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The perceived therapeutic benefits of complementary medicine in eating disorders

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ABSTRACT

Objectives: The purpose of this study was to investigate the perception of Complementary Medicines (CMs) in community women; to identify which CM approaches people perceived as the most beneficial; and the impact of Eating Disorder (ED) symptoms on one's perception of treatment.
Design & setting: Electronic and paper-based surveys were distributed to a pre-existing cohort of community women (n = 100) aged 18 years and over. The survey included questions about the perception of CMs' benefits in EDs regarding a vignette of a women with Anorexia Nervosa (AN), and whether CMs helped the participant's own personal health.
Main outcome measure: The mental health literacy of women with regards to the recognition, evidence-based and CM treatment, and outcomes of a fictional person with AN.
Results: Exercise, yoga, meditation, relaxation, vitamins and minerals, massage and creative therapy were perceived as very helpful for someone with AN and for general health. Excluding meditation, there was no significant relationship between the levels of ED symptoms and perceived helpfulness of the therapies. Positive benefits were perceived for the use of CMs for AN.
Conclusion: Considering the positive regard for these approaches, empirical studies are required to test their efficacy in the treatment of EDs.

1. Introduction

The reported community lifetime prevalence of Anorexia Nervosa (AN) is 1.2–2.2%, 0.1%–2.9% for Bulimia Nervosa (BN), [1] 1.9% for Bing Eating Disorder (BED), [2] and is higher in women than men.[3] The estimated cost of Eating Disorders (EDs) in Australia is 69.7 billion dollars [4] highlighting the importance of increasing the community ED Health Literacy (EDHL) [5] to improve the health of those affected by EDs and to reduce the economic impact on society. In this regard, Darby et al. examined recognition and beliefs about treatment concerning AN in the general population and found low rates of identification of AN, confusion with other EDs and misperceptions regarding aetiology.[6]

Other research has found gaps in regards to EDHL's including appropriate treatment-seeking, knowledge of evidence-based treatment, perceived stigma associated with disclosure of problem behaviours, and acknowledgement of the problem.[7] According to Mond et al. participants who were at high risk of EDs were more likely to avoid approaching anyone for advice or help compared to those of low risk, because they would not want anyone to know.[8] Darby et al. found that participants appropriately regard general practitioners and psychiatrists or psychologists as the most helpful treatment providers for AN.[6] Further, a multifaceted approach with multiple allied health providers is recommended for AN treatment along with an individualised psychological approach, e.g. Cognitive Behaviour Therapy (CBT) combined with adjunctive treatment (medication). A few studies have investigated the recovery rates and relapse of symptoms in AN including a systematic review by Steinhausen et al.[9] In this study on average, less than half of the patients with AN were recovered, one-third improved, and 20% remained chronically ill [9] which contrast with higher rates in other EDs.[10] Darby et al. found that only one-third of community participants believed in the possibility of complete recovery.[6] Different outcomes and response to treatments are likely because of individual variance and phenotypic expression of risks for eating disorders, such as Flammer syndrome.[11]

Complementary Medicines (CMs) are less explored potential therapies for EDs that have been or currently are used in Australia.[12] Most

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systematic reviews in this area are focused on specific treatments such as yoga and mindfulness-based interventions, [13,14–18]. The most commonly used CMs such as herbal medicine, nutritional therapy, chiropractic and osteopathic have not been included in previous reviews.[19] Fogarty et al. [20] have reported potentially positive roles of massage and relaxation therapy for BN and state anxiety in EDs. With regards to EDHL and CMs, Mond et al. found people believed that herbal medicine and/or vitamins and minerals would assist in the treatment of specific EDs.[8] To our knowledge, there is little other information in regards to the EDHL of other CMs or how this may vary in people who are or are not symptomatic. Therefore, in this study we aimed to investigate the EDHL in a community sample of women with regards to the recognition, evidence-based and CM treatment, and outcomes of a fictional person with AN. The relationships between regard for CM and the levels of participant ED symptoms were also investigated.

2. Methods

2.1. Study design and setting

Ethical approval for this cross-sectional study was obtained from The University of Western Sydney Human Research Ethics Committees (Reference No. H11080). Participants were recruited from a longitudinal study's database (n = 500 females, aged > 18). The participates were de-identified by ID numbers and signed an informed consent. An ED survey was sent out via mail or email/ link to a survey monkey depending on the participants' preference.

2.2. Survey: vignette and perception of CM

The Vignette was about a young female (Jill) who was suffering from AN and the questions focused around that specific scenario (Appendix 1). The following open ended questions were asked about what participants believe is wrong with Jill as well as what they believe is helpful for her (in terms of medication, professional help, and possible adjunctive approaches help).

1 What would you say if anything is wrong with Jill?
2 If Jill went to a doctor, what do you think the doctor would say is Jill's main problem?
3 How do you think Jill could best have helped?

The participants were required to choose CMs that in their opinion would be helpful, harmful, or have no effect; choose what they believed would happen if Jill received/did not receive the help they believed was appropriate; and give their thoughts about the usefulness of St John's Wort, exercise, and acupuncture for Jill.

2.3. Assessment instruments

The Kessler-10 (K10) questionnaire with moderate reliability [21] was used to assess the depression and anxiety symptoms within the past four weeks.[22] A higher score indicates more symptoms with a total score ranging between10-50. Scores above 20, 30, and 40 are indicative of mild, moderate or severe levels of depression and/or anxiety.

The Eating Disorder Examination Questionnaire (EDE-Q) was used to assess ED symptoms over the preceding month. The EDE-Q focuses on the past 28 days and is scored using a 7-point, forced-choice, rating scheme.[23] Eating disorder behaviours are assessed in terms of the number of episodes occurring during the past four weeks. Subscale scores and a global score may similarly be derived from the 22 items addressing attitudinal aspects of eating-disorder psychopathology and Australian community normative data for these are published.[24] Excepting for frequency of binge eating a high level of agreement between EDE-Q and EDE subscale scores has been demonstrated in both clinical and general population samples.[25]

The SF12-shortend version of the SF36 questionnaire was used to measure the participant's general physical and mental health.[26] This questionnaire has sound reliability and validity.[27]

2.4. Survey sent-out

The surveys were sent out in two waves as physical copies (n = 150) and electronic copies (n = 240) in June and August 2015, alternately. The physical surveys included a thank you letter, a reply paid envelope, an information sheet, a consent form, and the survey with an ID number. Surveys without singed consent were excluded. For the electronic survey, automatically generated emails with ID numbers and a link to the survey hosted on Survey Monkey was sent to the participants. To ensure questions were answered, questions were not allowed to be skipped.

2.5. Statistical analysis

The IBM Statistical Package for the Social Sciences (SPSS) was used for quantitative statistical analyses (Release 23 for Windows). Differences in proportions were expressed as percentages with 95% CI. The data were expressed as mean and standard deviation (SD) or median (range) after being statistically and visually tested for normality (skewness -1 ≥ 1). Comparisons between groups were made using the Mann-Whitney U test with significance set as $p < .05$.

The questions of a qualitative manner were perused, common themes identified and numbers were assigned to each question to gain an understanding on how many times the theme was approached upon. For the vignette, we were attempting to identify how much the respondent knew about the symptoms of the ED in NSW. For quantitative questions we assigned six different categories depending on how a person found the treatment including very positive, positive, neutral, negative, and very negative.

3. Results

Demographic characteristics, ED and health-related symptoms of the participants are presented in Tables 1 and 2. The recruitment was done on a group of women who have been involved in a longitudinal study for more than a decade. A total of 105 people responded to the survey including physical copies (n = 33), electronic copies (n = 72), and 5 blank-returned surveys. The overall survey was included in the data analysis even if there was missing data in a certain part of the survey, however, that particular data was omitted from the final results. The participants were middle-aged females (median age: 35–44 years). Most of the participants were employed (68%; 95% CI 58–76), highly educated (84%; 95% CI 75–89), married or living as married (78%; 95% CI) and were Australian born (88%; 95% CI 80–93) with English as

Table 1
Demographic characteristics of the participants.

Variables	%
Relationship status	
Single	16
Married	53
Living as married	25
Separated	6
Occupation	
Employed Full/part time	68
Home maker	29
Student	3
Age (years)	
18-24	1
25-34	43
35-44	27
45-plus	29

Table 2
Eating disorder and health-related symptoms.

Variables	Mean (SD)	Median	25-75th quartile
EDE-Q Global	1.7 (1.4)	1.3	.46-2.7
BMI	26.9 (5.9)	25.7	22.4-29.9
PCS	51.6 (8.1)	54.4	48.8-56.3
MCS	40 (10.7)	43.7	30.1-48.9

BMI: Body Mass Index; EDE-Q: Eating Disorder Examination Questionnaire, [22] Components of SF12 including: PCS: physical wellbeing; MCS: mental well-being.

their dominant language (99%; 95% CI). In our study, the mean value of EDE-Q global score was higher than the reported norms by Mond et al [24] for women within the same age group (38–42 years) indicating mild ED symptoms (Mean ± SD: 1.76 ± 1.40 vs. 1.41 ± 1.15, respectively).

The results of vignette showed 17% (95% CI 11–26) of the participants correctly perceived that Jill was suffering from AN. However, others believed that it was a self-esteem issue (10.6%; 95% CI 6–18), an ED (24.5%; 95% CI 17–33), Bulimia Nervosa (BN) (16%; 95% CI 10–24), or a multifactorial problem (24%; 95% CI 17–33). Majority of the participants (72.8%; 95% CI 63–80) believed that most doctors would have diagnosed Jill with an ED of which, 29.3% (95% CI 21–38) believed it was AN or BN (28.3%; 95% CI 20–37). The rest of the responses were related to self-esteem (10.1%; 95% CI 5–17), depression (7.1%; 95% CI 3–13), mental illness (6.1%; 95% CI 2–12) or anxiety (3.1%; 95% CI 1–8). Seeing a psychologist/counsellor (62.2%; 95% CI 52–70) and seeking additional treatments (29.5%; 95% CI 21–38), seeing a nutritionist or using medication were believed to be the most effective treatments for Jill. There was no other "best" treatment otherwise, with the majority of the participants selecting a multifactorial approach leading to an amalgamation of choices.

The most suitable approach for Jill was believed to be taking a nutritional supplement (40.2%; 95% CI 30–49) or an antidepressant (59.8%; 95% CI 50–68). Most participants suggested a visit to psychologist/counsellor (63%; 95% CI 53–71) if one help option was offered to Jill. Other suggested help options were visiting a GP (12%; 95% CI 7–19), a CM provider (9%; 95% CI 4–16), or a psychiatrist (5%; 95% CI 2–11). Most people (48%; 95% CI 38–57) highly recommended cognitive behavior therapy (CBT) if Jill was given one option of adjunctive help to use followed by counselling (15%; 95% CI 9–23), information on websites (12%; 95% CI 7–19), or using a local mental health service (11%; 95% CI 6–18).

Of the CM approaches, relaxation therapy (91%; 95% CI 83–95) was regarded to be most helpful for Jill followed by meditation (82%; 95% CI 73–88), Tai Chi (69%; 95% CI 59–77), exercise (68%; 95% CI 58–76), vitamins and minerals (68%; 95% CI 58–76), and creative therapy (61%; 95% CI 51–69). However, 17% (95% CI 10–25) of participants believed that exercise was also one of the more harmful aspects of CM therapy followed by chelation therapy (8%; 95% CI 4–15), homeopathy (7%; 95% CI 3–13), and herbal medicine (7%; 95% CI 3–13). Many participants (77%; 95% CI 67–84) didn't know whether biofeedback, Alexander technique (75%; 95% CI 65–82), Qi Gong (74%; 95% CI 64–81), chelation therapy (73%; 95% CI 63–80) and magnet therapy (70%; 95% CI 60–78) would be helpful. In terms of what participants valued as the two most helpful options, most people believed that relaxation was the most useful (24% 95% CI 16–33), followed by meditation (21.9%; 95% CI 14–29), yoga (27.4%; 95% CI 19–36), and exercise (24%; 95% CI 19–36). With the exception of meditation ($p = 0.03$), there were no significant differences in levels of ED symptoms (Global EDE-Q scores) between believing which CMs were helpful for Jill and participants' health scores.

In terms of recovery and re-occurrence of Jill's condition, 41% (95% CI 31–50) of participants believed that if she received the help they thought was correct, Jill would make a full recovery but these problems would re-occur. 22% (95% CI 15–31) of the participants believed that Jill would make a partial recovery while others (22%; 95% CI 15–31) believed in a partial recovery with problems re-occurring in future. If Jill did not receive the help participants believed was appropriate, they believed that Jill would get worse (75%; 95% CI 65–82), with another 15% (95% CI 9–23) of participants stating her health would not improve. When asked about acupuncture, St John's Wort and exercise and whether they would be helpful to Jill individually, the majority of participants would recommend exercise (71%; 95% CI 61–78), followed by acupuncture (36.7%; 95% CI 27–46) and St John's Wort (27.8%; 95% CI 19–37). If they were to choose one, the majority chose exercise, acupuncture and St John's Wort (59.2%; 95% CI 49–68, 23.5%; 95% CI 15–35, 17.3%; 95% CI 10–25, alternatively).

In terms of personal usage of CMs as shown in Fig. 1, 62% (95% CI 52–70) of participants reported either currently using or using of a CM in the past twelve months. Of these CMs, massage (72.6%; 95% CI 63–80) was the most frequently used, followed by vitamins (61.3%; 95% CI 51–69), meditation (43.5%; 95% CI 33–52), yoga (40.3%; 95% CI 30–49), minerals (38.7%; 95% CI 29–47), and relaxation (35.5%; 95% CI 26–44). Their usage experience was very positive, with 91.9% (95% CI 84–95) having a somewhat positive or positive attitude towards their usage of CM. There was no significant relationship between the personal usage of CMs and mental health scores (MCS: $Z = -0.343$ $p = 0.731$; EDE-Q: $Z = -0.568$ $p = 0.570$). Higher scores of EDE-Q were significantly associated with the belief that meditation was not helpful for Jill. These results are presented in Tables 3 and 4.

4. Discussion

The EDHL of the current cohort in regards to AN was moderate. Community women were less clear in using DSM type diagnosis, but a majority of the participants (57%) identified the problem as a type of an ED. Even when asked what would be a doctor's diagnosis in their opinion, only 29.3% thought AN would be the diagnosis versus BN

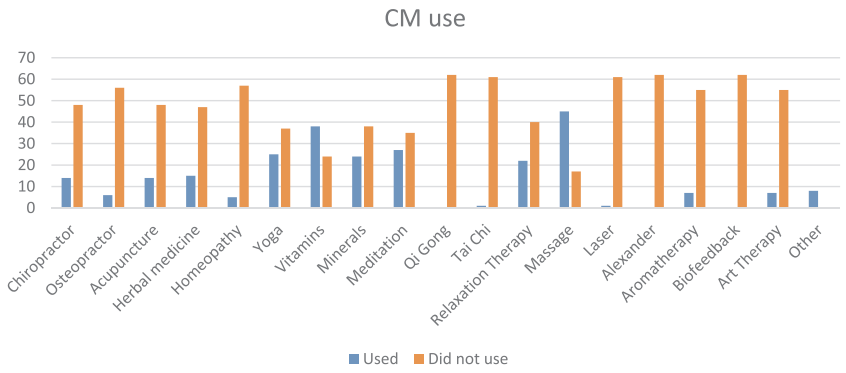

Fig. 1. Personal CM usage.

Table 3
Personal usage of CMs and mental health scores.

	EDE-Q	MCS
Mann-Whitney U test	1080.0	1005.5
Wilcoxon W	2971.0	1635.5
Z	−.568	−.343
Asymp. Sig. (2-tailed)	.570	.731

EDE-Q: Eating Disorder Examination Questionnaire, [22] MCS: mental wellbeing component of SF12.

Table 4
Mann-Whitney test results for CM helpfulness and EDE-Q scores.

Complementary Medicines	Z Score	P value
Vitamin and minerals	−0.157	0.875
Exercise	−1.131	0.258
Relaxation	−0.43	0.966
Meditation	−2.173	0.030
Massage	−0.225	0.822
Acupuncture	−1.522	0.128
Yoga	−1.797	0.072
St John's Wort	−1.233	0.218
Qi Gong	−0.701	0.483
Tai Chi	−0.996	0.319
Pet Therapy	−0.379	0.704
Herbal Medicine	−0.872	0.383
Creative therapy	−1.024	0.36
Myofascial	−0.720	0.472
Kinesiology	−0.812	0.417
Hypnotherapy	−0.014	0.989
Energy	−1.308	0.191
Aromatherapy	−0.697	0.486
Bach flower	−0.598	0.550
Alexander	−1.051	0.293
Biofeedback	−1.746	0.081
Magnet therapy	−0.367	0.713
Homeotherapy	−0.171	0.864
Light therapy	−0.154	0.877

(28.3%).

In the participant's view, visiting a psychologist/counselor was the most effective treatment and taking nutritional supplements/antidepressants was the most suitable approach for Jill. Relaxation therapy was regarded as the most helpful CM for Jill. Many participants (41%) believed that Jill will partially recover if she received the help they thought was correct. In terms of personal usage of CMs, 62% of the participants reported mostly using massage either currently or in the past. No relationship was found between ED symptoms and the usefulness of CMs, except for meditation.

The findings of this study supports Darby et al. reporting similar ratios of the people who thought the problem was an ED and more specifically AN.[6] EDHL may be an impediment to the acceptance and treatment of ED symptoms preventing proper diagnosis, treatment, or acknowledgement for the current sufferers. More education about different types of EDs and accepting them as a disease warrants faster identification of the disease and consequently a quicker path to diagnosis, treatment, and recovery. Previous research has reported poor health literacy in regards to EDs. For example, only 18.5% of the participants identified BN as the main problem in a vignette type study by Mond et al.[8] Although AN and BN are two different problems, this worrying trend continues with only 17% of the participants correctly identifying Jill's issue as AN.

Consistent to our findings, Darby et al.[6] reported psychologists and counsellors being favorably regarded as useful resources to treat the proposed problem. Similar to our findings, CBT was also highly recommended as an ED treatment for all forms of EDs by Murphy et al.[28] In addition to other treatments for CM and clinical medicine, this may be considered and pursued as a form of alternative treatment. Important to note, that only two choices could be selected out of options for a preferable treatment. Antidepressants was strongly recommended as a treatment for EDs.

Consistent with Darby et al. study,[6] most participants believed that Jill would recover if she receives the suggested treatment, but will have relapse of symptoms, and she would most likely get worse in the absence of treatment. In terms of recovery, 22% of the participants believed that Jill would make a partial recovery or a partial recovery with problems re-occurring in future (22%) which is consistent to the finding of a review by [9] in which less than half of the patients with AN recovered, one-third improved, and 20% remained chronically ill.

One of the predominant features of AN is excessive exercise, hence the prescription by practitioners.[14] It was also identified as a form of CM that respondents believed was most harmful to Jill. However, the majority of respondents believed that exercise would be useful in her case. Most of the participants recommended moderate to mild which is appropriate for people with AN intensity of exercise including Tai Chi and yoga for Jill to help with general wellbeing. Those who thought exercise might be harmful possibly were considering more intense cardiovascular exercise. Future research should focus on exercise-based therapies and its potential effects on AN. Previous research is well established into the benefits of exercise for BN and Bing Eating Disorder (BED).

Higher scores of EDE-Q were significantly associated with the belief that meditation was not helpful for Jill. This finding may be purely by chance due to the small sample size, but it could also mean previous usage of meditation may have been perceived poorly by those who have higher EDE-Q scores, and thus are symptomatic with EDs. This is an important finding overall, as regardless of whether a person is suffering from symptoms of an ED, their perception that CM is more helpful than not helpful are equal throughout most, if not all categories.

In this study, we found similar percentage of participants who are currently using CMs or have used them in the past 12 months to that reported previously by Xue et al. [12] There was no significant relationship between the ED symptoms and CM usage indicating that CM is broadly used by everyone. In addition, it may indicate that CMs may be well tolerated by the majority of the participants. The most commonly used CMs were massage, yoga, vitamins, meditation, relaxation and minerals. They were also highly recommended by the participants for the treatment of Jill's ED. The majority of people who used any form of CMs reported a great positive or somewhat positive benefit from CMs for their health, even though they were costly to maintain. Their favorable regards for massage and relaxation is not unexpected as these were also the most commonly used CMs by the participants and that may be influenced by their own experience. In general, for stablished evidence-based therapies the favorable regards for massage and relaxation approaches is not inconsistent. Although there is little evidence available, a systematic review of complementary and alternative medicine for managing symptoms of depression and anxiety in people with eating EDs found a potential role for massage in the treatment of depression for those with BN and relaxation therapy in the treatment of state anxiety for those with an ED.[20]

This study had some limitations including ethnicity and cultural background which were not explored. The origins of certain CMs that stems from certain ethnicities and cultures may affect the data. For example, acupuncture, Qi Gong and Tai Chi are originated from China. An person of Chinese ethnicity may be more likely to perceive these CMs as beneficial to Jill compared to people of other ethnicities. Recruiting from a pre-existing database was another limitation of the current study which limited the cohort to female participants. However, AN and BN are disorders more predominant within the female population. Regardless, it would have been best to attempt a larger recruitment of both female and male populations if there was more time and funding. The type of exercise was not well defined in this study, and is likely to have been interpreted differently by participants. The recruitment was limited due to time constraints on the project; however,

we received over 50% response to the surveys and the findings are limited in their generalizability.

Future research should investigate the efficacy of CMs in people who have used them and in other samples of well and symptomatic people. In this regard, the present study participants showed score of within the normal level for physical health on SF12; however, mental health was quite poor being a full standard deviation away from normal expected results in an average adult population allowing for investigation across people with a diversity of levels of mental health. Studies of movement-based therapies for AN should be carried out as exercise may be harmful due to the nature of this disease, where sufferers may excessively exercise with a negative impact on their health. Given that people believe moderate exercise may help general well-being, it would be crucial to look into whether moderate exercise and other movement-based therapies such as yoga and Qi Gong would have a positive impact on people with AN. Future study designs should take into consideration the different ethnicities, cultural background, and gender of participants as may be present in multicultural societies such as Australia.

5. Conclusion

We found that community women regarded exercise, meditation, relaxation, yoga, vitamins /minerals, Tai Chi, and massage as useful for people with AN. Participants using CM believe that it has a positive effect on their health. Thus, more interventions are required to increase health literacy and into testing the efficacy of the above stated CMs and test them empirically into whether or not they have any benefits for those with EDs. Such research should be combined with a detailed analysis of the individual phenotype to advance understanding of predictive, preventive and personalized medicine as discussed in the recent position paper of the EPMA.[29] This could then be a robust platform for the promotion of novel strategies and treatments for AN.

Acknowledgements

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Appendix 1 Vignette used in the mental health literacy survey

Jill is a 28-year-old stay at home Mum, she has 3 young children and has recently stopped breastfeeding. Despite major efforts to lose weight in the last five years with a number of diets, she has not had much success until recently. In the last 6 months Jill has started jogging every night, when her husband arrives home to look after the kids. If she ever misses a night she feels guilty and upset and jogs twice as far the next day. In the last few months Jill has cut back on her food intake while her husband is at work, she often slips breakfast and only has a small salad for lunch. Jill has also started secretly vomiting after her husband cooks high fat dinner for the family. Jill thinks she is fat and worthless; although she is enjoying the compliments she has obtained from her husband regarding weight loss (about 10 kg). Jill is 168 cm tall and has a present weight of 44 kg.

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