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Baxter, Danielle; Lovell, Geoff P.

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Australian Mental Health Practitioners' Reported Practice, Beliefs, and Barriers to the Prescription of Dietary Change for Mental Health Conditions

Abstract

Objective: This research investigated self-reported practice, beliefs, and barriers regarding prescription of dietary change for mental health from a range of mental health practitioners across Australia. **Method:** An online survey was completed by 193 Australian mental health practitioners. **Results:** Over 50% of the practitioners reported prescribing dietary change for stress, depression, and anxiety at least weekly in their practice. Over half the practitioners reported they considered dietary change to be 60-100% useful for enhancing mental health outcomes. Approximately one quarter of the practitioners considered dietary change to be less than 40% useful for treating mental health conditions. Results to thematic analysis revealed the most frequently reported higher-order barrier themes were *practitioner barriers* (43.8%) and *client barriers* (29.2%), with *insufficient skills and knowledge* (15.9%) and *client adherence* (12.8%) being commonly cited initial codes. *Practitioner barriers* accounted for half psychologists' cited barriers (50.9%), while only 20.0% of psychiatrists' and 33.3% of the other practitioners' barriers. The higher-order barrier theme *organisational and community support* was more commonly cited for psychiatrists (44.0%) compared to psychologists (16.8%) and others (33.3%). **Conclusion:** Mental health practitioners in Australia prescribe dietary change for mental health. However, barriers to prescription of dietary change for mental health need be addressed to overcome challenges associated with using it as a therapeutic intervention for mental health conditions. Universities and university training accreditation bodies should consider providing more extensive instruction in psycho-nutrition as part of mental health practitioners' training. Likewise, further recognised professional development should be offered, and awarded, for already qualified practitioners.

Keywords

Mental health; diet; dietary change; depression; practitioner; Australia

Declarations of interest: none.

Australian Mental Health Practitioners' Reported Practice, Beliefs, and Barriers to the Prescription of Dietary Change for Mental Health Conditions

Engel's (1977) biopsychosocial model of health places emphasis on the importance of interactions between biological, psychological, and social factors for illness and disease progression; a concept which is now generally accepted by health care professionals (Wade & Halligan, 2017). Since the model's development, it has been well recognised that unhealthy lifestyle factors and the manner in which people live, are among the leading risk factors for all non-communicable diseases and disability-adjusted life years around the world (Mechanick & Kushner, 2016). In 2015, Australian statistics indicated that dietary risks alone accounted for 19.7% of all non-communicable deaths and 9.5% of disability-adjusted life years, of which mental health conditions were included (Melaku et al., 2018).

Dietary Intervention for Mental Health

Enhancing poor diet is widely reported to have many health promoting properties; for both physical and mental health (Muñoz, Fíto, Marrugat, Covas, & Schröder, 2008; Sarris & Firth, 2018; Sofi, Macchi, Abbate, Gensini, & Casini, 2013). With reference to mental health examples, diet has been reported to be an efficacious alternative and adjunct to pharmaceutical treatment for attention deficit hyperactivity disorder (ADHD) (Millichap & Yee, 2012; Rytter et al., 2015; Sonuga-Barke et al., 2013). Elimination of artificial food colouring has shown promising results in reducing ADHD symptomology, especially in children with food sensitivities, with free fatty acid supplementation also being found to produce small yet significant effects (Rytter et al., 2015; Sonuga-Barke et al., 2013). Rytter et al. (2015) in their review of 32 studies that concluded elimination diet and fish oil supplementation may reduce ADHD, however they also noted some methodological shortcomings of research in this area.

Associated with ageing populations in countries such as Australia, it is becoming increasingly apparent that early intervention is critical for the maintenance of cognitive functioning across the lifespan (Hutton et al., 2018). Improving diet quality has been acknowledged as serving a protective role in reducing the rate of cognitive decline (Hutton et al., 2018; Trichopoulou et al., 2015). Currently there is limited research on whether diet can be used to treat cognitive decline largely due to effects of many neurocognitive disorders presently considered as irreversible, especially those related to dementia. However, adherence to Mediterranean diet has shown promise in protecting from age related cognitive decline and related diseases as Alzheimer's disease, as well as evolution of cognitive performance decline symptoms over the disease course (Chen et al., 2019; Ghosh et al., 2020;

WHO, 2019). Explanation of these positive effects have been attributed to the protective role a quality diet has on the cardiovascular system (Martínez-González et al., 2015; Widmer, Flammer, Lerman, & Lerman, 2015), in turn shielding against vascular dementia type conditions.

Consumption of a quality diet is also considered to offer a preventative role in the risk of depression (Altun, Brown, Szoeki, & Goodwill, 2019; Gougeon et al., 2015; Jacka et al., 2017; Lai et al., 2013; Sarris et al., 2015). Altun et al. (2019), while also highlighting the need for more longitudinal and clinical trials, concluded that 85% of the twenty observation studies and all 6 intervention trials reviewed, supported the Mediterranean diet pattern in reducing depressive symptoms. Further robust evidence from randomised controlled trial (RCT) designs, such as Jacka et al.'s (2017) 'SMILES' trial, along with Francis and colleagues' intervention with young adults (Francis, Stevenson, Chambers, Gupta, Newey, & Lim, 2019), demonstrate the benefit of Mediterranean diet patterns in reducing depression. Furthermore, while not exclusively considering Mediterranean diet patterns, Firth et al.'s (2019) meta-analysis of RCTs ($n = 16$) also demonstrated the positive effects of dietary improvements on symptoms of depression, but not anxiety. Furthermore, that dietary interventions for females had significantly greater benefits for both depression and anxiety than males.

Dietary habits throughout the lifespan have also been found to contribute to the risk of developing anxiety disorders due to disruption of the bodies energy balance (Murphy & Mercer, 2013; Sullivan, Smith, & Grove, 2011). Perinatal exposure to high-fat diets may alter important mood regulating pathways such as the serotonin system (Sullivan et al., 2011), where effects can extend into adulthood (Bilbo & Tsang, 2010). Naturopathic medicine (Cooley et al., 2009) as well nutrient supplementation (Hanus, Lafon, & Mathieu, 2004) have also been reported to demonstrate potential in alleviating anxiety symptoms. Additionally, while the effects of stress are known to directly impact on the onset of major depression and anxiety disorders (de Kloet, Sibug, Helmerhorst, & Schmidt, 2005; Finger et al., 2011), recent research suggests altering gut microbiome through prebiotics appears promising in reducing chronic stress-induced elevations in corticosterone and proinflammatory cytokine levels; decreasing depression-like and anxiety-like behaviour (Burokas et al., 2017).

Despite the Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for mood disorders recently recognising the importance of exercise, sleep smoking, and also diet health behaviours in regards to mood disorders (Malhi et al., 2015), the importance of dietary change still remains underestimated by mental health professionals

for the treatment of mental health maladies (Walsh, 2011). There is currently limited literature available which demonstrates to what extent mental health practitioners are utilising dietary change, alone or as an adjunct, in the treatment of mental health conditions. Nor is there research that relates specifically to mental health practitioners' beliefs and perceived challenges regarding utilizing dietary change as a treatment for mental health conditions. It could be inferred that results would be similar to that of Way et al. (2018). Way et al., examined how often mental health practitioners reported prescribing exercise for various mental health conditions and qualitatively examined their perceived barriers to exercise prescription for mental health conditions. Results found that over 70% of the 325 participants reported prescribing exercise regularly for depression, stress, and anxiety; with exercise being reported less frequently for more complex disorders such as bipolar and schizophrenia (Way et al., 2018). Reported barriers to exercise prescription included clients' practical barriers and perspectives (41.7%), and practitioners' knowledge and perspectives (33.2%; Way et al., 2018).

Whilst discussions continue as to what the definition of a 'health diet' actually is and that research limitations still exist, it is clear there is strong and growing evidence that diet can be assumed to affect mental health. Despite this growing body of evidence, the extent that mental health practitioners are prescribing dietary change for mental health conditions is currently unknown, thus evidencing the need for a better understanding of its use in practice. A more comprehensive understanding about the current use of dietary change interventions and mental health practitioners' perceived barriers to prescription could inform initiatives to facilitate increased rates of dietary change in the future. Accordingly, in light of the importance of this area and the lack of current research, we investigated self-reported practice, beliefs, and barriers regarding the prescription of dietary change for mental health, from by a range of mental health practitioners across Australia. Specifically, the following research questions were approached: Firstly, how frequently are mental health practitioners' in Australia prescribing dietary change for mental health conditions? Secondly, how useful do mental health practitioners believe prescribing dietary change is, and how many clients do they believe would reasonably adhere? Finally, what are mental health practitioners' perceived barriers to prescribing dietary change for mental health conditions, and do these barriers differ across professions?

Method

Recruitment and Participants

Following institutional ethics approval by the XXX (blinded for review) Human Research Ethics Committee (approval number S/18/1167), registered mental health practitioners in Australia from a variety of mental health professions (psychologists, psychiatrists, general practitioners, mental health nurses, social workers, counsellors, and remote area nurses), were invited to complete an online survey hosted on the SurveyMonkey platform. Recruitment was approached through emails sent directly to publically sourced addresses found on professional association websites, as well as via social media invitations and posts on social media platforms. Furthermore, invitations to take part in this research and associated survey link were emailed to clinics, hospitals, and practices listed publicly through Yellow Pages Australia, in order to encourage participation from respondents without access to paper publications or social media sites. A research project information sheet which was located at the beginning of the survey and emphasised that participation in the study was voluntary, unidentified, had no incentives, and that participants could choose to withdraw at any time. Informed consent was indicated by participants clicking *agree* and then beginning the survey. The survey took approximately 10-minutes to complete and included both open and closed questions.

One hundred and ninety-three participants provided useful responses; 194 participants began and completed the survey however, one participant did not specify location and, due to the focus on Australian mental health practitioners, was to be deleted. Of the final sample ($n = 193$, $M_{age} = 49.5$ years, $SD_{age} = 11.6$ years, $M_{practice} = 17.5$ years, $SD_{practice} = 10.1$), 26.4% reported their practice location as Queensland, 23.3% as New South Wales, 18.7% as Victoria, 15.0% as Western Australia, 7.3% as South Australia, 5.2% as Tasmania, 2.6% as Northern Territory, and 1.6% as Australian Capital Territory, with 79.8% identifying as female. With regard to profession, 73.1% ($n = 141$) of the sample identified as registered psychologists, psychiatrists 9.9% ($n = 19$), other 8.3% ($n = 16$), allied mental health clinicians 5.2% ($n = 10$), general practitioners 2.1% ($n = 4$), and mental health nurses 1.6% ($n = 3$).

Due to the range of participant recruitments methods utilised, it was difficult to estimate how many potential participants became aware of the opportunity to take part in this research, thus it was very difficult to reliably estimate response rates. Therefore, we have not attempted to provide response rates for different locations and professions.

Design

The research design included quantitative and qualitative research methods. Quantitative data were collected in regards to demographic information, frequencies, and perceived usefulness and adherence of dietary change for treatment of mental health conditions. Qualitative data were collected and examined regarding perceived barriers to prescribing dietary change for mental health conditions.

Materials

The survey was adapted from the Way et al. (2018) study which examined mental health practitioners' reported barriers to prescription of exercise as a treatment for mental health. The survey was designed to access information regarding how often in their usual practice mental health practitioner participants prescribed dietary change for mental health conditions, how useful they believed it be, how many patients they considered reasonably adhere to dietary change treatments, and what they perceived as barriers towards dietary change prescription for mental health. Demographic questions were also included.

To measure reported prescription of dietary change, participants indicated how often they prescribed dietary change as part of their usual practice (*daily, weekly, monthly, less than monthly, never*) for five different mental health conditions: depression; anxiety; stress; behavioural disorders; and cognitive decline. These mental health conditions were selected as a focus for this investigation as were considered to be amongst the most frequently presented to mental health practitioners. To determine how useful participants believed prescribing dietary change is for mental health, participants responded to a closed question "As a percentage, how useful do you believe dietary change is in regard to treating mental health conditions?", with answers option ranging from not at all to 100% in 10% increments. The same method was used to assess how many clients they believed would reasonably adhere to dietary change "If you were to prescribe diet to the MAJORITY of your patients with mental health concerns, what percentage do you feel would reasonably adhere?" To assess perceived barriers towards the prescription of dietary change for mental health, participants were invited to type responses to the open-ended question, "What reasons do you believe prevent YOU from prescribing dietary change to manage mental health concerns?" Lastly, demographic questions assessed participants' job title, age, gender, years of practice, and practice location.

Data Analysis

Descriptive statistics were used to examine dietary prescription behaviours and beliefs about usefulness and patient adherence to prescribing dietary change for mental health

conditions. Braun and Clarke's (2006) thematic analysis techniques were used to perform content analysis of the open-ended question "What reasons do you believe prevent YOU from prescribing dietary change to manage mental health concerns?" Content analysis permits the examination, interpretation and understanding of textual data to their context (Krippendorff, 2013; White & Marsh, 2006). It also facilitates the inductive investigation of relatively small quantities of textual data, where the research questions guide exploration, but potential themes can arise during analysis (Krippendorff, 2013; White & Marsh, 2006). Therefore, content analysis was deemed appropriate to systematically examine the textual responses provided. The epistemology approach taken stemmed from an essentialist/realist paradigm; aiming to report participants' statements in a direct way without analysing why they would have written such a response. Qualitative interpretations were constructed (nothing was predefined) and formed from participants' own reported opinions and experiences to describe the connections between responses and to add context to the research area. Braun and Clarke's (2006) rules were adopted on what constitutes a theme and what was considered important regarding the research question.

Meaningful patterns from the data were established and coded over six phases (Braun & Clarke, 2006): 1) Familiarising with the data set, being aware of all participants statements, and noting ideas for coding; 2) Generating initial descriptive codes and collating data relevant to each code; 3) Collating all initial codes (subthemes) into higher-order themes by relevance and similarities; 4) First author then second author reviewed the themes and responses to enable refinement and apply rigour to the process (interrater agreement Cohen' Kappa = .93); 5) Generation of clear definitions and names for each higher-order theme and; 6) Producing the report and providing compelling de-identified data extracts as examples.

Within the sixth stage, prevalence of themes were measured by the number of times they occurred as a proportion of total statements. However, some argue against the use of frequencies within thematic analysis (Braun & Clarke, 2006). For this study, reporting of frequencies was considered to add depth to the analysis by understanding which themes appeared more often than others in regards to the mental health practitioners' perceived barriers to prescribing dietary change for mental health conditions. It also allowed differences in barriers between professions to be determined.

Frequencies, percentages, and participants' demographics were analysed using SPSS statistics (version 24). Coding stages were conducted in Microsoft excel (version 2013).

Results

Frequencies of Prescribed Dietary Change

Practitioners' most commonly prescribed dietary change for depression, anxiety, and stress, with over 50% of the sample reporting prescribing dietary change for each of these conditions at least weekly in their practice (see Table 1). However, a fifth of the sample reported never prescribing dietary change for depression, anxiety, and stress. Behavioural disorders (13% daily) and cognitive decline (7% daily) had dietary change prescribed least frequently, with approximately 40% of the sample reporting to never prescribing dietary change for cognitive decline.

Table 1.

How frequently practitioners report prescribing dietary change for different mental health conditions

Condition	Daily % (<i>n</i>)	Weekly % (<i>n</i>)	Monthly % (<i>n</i>)	Less than monthly % (<i>n</i>)	Never % (<i>n</i>)
Depression	28.0 (54)	26.9 (52)	16.1 (31)	6.7 (13)	20.2 (39)
Anxiety	28.0 (54)	24.9 (48)	11.4 (22)	13.0 (25)	20.7 (40)
Stress	28.5 (55)	24.9 (48)	10.4 (20)	10.9 (21)	19.2 (37)
Behavioural disorders	13.0 (25)	19.2 (37)	15.0 (29)	17.1 (33)	28.5 (55)
Cognitive decline	6.7 (13)	14.0 (27)	14.0 (27)	19.2 (37)	38.9 (75)

Note. Information was reported for prescription of dietary change by $n = 193$. Percentages calculated on a total participant number of 193; columns do not all add up to 100% as not all participants provided answers for all conditions; missing data n for Depression = 4, Anxiety = 4, Stress = 12, Behavioural disorder = 14, Cognitive decline = 14.

Perceived Usefulness and Adherence Towards Dietary Change

Of the practitioners' who answered, over half the sample (53.9%) perceived dietary change to be 61% to 100% useful in regards to treating mental health conditions, with almost a third (29.0%) believing it to be between 80-100% useful (see Table 2). Conversely, close to one quarter of the practitioners that answered this survey considered prescribed dietary modification to be less than 40% useful for practice. In regards to client adherence to dietary change, 63.2% of the sample believed that less than 40% of clients would reasonably adhere.

Table 2.

Practitioners' perceived usefulness of and adherence to dietary change

Perception	Not applicable % (n)	0% to 20% % (n)	21% to 40% % (n)	41% to 60% % (n)	61% to 80% % (n)	81% to 100% % (n)
Usefulness	1.6 (3)	8.3 (16)	15.0 (29)	20.7 (40)	24.9 (48)	29.0 (56)
Adherence	6.2 (12)	31.1 (60)	32.1 (62)	18.7 (36)	9.8 (19)	1.0 (2)

Note. Information was reported for $n = 193$. Percentages calculated on a total participant number of 193; columns do not all add up to 100% as not all participants provided answers; missing data n for Usefulness = 1, Adherence = 2.

Barriers to Prescription of Dietary Change

One hundred and seventy-nine participants responded to the open-ended question “What reasons do you believe prevent YOU from prescribing dietary change to manage mental health concerns?” From these responses, 264 initial statements were coded, with 232 final statements being considered relevant. Examples of disregarded statements included, “I don’t prescribe” and “No significant reasons or factors”.

Following thematic analysis, statements were coded into 19 initial codes (subthemes), and then grouped into four higher-order themes (Table 3). Frequencies of the subthemes and higher-order themes were represented as a percentage of the total of meaningful statements ($n = 232$). The most frequently reported subtheme was *insufficient skills and knowledge* (15.9%, $n = 37$). This subtheme included statements about lack of knowledge and not understanding dietary principles, as well as not feeling confident enough to prescribe dietary change. Example statements included: “Insufficient knowledge”; “Lack of confidence regarding my role in prescribing”; and “I don’t want to overstep my knowledge”. The subtheme *lack of qualifications* (11.1%, $n = 26$) was also related to *insufficient skills and knowledge*, yet represented practitioners’ lack of specific training in regards to diet and nutrition. Example statements included: “Not formally trained in dietetics”; and “I am not a dietary specialist”.

Table 3.

Thematic analysis of practitioners perceived barriers to prescription of dietary change.

Initial codes (subthemes)	Frequency % (n)	Higher-order themes	Frequency % (n)
Insufficient skills and knowledge	15.9 (37)	Practitioner barriers	43.8 (103)
Lack of qualifications	11.2 (26)		
Outside scope of practice	10.3 (24)		
Own perceptions on use of dietary change	4.7 (11)		
Perspectives on impact/outcomes of dietary change	1.7 (4)		
Concerns with own diet	0.4 (1)		
Client adherence	12.9 (30)	Client barriers	29.2 (68)
Practitioner perspective on clients' ability to adhere	10.3 (24)		
Socioeconomic status (finance, access etc.)	4.7 (11)		
Risk to other health concerns	1.3 (3)		
Insufficient evidence	7.3 (17)	Organisational and community support	22.4 (52)
Fears and concerns about losing registration	4.3 (10)		
Practitioner lacks time	3.9 (9)		
Community and professional attitudes	3.0 (7)		
Insufficient practice resources	1.7 (4)		
Need to adhere to mainstream practices	1.3 (3)		
Lack of funding and Medicare rebates	0.9 (2)		
Client already has an adequate diet	3.4 (8)		
Dietary change has already been discussed elsewhere with client	0.4 (1)		

Note. Total number of perceived barrier statements coded $n = 232$.

The second most occurring subtheme was client adherence (12.8%, $n = 30$). This subtheme encompassed statements relating to practitioners' perceptions of individual clients' willingness to adhere to dietary changes. Example statements included: "If a client were to say they're not interested"; and "Lack of compliance". Although related but separate to client adherence, the subtheme practitioner perspective on clients' ability to adhere (10.2%, $n = 24$) represented the practitioners' own beliefs about clients in general ability to adhere. Example statements included: "Assumption that clients don't come to me for dietary guidance."; "I see seriously ill patients who are already overwhelmed"; and "client is too mentally unwell to cope".

Barrier Differences between Professions

Differences in higher order themes were calculated as a percentage of statements (232) made by each profession. Comparisons were made between psychologists, psychiatrists, and others (Table 4). The "other" group included mental health nurses, general practitioners, social workers, counsellors, and remote area nurses.

Each group of mental health practitioners' cited similar frequencies for the *client barriers* and *not required* higher-order themes. There were key differences between occupations in the *practitioner barriers* and *organisational and community support* themes. *Practitioner barriers* accounted for just over half of psychologists cited barriers (50.9%), while only 20.0% of psychiatrists and 33.3% of the other practitioners. *Organisational and community support* was a more commonly cited barrier for psychiatrists (44.0%) compared to psychologists (16.8%) and others (33.3%). The group consisting of other mental health practitioners had evenly cited barriers across the higher-order themes *practitioner barriers*, *client barriers*, and *organisational and community support*, with no cited barriers in the *not required* higher-order theme.

Table 4.

Percentage of perceived barriers to prescription of dietary change by occupation.

Profession	<i>n</i>	Practitioner barriers	Client barriers	Organisational and community support	Not required
Psychiatrist	19	20.0	32.0	44.0	4.0
Psychologist	141	50.9	28.1	16.8	4.2
Other	33	33.3	33.3	33.3	0.0

Discussion

This research provides novel data regarding mental health practitioners' usage and beliefs about efficacy expectations of dietary change for mental health conditions. Our research also provides qualitative data pertaining to mental health practitioners' perceived barriers to prescribing dietary change for mental health conditions, and provides an insight into how mental health practitioner professions differ in terms of these barriers.

The majority of mental health practitioners in this sample reported prescribing dietary change for stress, depression, and anxiety as part of their practice at least weekly. This finding is consistent with the Way et al. (2018) study which examined the frequency of exercise prescription, another non-mainstream treatment method, by mental health practitioners for the same conditions. This finding that mental health practitioners are prescribing dietary change on a regular basis may be due to the increasing evidence that recognises the role unhealthy lifestyle factors play in regard to mental health (Mechanick & Kushner, 2016; Sarris & Firth, 2018; Wade & Halligan, 2017). An example of a recent recognised and respected source of practice information is the Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for mood disorders that recognises the importance of diet for mental health (Malhi et al., 2015). It is plausible that the increased volume of literature that acknowledges the role of dietary change for positive mental health has further informed and justified mental health practitioners' prescription of dietary change.

The frequency of prescribing dietary change for behavioural disorders and cognitive decline were far less common with a large proportion of the sample reporting to never prescribe for these conditions. This could be due to the complex nature of these disorders and the need to apply a more comprehensive approach to treatment. Furthermore, many neurodegenerative disorders are considered irreversible (e.g., dementia), and although diet has demonstrated a protective role in reducing the rate of cognitive decline (Hutton et al., 2018; Trichopoulou et al., 2015), many patients would not begin treatment with a mental health practitioner until the effects of cognitive decline had already commenced. Thus prescribing dietary change may not be considered beneficial for the treatment of cognitive decline alone.

The majority of mental health practitioners' in this sample reported believing that dietary change was 61% to 100% useful in regards to treating mental health conditions, yet majority of the sample reported that they believed less than half of clients would reasonably adhere to any prescribed dietary changes. Given the beliefs about client adherence, it is likely

that prescription of dietary change is not being utilised at a rate congruent to its value. These findings suggest that there is an opportunity for mental health practitioners to increase their rates of prescribing dietary change for mental health conditions in the future, should clients be more willing to adhere, or that mental health practitioners were able to be more successful in facilitating adherence.

Four higher-order themes were observed in relation to reported barriers of prescription of dietary change for mental health: *Practitioner barriers; client barriers; organisational and community support; and not required.*

The higher-order theme *practitioner barriers* included six subthemes and accounted for the largest proportion of barriers. The subtheme *insufficient skills and knowledge* was a prominent barrier faced by many mental health practitioners in regards to prescribing dietary change, closely followed by *lack of qualifications*. These findings are similar to Way et al. (2018) who found that practitioners' knowledge and perspectives were also a prominent barrier to prescribing exercise for mental health conditions in approximately a third of their sample. Explanation for this barrier could relate to the samples age ($M = 49.5$ years) and the amount of years they have been practicing ($M = 17.5$ years). It is likely that our sample completed the majority of their formal training some years ago, and research into the role of diet in relation to mental health has only been established in the last decade, with much research still in the early stages of development. It is therefore understandable why many mental health practitioners perceive lack knowledge, training, or confidence in prescribing dietary change for mental health conditions. It is unknown what proportion of the sample have received any formal training regarding nutrition and diet. While it is acknowledged that all the participants in our sample would have been required to engage with continued professional development, it is also acknowledged that our sample was likely to be biased towards an accepting and adopting dietary change for mental health attitude.

Over half the professional group of psychologists cited *practitioner barriers*, while only a third of other practitioners', and a fifth of psychiatrists, reported such barriers. Mainstream psychological practices to date have not included the use of dietary change or supplementation as part of their training. Therefore, psychologists may feel it is outside of their scope to prescribe such changes. Psychiatrists and other mental health professionals may be better equipped, or feel more confident in addressing dietary change with their clients. Further research would be needed to determine these factors.

The *client barriers* higher-order theme encompassed four subthemes and accounted for the second highest amount of cited barriers. *Client adherence* (subtheme) was a prominent

barrier faced by mental health practitioners. Additionally, the subtheme *practitioner perspective on clients' ability to adhere* represents the practitioners' own beliefs about the clients' ability to adhere and accounted for a tenth of cited barriers. This result was also similar to Way et al. (2018) who found client disinclination to be a prominent barrier in prescribing exercise interventions for 12.6% of their sample. The challenge is to assess whether mental health practitioners reported perceptions about clients' ability to adhere actually represents the clients' true capabilities (Way et al., 2018).

Client barriers was found to be similar across each profession group with approximately a third of all psychologists, psychiatrists and others citing barriers in this higher-order theme. Despite the foreseeable challenges that come with mental health issues, perhaps clients' have a greater capacity for change than what is generally considered by mental health professionals. To better understand this, mental health practitioners' may need to consider the wider context of clients lives to gain a more valid perception of their capabilities of adhering to dietary change. This may mean more therapeutic contact with clients where stronger relationships, motivational support, and rapport are formed.

Organisational and community support higher-order theme included seven subthemes and accounted for approximately one quarter of the samples reported barriers. The most prominent subtheme that mental health practitioners cited in this higher-order theme was *insufficient evidence*. Currently research focusing on the relationship between diet and mental health has been largely limited to animal and observational studies in humans (in contrast to experimental designs). Whilst the existing data supports a correlational relationship between diet quality and mental health outcomes, further randomised controlled trials are required to test causal relationships and identify whether dietary change can improve mental health in people with such conditions. Additionally, dietary change is not yet considered a common mainstream practice for the treatment and management of mental health conditions, and the *need to adhere to mainstream practices* was a barrier cited by little more than one percent of professionals.

Organisational and community support was more commonly cited as a barrier by psychiatrists than to psychologists and others. Psychiatrists often work closely with general practitioners and other health professionals to best meet the needs of each individual client. Due to this, they may feel it is outside their scope of practice to prescribe dietary change, and may feel they won't be supported by other health professionals whom they could have referred clients on to.

The subtheme *practitioner lacks time* accounted for almost four percent of mental health practitioners' cited barriers. This was also found to be a barrier for Way et al. (2018), and further follows from the *client barriers* higher-order theme where more time may be needed with clients to gain more valid perceptions on clients' capabilities regarding dietary change. All clients should be aware of their treatment options and have the opportunity to receive dietary advice should they want it. In cases where mental health practitioners' lack time, knowledge, and/or confidence in prescribing, they should refer on to a dietary specialist.

The *not required* higher-order theme included two subthemes: *Client already has an adequate diet* and *dietary change has already been discussed elsewhere with client*. These barriers have not been noted in other research, and only included a small amount of attention in regards to practitioners' perceived barriers. Only a small percentage of both the psychologist and psychiatrist professions cited this higher-order theme as a barrier, with none of the others group reporting it to be a barrier. This could be due to the referrals from other health practitioners' that psychologists and psychiatrists receive, where information regarding diet has already been discussed.

There were limitations within the current study. The sample mostly included psychologists and had a relatively small representation of psychiatrists and other mental health practitioners. Although psychologists represent a larger proportion of mental health professional in Australia, this limitation reduces the generalisability of our conclusions. It is also likely that due to the self-selection nature of the survey, that the sample included individuals with an interest and appreciation of dietary change for mental health conditions, generating responses which have an inherent bias. The implication of this limitation is that the actual incidence of mental health practitioners' in Australia prescribing dietary change is likely to be less than was observed, and mental health practitioners' beliefs and barriers towards prescription of dietary change for mental health conditions will also be more negative than what was observed. Considering the limited generalisability of the findings, it is important to replicate this study using a more diverse group of mental health practitioners. To address the issues of a positively biased sample, future research should recruit practitioners who would otherwise be less likely to volunteer for research in an area that did not inherently interest them. A further limitation of this current research regarded the nature of assessment or criteria that participants based their dietary recommendations on, replication with a standardised criteria would assist in addressing this shortfall. Lastly, as this was a self-

report study, further research should include some assessment of practitioners' actual dietary prescription behaviours.

Conclusion

This study examined mental health practitioners' beliefs and perceived barriers to prescribing dietary change as a treatment for mental health conditions. In Australia, dietary risks alone account for a substantial amount of all non-communicable deaths disability-adjusted life years, and with emerging literature suggesting associations between diet and mental health outcomes, it was necessary to conduct this study. Important findings have been made regarding the current use, and perceived barriers of mental health practitioners prescribing dietary change for mental health conditions. This information can be used to inform initiatives to facilitate increased rates of dietary change in the future, whilst also contributing to the limited literature that has been conducted within this area.

The results of this study give insight into mental health practitioners' beliefs and barriers towards prescribing dietary change for mental health conditions. Our findings demonstrate that mental health professionals, including psychologists, are prescribing dietary change as part of mental health practice. Furthermore, that mental health practitioners believe that dietary change is useful in the treatment of mental health conditions, yet numerous practitioners perceive client, organisational, and community factors are preventing prescription of dietary change from being utilised at a rate that is congruent to its value. Three important conclusions are proposed from this research to help facilitate the use of dietary change for mental health in the future. Firstly, practitioner barriers were the most commonly reported barriers to the prescription of dietary change for mental health, including insufficient skills, knowledge, and training. Future research should consider pre and post-qualification training in providing dietary advice, especially given the recent updates to the Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for mood disorders. University training and professional accreditation bodies should consider providing education programs in psycho-nutrition not only to extend scope of practice but also to reflect what is currently occurring in practice. A range of professional development programs should also be offered to equip the graduate mental health workforce. Secondly, client barriers, such as client adherence, and practitioners' perspectives on the clients' ability to adhere, need to be addressed. In future clinical practice, practitioners' may need to invest more time with clients to break down barriers, increase motivation for change, and to ensure their perspectives of their clients are valid. Lastly, further organisational and community support and acceptance of dietary change for mental health outcomes is needed. How such

enhanced support and acceptance can be achieved is likely to be based upon knowledge transfer mechanisms, with further research needed to develop our understanding of how to best to provide additional training for mental health practitioners regarding dietary change for mental health.

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