score of 18 and above. That puts you in the moderate score for depression, so overall, they had a clear case of having a clinically-diagnosed depression.

The interesting thing was there was a dietary assessment for inclusion criteria, so in order to be enrolled, people had to conform to what was considered a poor diet before enrollment, which is an interesting way to look at things, considering it was a randomised controlled trial. A poor diet was broadly defined as having a low dietary intake of dietary fibre, lean proteins, fruits and vegetables, and a lot of intake of sweets, processed meats, and salty snacks. You could actually say they were eating pretty much as the average Australian eats based on our recent dietary intake survey data. Importantly, there were no people in this that were considered

to be eating a healthy diet to start with. Bear that in mind, the intervention group did switch to a healthy diet, so there was a change in their diets to begin with.

Maybe, and this is kind of almost to the end conclusion, it may be that if you're eating a healthy diet in the first place, this intervention may not have a bigger benefit for you if you're eating healthy to start with, but that's obvious to say. But most people eat fairly unhealthy to begin with, so the intervention was trying to improve diet at the start of the study. To be excluded from the study, and there's a lot of exclusion criteria, and I won't go through all of them, but if we look at the exclusion criteria section, if you had concurrent bipolar disorder, if you had a history of failed antidepressant therapy, if there was other suspected clinically medical issues that could be affecting depression, all of that excluded you from the study.

While the group had moderate to severe depression, there was a lot of other people who potentially would also present with depression that were excluded from the study. Bear that in mind when you look over the exclusion criteria, and when you apply the findings of these results to any patient group, it may not be directly attributable. So this is a fairly homogeneous group in some ways, and it's great to do that to remove confounding issues, particularly in a small-scale study where you can't do subgroup analysis, but it also means the applicability to hold entire populations is reduced, but that's okay. This was the first ICT done in this area.

The intervention, this is the key thing. This is what you need to know about being dietitians. The dietary intervention is listed there on page number three, so you can look at that for a bit more detail. It involved ongoing nutritional individual counselling and support, motivational interviewing, goal setting, and mindful eating practises from a clinical dietitian. That was done over seven visits over the 12 weeks of the study. The dietary advice that were given is called the Modi Med diet, which is a bit of a mashup between the Australian dietary guidelines and the dietary guidelines for adult in Greece. One of the key authors of the study was Catherine Itsiopoulos, which I'm sure most of you would know who Catherine is and her interest in the Mediterranean diet.

Obviously, there was a bit of a flavour influence of the Mediterranean-style diet coming into the study. There's references given therefore more details about what the diet involved, but broadly, it involved the focus on 12 key food groups, plenty of whole grains, vegetables, fruits, legumes, low-fat and unsweetened dairy foods, raw and unsalted nuts, fish at least twice per week, and lean red meat three to 4 times per week, chicken, eggs, and of course olive oil as you would expect, three table spoons per day with the focus of reducing the extra foods, sweets, refined cereals, fried foods, fast foods, and so on. That's really what the diet intervention was about, so fairly healthy eating with a Mediterranean-style dietary flavour.

Importantly, this was not a weight-loss study. There was no restrictions on reducing food portion sizes to lose weight. It was purely about eating the foods promoted in this dietary ad libitum, so as people chose, as they could work them into their diet.

The focus was about eating healthier, eating less processed foods, eating more healthier foods, but not changing overall quantities, not having a focus on reducing metabolic disease, or weight loss, or whatever. It was purely about eating a healthier diet to begin with, and which is a good consideration, or it removes the confounding issues of other disease processes when you just look at eating healthier and then look at its effect on depression. Importantly, there was an assessment made of dietary scores. A scoring tool was used, and a few of those details are given in the second-last paragraph of page number, where are we now, page number three.

There was a criteria by score to assess how well people were adhering to the diet, and that's important to know because you can have all the right dietary advice in the world, but if people aren't following it, then it wasn't the fact your intervention didn't work, it was just the implementation. You can actually see an effect because people weren't following the dietary advice. The sessions were approximately 60 minutes in duration delivered by an APD. The first four sessions occurred weekly, and the remaining three sessions occurred every two weeks. That's the dietary intervention. The support was about changing diets. Some participants were given information on the sorts of foods to include. Sometimes they were given food hampers to help assist include some of the new foods in their diet, for example, if legumes are a bit of a foreign food for many of these people, then the food hamper could include those sorts of foods, so give a bit of a toolbox approach, a few practical skills to making the dietary changes.

On page number four, there was details of what the social support group included. It's a lot of a befriending protocol, which I won't go into. The outcome measures, pages number four. The primary outcome measure was the MADRS, and that was implemented at baseline, but also then at 12 weeks, so that was the key thing they were interested in. It was a 12-item questionnaire, clinician-administered, not self-assist, clinician-administered, and then you've got a score from 0 to 60. Above 18 falls in the realm of moderate depression, and I think severe depression is 34 and above on that scoring scale. The secondary outcome measures, this is column two of page number four, there was a whole battery of clinical tests, which I really won't go into too much detail.

There was a hospital anxiety and depression scale, which was self-administered. That's important. There was one test called the POMS to assess mood scores, and there was a clinical global impression improvement scale, there was a WHO wellbeing scale, and a generalised soft efficacy scale. I won't talk too much about all of those questionnaires, but they sort of gave some additional support for the major outcome measure, which is a really robust measure of depression. In addition, there was questionnaires on physical activity, and then of course the dietary quality assessment score was also used to see how well people adhered the dietary recommendations made.

Dietary assessment was made via seven-day food diaries, which is fairly burdensome for people. That was done at baseline and again at 12 weeks, and that's important to have to know if people actually did change their diet because you need to see a diet change if you want to correlate that with a depression

change. Sample size, I'll come back to this later on in the discussion, but the power calculation required them to have 88 people per group. They got nowhere near that, so it was underpowered based upon their initial calculations, but store that away because I'll touch upon that near to the end of today's podcast about the sample size calculation.

Randomization, fairly good randomization process, at the very end of page number four. Importantly, the people involved in assessing depression, because it was a clinician-assessed depression score, were blinded to the allocation protocol, and they're blinded to the dietary treatment intervention, which is really important. While you couldn't blind the participants, it's pretty clear if you're getting dietary advice or not, and you couldn't blind all of the researchers involved in implementing the dietary changes, people assessing the main outcome measure were blinded, which is very important to know. Saying that, some attempt was made to try and blind participants a little bit to the study, even though you can't blind them to the food choices they were making, an attempt was made to reduce the amount of advertising information that gave clues to what the study was about, because if you put in big letters this study is to see if a modified Mediterranean diet will make you less depressed, well, that is going to bias participants who are randomised to that group.

You can't lie completely, but you can try and modify the language a little bit so people don't have less expectations about what the dietary intervention would likely do to them. Now, it's not perfect, and in dietary intervention studies, you can't always blind to that sort of level, but you try and make the best of the situation you're dealing with and still adhere to good ethical practises. That's really covered there on the very first column of page number five, how the blinding was done. Then the stats analysis, which there's a lot of stats work that they've done, and I'll unpack some of those stats as I get into the results section, which is coming up right now.

Let's get right into the main outcome. Results, page number six. 166 people were assessed. 99 people were excluded, so fairly tight inclusion and exclusion criteria. From this, 67 people were randomised to the study, 33 in the intervention, 34 in the control social support group. There weren't any great differences between the groups, except that the dietary group had significantly lower scores on the dietary screening tool at baseline, so perhaps their diet wasn't as healthy as others, and that was because they had lower intakes of fruit and higher intakes of extras, but you cannot do stats on that because it was a randomised trial, so any differences arose purely by chance. But it's important to know that the intervention group had a slightly worse diet to start with, but nothing of a major concern.

Table number one on page number seven is the baseline demographics, which I really won't go into much detail. You can glance over those and you can probably see that there wasn't any great differences between the groups, and it gives you an outline of the demographics of the people involved in the study. For completers, and this is a small issue, but they addressed this fairly well, there were a greater number of dropouts in the control group than the intervention group. For the

dietary intervention group, 93.9% of people completed the study, so there was only two dropouts. 31 completed out of 33, which is pretty good. In the control group, from the initial 34 people, only 25 completed, so a much higher dropout rate, but importantly, this study was an intent to treat, so allowances were made for the dropouts.

You can't do this perfectly, but the researchers were very, very clear to try and adjust as best as possible for the disproportionate number of dropouts between the groups because it's very valid to say that if the people who weren't receiving a benefit from the placebo group, from the befriending group, may just have dropped out, and they could have had much worse depression scores, as well, so you need to adjust for your dropouts to make a valid comparison between groups. All right, let's get to the major outcome of the study. Did depression improve in the intervention group? The short answer is absolutely. There was a marked improvement in depression scores in those receiving the dietary intervention group.

In fact, the best way to look at this is figure number two on page number seven. Here, the depression scores in the dietary intervention on the left, at baseline and 12 weeks later, and there's a big drop. The scores went from about 26 at baseline down to about 15, so that puts you in the mild depression range, whereas for the social support group, there was a fall, but it was a much, much smaller fall. The great thing about this graph is that you can do all the stats you like, and they did do a lot of stats, but this is a very clear difference. You can look at that, and going yes, there was a dramatic benefit in the dietary intervention group, an improvement in dietary scores, but remember what I said before. There were more dropouts in the social support group, so how do researchers adjust for this?

What they did was they did something called sensitivity analysis, where they made allowances for people that, first of all, dropped out. They did basically a whole lot of statistical analysis to first of all cater to the fact that for people that dropped out, you can make assumptions about them. You can make two assumptions. One of them is that the people who dropped out in the intervention group actually had worse scores at 12 weeks. They actually worsened. You can actually put that into a statistical model. What you can also do is that dropouts in the control group, you could actually say that they had better outcomes. You put the worst case scenario, you actually put the opposite of the results that your primary outcome showed.

For the intervention group, you assume that those who dropped out got worse. For the control group, you assume that those that dropped out got better, which is the opposite of what the results showed. But if you put those sorts of data in there, and that's called sensitivity analysis, you get this fairly, maybe a little confusing looking graph, which is figure number three on page eight, showing the effects of adjusting for that. The key point is covered in the text directly under the graph, the very first paragraph above secondary outcomes. Even when you make these allowances for the dropouts, they made really no impact on the primary outcome measures. It was only some really dramatic cases could you even influence the model.

What they found was the findings were robust under either assumption, that the people in the intervention group got worse that dropped out, and the assumption that people in the control group got better that dropped out. You still got a benefit that was seen, so that was really important that they did that. The stats are very involved, but I think what you need to know is they did make allowances for dropouts, and it was a true intent to treat analysis, so fantastic. So the results look pretty good, bearing in mind it was a small-scale study and the first study of its kind. What about the secondary outcome measures? At 12 weeks, 32% of people, or 11 people in the intervention group actually achieved what's considered complete remission. That is a score below seven. 10 people achieved remission compared to only two people, or 8%, in the social support group.

That validates what you were probably seeing in that graph, which was figure number two, which was the primary outcome measures. Now, there was lots and lots of secondary outcome measures they looked at, and I'm really not going to go into a lot of detail of them because they're all shown in table number two. Here are all the secondary outcome measures. The only real psychological measure that saw an improvement that favoured the intervention was the HADS, which is the Hospital Anxiety and Depression score, which is self-administered. That showed also a benefit which correlated with the MADRS, but the other scores, the mood scores, with is the POMS, the self-efficacy score or the wellbeing score asses by the WHO questionnaire, none of them showed a significant improvement, but they were all moving in the right direction.

This is table number two, and you can see the different assessment tools there. The only real points I want to focus on in this table is about halfway down, and that's the diet score, the Modi Med diet. There was a big, significant difference, so the P value is in the extreme right hand column. People who were in the dietary intervention group absolutely did improve their diet overall. Their was a marked change in diet. If you didn't see that, then really, you couldn't attribute diet to having an improvement. Maybe it was just the fact their dietician was a lovely person for them to go and meet over the seven weeks, but the social support group didn't show a benefit, so it's probably not because of that. Likely, it's the improvement in diet. The dietary assessment done at baseline and at 12 weeks showed that people in the intervention group did adhere fairly closely to the recommendations.

Also, in table number two, there's a whole bunch of biochemistry there. None of it was remarkable. The only real biochem of note, that was to do with fatty acid concentration, and there was slightly higher increase in polyunsaturated fatty acids in the blood of those in the intervention group, so that could be reflective of some potential small dietary changes, but really when I look at table number two, for the secondary outcome measures, there's nothing remarkable in that except to show that they adhere to their diet, and one of the other secondary outcome depression scores, which is the HADS also improved, but there was a good positive trend for scores in all other areas also improving. That was your key points.

They did go to a lot of analysis there in the text on page number, where are we, page number eight under the column secondary outcome measures, a lot of analysis given there for how the diet changed, what the significance of the different assessment tools were, and I'll let you read that at your leisure. For me also, there was no significant changes in respect to BMI or physical activity, and that's a really key point. We actually don't want to see weight loss or improvements in physical activity in your intervention group because if you did see that, what that points to is potentially the weight loss or increased physical activity may have confounded the benefits. In this case, no major difference between most of the outcome measures as far as the anthro and the biochem. It's probably a good thing because you don't want to see this changing. You want to see that it's the diet is the clear, defining difference between the groups.

There may be some other things that changed between the groups, but at this moment, based upon the information given, you'd have to say it was the diet that was the defining difference. There we have the outcome. It looks pretty positive. What does all of this mean? The authors obviously put this in context in the discussion, and the discussion begins on page number nine. By showing that this was a preliminary RCT giving some good evidence that dietary improvement can be an efficacious treatment for treating major depressive episodes, and I would agree with that. That didn't oversell the results. They didn't say this is conclusive because it was the first study done of its kind. It was a very small sample size, but the results look quite remarkable. They look extremely positive.

There was a significant improvement in self-reported depression scores as well as the primary outcome measure, that being the MADRS score. It all looks pretty good. Importantly, there were substantial improvements in diet scores using the Modi Med diet, and that is probably the main focus for dietitians listening to this to look at the key themes of that diet as far as what sort of dietary interventions, as you may be counselling people with depression, trying to shift them from one particular diet to another. It was interesting. In the discussion, they actually looked at the cost of the diet. There is a perception that eating healthy is expensive, but they did an analysis based on what people were previously eating before the start of the study and what they ended up eating, and this was in the second paragraph of page number 10.

Near the end of it, they estimated that participants were spending \$138 per week on food and drink before the study, this was at baseline, but to eat according to the Modi Med, their actual food cost decreased to \$112 per week. That is likely because the number of serving sizes of discretionary food decreased dramatically. In fact, just switching back into the secondary outcome measures, they actually analysed that there was a drop of 21.7 servings of discretionary foods or extras foods per week in those in the Modi Met diet. That's a big drop in discretionary food intake. Cost-wise, it came out quite well, which is a good message to some of the client about eating healthier. It doesn't always mean it's more expensive.

The big question, why is it so? Well, lots of plausible hypotheses. In this case, it wasn't because of weight loss or improved physical activity. Potentially something

about their diet is helping treat depression. They didn't go into a lot of detail in this sort of area, but they covered a little bit in the discussion, so it could be that dietary improvement could influence depression by a change in the levels in inflammatory pathways. Obviously, a Mediterranean style diet is an anti-inflammatory diet. It could improve oxidative stress. It could improve pathways involved in brain plasticity, so allowing neural connections to be laid down to improve depression. It could even be the benefit of the diet, with all that extra fibre, and fruits, and vegetables, and grains was improving the gut microbiota. Certainly, there is an interesting link between the gut microbiota and mental health.

All of those are plausible, not explored in the study, but obviously work for a later date. The key thing was mood and depression did improve. The strength was that it was a fairly well-designed randomised controlled trial. They tried to address the issue of bias as best as possible, but you cannot eliminate it completely, and no study in this area will ever be able to remove bias completely because you're dealing with whole dietary changes instead of just giving people a magical pill where you can have a placebo in the intervention group and hide the bias very easily, so bear in that mind, that is a limitation. Strength-wise, they did a very good job at addressing dropouts, which the primary outcome measures held up quite well when you took dropouts into account.

The small sample size is an issue, so you could say it was underpowered, but the key thing was their power analysis was based on a very small effect size. The effect size they saw in their study was actually quite large. It was very big, indeed, and that figure, that key figure, graph number two, showed how big the effect was. While it was underpowered, their power calculation was based upon the fact that diet would only have a small benefit. It actually had a big benefit, so if they could repeat this in a followup study, that would give much stronger credence to the magnitude of effect that diet can have. I wouldn't treat it as being underpowered as being an issue. It was likely they took a bit of a guess and were way under for the benefits they saw, which is great. It's nice to be unconservative in these estimates and be pleasantly surprised when the results of your study show something different.

The people in the intervention group had a high level of adherence to the diet, which is great. You need to see that to ascribe a correlation the diet and your outcome, which they saw. Because actually there was so few dropouts in the intervention group, and the fact that they could adhere to it, is actually such a positive message. It shows that the dietary changes are achievable and sustainable with the rights of advice given by a health professional, in this case of course it was an APD. They weren't put on some totally implausible, difficult diet. They could actually adhere to the diet with the right level of individualization support, which is a really great message to take from this. That's why the dropouts were low, and that's why the adherence to the diet was good. Probably also why the dropouts were low is because they were actually getting a benefit from it. Their depression and mood was improving. They wanted to go back and get more advice.

It's so motivating if you're eating poor and you could see improvements in your lifestyle and your depression from having a healthier diet that will motivate you to implement those changes and to keep doing them, and that's what I think this study was seeing. Interestingly, this may not be feasible for practise at all times. The researchers made a comment that potentially, this sort of intervention could be delivered via telephone or Skype, so finding alternative ways to deliver it because perhaps not everybody has the means to be seeing a dietician in private practise all the time, and of course, our public health system probably isn't equipped to deal with hundreds, or thousands, or hundreds of thousands of people with depression getting individual dietary advice.

The initial inclusion criteria where people had to have a poor diet to start with, which is an issue in itself, but most people, if you look at Australians, that's eating very well to begin with, so there's always room for improvement. Particularly, we know that people with depression are even more likely to have a poor diet to start with. Overall, what do you need to know? Well, this was a very impressive study, and we'll definitely be seeing followup studies of this in the future. It was the first RCT to explicitly seek to answer the question if I improve my diet will my mental health improve? And the answer to that found was clearly yes.

The results suggested improving your diet may be a useful and accessible strategy for addressing depression as part of a larger treatment plan. Almost everybody in the study was also undergoing some form of psychotherapy or taking medications, or a combination of both. It wasn't it was just diet used. They were still receiving usual care and treatment with other clinicians, so this isn't just a magical cure for depression. It would be done in conjunction with a healthcare team and with the patient's ongoing support and advice from a psychologist, psychiatrist, and so on. This got a lot of media attention when it was released, and one of the great things to see in the discussion, but also in media comment given by Felice Jacka, was her advocacy for the role of dieticians being part of the mental healthcare team, and making dietician support a vital to those experiencing depression.

As we see more researched published in this area showing potentially the benefits in augmenting as an adjunct treatment to conventional depression therapy, there's a much stronger case to argue for the role of dieticians as part of the treating team, which is great because the prevalence of depression is so widespread in Australia. There is lots of potential work out there for dieticians being involved in this area. Overall, again, it's another win for a Mediterranean-style dietary pattern and yet another potential health benefit, but really, it's another benefit for eating healthier, not that you need another reason for it, but having a potential role in treating depression, I think we can add to the list. Keep an eye out for more research coming out in the near future from other groups, but also Felice's group, that will obviously extend and support these findings. Keep an eye on this research area with great interest. Thank you very much for your attention today.