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Pilot Study Outcomes and Recommendations from Developing an Australian Residential Treatment for Eating Disorders

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Abstract: Individuals with eating disorders often face difficulty accessing sufficiently intensive, recovery-focused treatment. Residential treatment may fill a gap in the spectrum of care, offering 24-h support in a more home-like environment than a hospital and using a holistic approach including individual and group psychological therapy, meal support, and lived experience staff. As residential treatment has not previously been examined in Australia, the current study aimed to document the development, treatment components, and structure of this first Australian residential service for eating disorders and provide a pilot of its treatment outcomes. Preliminary outcomes are included from a sample of 19 individuals from the first six months of admissions, including eating disorder symptoms, eating disorder-related impairment, anxiety, and depression. Significant pre- to post-treatment improvement was found in total eating disorder psychopathology, dietary restraint, eating concerns, body mass index, eating disorder-related impairment, and depression, but not from pre-treatment to a six-month follow-up. Pilot outcomes were positive at end-of-treatment but require further clinical evaluation to examine follow-up effects. Clinical insights are discussed from the establishment of this new treatment service, including recommendations for clinicians involved in the current roll-out of residential programs across Australia.

Keywords: eating disorders; treatment; residential; outcomes

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1. Introduction

Eating disorders are a prevalent illness for which existing treatment options have shown limited effectiveness. Eating disorders—including anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED)—are characterised by disturbances in eating or eating-related behaviour (e.g., dietary restriction, bingeing, purging), leading to impaired physical health and/or psychosocial functioning [1]. Eating disorders have a 3-month prevalence rate of 17% in Australia [2] and global lifetime prevalence rates of 2-8% for formally diagnosed eating disorders or 14–19% for broader disordered eating

symptoms [3]. They are associated with damaging physical effects on the body [4], reduced quality of life [2], and a mortality risk twice as high as that of the general population [5]. Economic costs of eating disorders are similar in Australia to other Western countries, including a recent report estimating annual economic and social costs at AUD 66.9 billion for Australia in 2023 (including health system costs and lost productivity and wellbeing) [6], compared to USD 64.7 billion for 2018–2019 in the United States [7]. Although multiple evidence-based treatments have been developed, even for first-line treatments such as enhanced cognitive behavioural therapy (CBT-E) [8], remission rates remain at 30–40% at follow-up [9].

While treatment most commonly involves regular outpatient consultation with a psychologist and/or dietitian, this may not suit all individuals. Acute medical complications, suicidality, and ambivalence about recovery can at times necessitate higher levels of care such as partial hospitalisation programs (PHPs), intensive outpatient programs (IOPs), or inpatient hospitalisation. Although PHP and IOP offer advantages over typical outpatient treatment due to their more intensive, multidisciplinary approach, they may not suit individuals with significant medical instability, suicidality, or strong ambivalence about recovery, due to the necessity of returning home at night and on weekends [10,11]. In contrast, inpatient hospitalisation enables 24-h supervision and medical interventions [12] but has a limited capacity to focus on psychological recovery and can be experienced as overly restrictive by patients [13]. Thus, individuals with eating disorders may experience a gap in the spectrum of care when accessing traditional inpatient and outpatient treatment settings.

Residential treatment for eating disorders was developed in the United States to address this need for intensive, multidisciplinary support that focuses on building autonomy and both physical and psychological recovery. In residential treatment, individuals reside 24 h per day for several weeks to months in a home-like environment, with multidisciplinary staff such as psychologists, psychiatrists, dietitians, and nurses. Residential services were popularised through the Monte Nido centres founded by Carolyn Costin, an eating disorder therapist and lived experience practitioner. Monte Nido programs involve regular meal support, low-intensity medical monitoring, and individual and group psychotherapy using traditional evidence-based approaches such as CBT as well as holistic therapies such as yoga [14]. Key to their residential treatment model is also the opportunity for independent skill development and hands-on experience in areas such as cooking meals and portioning meals, eating out, and attending social outings [14]. Two peer-reviewed studies have demonstrated efficacy of the Monte Nido programs, one including a 10-year follow-up [14,15]. An additional recent systematic review of 19 studies highlighted that residential treatment for eating disorders was associated with reduced eating disorder symptoms, depression, and anxiety, and improved body mass index (BMI) (for underweight patients) [16], with 17 of the studies conducted on services in the United States and the remaining 2 studies based in Italy.

Despite their popularity in the United States, residential programs until recently were not available in countries like Australia, which has seen increasing demand for such services and recently allocated government funding for residential programs nation-wide. However, limited information is available to clinicians about the specific treatment models and components for residential treatment, and how to integrate outcome evaluation into clinical practice. Moreover, the previous literature has highlighted the need for studies that include follow-up data and examine cognitive symptoms of eating disorders (e.g., weight and shape concerns) rather than weight and frequency of eating disorder behaviours [16].

The primary aim of this paper was to provide a comprehensive summary of the treatment model from Wandi Nerida, the first residential program for eating disorders in Australia, in order to assist other clinicians establishing similar services. Our secondary aim was to conduct a pilot study of the effectiveness of this residential service in reducing eating disorder symptoms and secondary outcomes at discharge and a six-month follow-up, using a small sample of participants from the early period of the service.

2. Materials and Methods

2.1. Overview of Treatment Model

Wandi Nerida is a 13-bed residential treatment centre for eating disorders located on the Sunshine Coast of Queensland, Australia. It is owned and operated by the Butterfly Foundation, a national charity for eating disorders and body image concerns. Wandi Nerida opened in July 2021 as part of a national strategy to fill the gap between inpatient and outpatient care for eating disorders, and was funded through joint philanthropic donations and federal funding.

Wandi Nerida operates under the B-FREEDT Model of Care© (created by the Butterfly Foundation and derived from Carolyn Costin's treatment philosophy [17]. The B-FREEDT model is a transdiagnostic treatment approach, recognising eating disorders' many shared clinical features, epidemiology, and maintaining factors [8,18]. B-FREEDT is also underpinned by general principles from the Royal Australian and New Zealand College of Psychiatrists' clinical guidelines for best practice care of eating disorders, including person-centred informed decision-making, involvement of loved ones, recovery-oriented practice, least restrictive care, multidisciplinary and stepped care approach, and cultural competence for clients from diverse backgrounds [19]. The purpose-built facility was designed to provide a home-like environment to support recovery during treatment and after returning home, including a kitchen in which clients can gradually learn to cook and portion their own meals. As in the Monte Nido programs [14,15], and in line with growing support for utilising lived experience perspectives in eating disorder recovery [20], lived experience is integrated as a key feature of the service through use of recovered staff who can provide hope and model normal eating and body size.

Wandi Nerida uses a multidisciplinary treatment approach consisting of several hours each weekday of individual and group therapy, psychoeducational groups, and complementary interventions such as yoga, nature-based therapy, drama, and art therapy, as well as reflection time, journaling, and supervised meals. Families are included in the program through individual therapy, a weekly skill-based group, and a monthly "family and friends" day.

The duration of treatment depends on the needs of the participant, with a minimum commitment of 60 days. Based on consultation with existing residential treatment providers, this was considered the minimum duration required to see clinically meaningful change within a phased residential program. All individuals are expected to require a step-down in care to day programs or regular outpatient therapy upon discharge, and discharge processes involve assisting individuals with planning for such continuity of care. After being referred by their general practitioner or psychiatrist, treatment aims to support clients to progress through four phases with increasing autonomy. For a more detailed summary of the treatment components and phases, and examples of client–therapist dialogue, see the Supplementary Materials.

2.2. Participants

The current pilot study uses data from the first six months of admissions to Wandi Nerida, collected between July and December 2021. Only the first six months of data were used due to service disruptions and changes during this period; as such, the initial period of data collection was separated from a longer-term evaluation in order to provide pilot outcomes and guide the remainder of service delivery. This larger-scale evaluation will include a control group in the form of a partial hospitalisation program. As a pilot study, the current study did not include a control group and the findings are considered preliminary.

In the first six months from Wandi Nerida's opening, there were 32 admissions to the service, of which 2 were the individuals' second admission and were excluded from the current analyses. Of the 30 unique admissions, 19 (63%) individuals participated in this study. This rate of participation is considered at least partly due to challenges of establishing the research evaluation and service disruptions (outlined in the discussion), which affected staff's ability to consistently administer survey materials.

Eligibility criteria for the service included being 16 years or older, a primary diagnosis of an eating disorder, BMI of >13.5, absence of any significant self-harm or suicidal ideation, being willing and able to consent to treatment, independent management of mobility, no active substance dependence, manageable dietary restrictions, and medical stability (e.g., normal ECG and electrolytes). The service also required that residential treatment be the most appropriate approach for the individual at that point in time; for example, this was based on previous unsuccessful treatment attempts and environmental stressors that make treatment at home prohibitive. Beyond these criteria, there were no additional inclusion or exclusion criteria to participate in the pilot study, other than being willing and able to consent.

The sample of participants ranged in age from 18 to 40 years (M = 26.8 years, SD = 6.19) and all but one participant identified as female (94.7%). Illness duration ranged from 1 to 26 years (M = 10.91 years, SD = 6.91). The mean age of eating disorder onset was 17.0 years (SD = 6.76).

Most participants were born in Australia (94.4%) and had received tertiary education of a university degree or short diploma (79%). Prior to their admission, half of participants were engaged in full-time or part-time work and the remaining half were students or unemployed. Participants reported a median of five prior hospitalisations for an eating disorder. The most common eating disorder diagnosis was the AN restrictive subtype (15/19, 78.9%), followed by atypical AN (2/19, 10.5%), AN binge/purge subtype (1/19, 5.3%), and BN (1/19, 5.3%).

2.3. Procedure

The larger evaluation of the service was pre-registered on the Australian and New Zealand Clinical Trials Registry in November 2021, registration number ACTRN12621001651875. Individuals were invited to participate in this study by clinical staff upon admission to Wandi Nerida. If agreeing to participate, participants completed the measures using online surveys on Qualtrics. Service staff provided participants access to the surveys on admission and at discharge, and participants were emailed the follow-up survey six months post-discharge. All participants had capacity to provide consent and were informed that their decision to participate or not participate in this study would not affect their treatment. Ethics approval for this study was granted by the human research ethics committee at Western Sydney University (approval numbers H14478, H14742). All participants were given a description of what this study would involve and provided informed consent to participate in this study and have their data used for research purposes.

2.4. Measures

Participants answered demographic questions upon admission. The eating disorder diagnosis and body mass index (BMI) were extracted from the medical file after being assessed by mental health clinicians working at the service facility as part of their standard admission and discharge procedures. BMI was self-reported, where known, at follow-up. BMI was considered a clinical outcome considering that the majority of participants presented with an AN subtype. All other outcome variables were measured using self-report instruments that were administered at pre-treatment, post-treatment, and the six-month follow-up. Eating disorder symptoms were measured using the Eating Disorder Examination Questionnaire v.6 (EDE-Q) [8,21]. This 28-item self-report measure provides a global index of eating disorder psychopathology as well as subscales for dietary restraint, eating concerns, weight concerns, and shape concerns (each ranging from 0 to 6). The EDE-Q has been found to have good validity and internal consistency in Australian community samples [22,23], and a global score cut-off of 2.8 has been found to screen for eating disorders [24]. It had good to excellent internal consistency at each timepoint in the current study, Cronbach's α = 0.815–0.943.

Eating disorder-related impairment was measured using the Clinical Impairment Assessment (CIA) [25], a 16-item measure of the extent to which eating disorder symptoms interfere with important areas of life. Scores range from 0 to 48, with higher scores representing greater functional impairment due to eating disorder symptoms. The CIA has shown good psychometric properties in individuals with eating disorders [26], with research suggesting a clinical cut-off score of 16 [27]. In the current sample, the scale showed excellent internal consistency at all timepoints, Cronbach's α = 0.912–0.967.

Anxiety symptoms were measured using the Generalised Anxiety Disorder Screener (GAD-7) [28], on which scores range from 0 to 21 and higher scores represent more severe anxiety. A systematic review indicated that this scale possesses good psychometric properties and supported a clinical cut-off value of 8 [29]. The GAD-7 showed good to excellent internal consistency at each timepoint in the current study, Cronbach's α = 0.853–0.963.

The Patient Health Questionnaire-9 (PHQ-9) [30] was used to measure depressive symptoms. Scores range from 0 to 27 and a higher score indicates more severe depressive symptoms. The PHQ-9 has been validated in community and clinical samples [31], and has a clinical cut-off score of 10 [32]. The scale showed good internal consistency at each timepoint in the current study, Cronbach's α = 0.833–0.897.

2.5. Statistical Analyses

Shapiro–Wilk tests confirmed that data were normally distributed. Partially overlapping *t*-tests were used to assess differences in the outcome variables from pre- to post-treatment and pre-treatment to the six-month follow-up. Partially overlapping *t*-tests are able to utilise combinations of paired and independent observations, maximising how much data can be used in paired designs in which some participants are missing observations on one timepoint. This analysis, using the R package *Partiallyoverlapping*, has been shown to be robust to Type I errors and more powerful than standard tests in such scenarios [33,34]. Effect sizes were calculated as Cohen's *d* for paired samples [35]. The Benjamini–Hochberg procedure was used to control the false discovery rate.

3. Results

The duration of treatment during the pilot stage of the program ranged from 15 to 248 days, with a mean admission length of 103 days (*SD* = 56.64). Seventeen participants were discharged after completing all phases of the program and two participants were discharged early; of these, one discharged early against medical advice (without transfer to a more intensive treatment setting) and one discharged early for personal reasons. An additional two participants had temporary transfers to a hospital for medical interventions during their stay, but then returned to complete treatment at Wandi Nerida. Descriptive statistics are presented in Table 1, with mean scores for global eating psychopathology over time also presented in Figure 1. BMI was not self-reported by any participants at follow-up, likely due to this model of care incorporating blind weighing, which may have been continued by step-down care providers after discharge.

At post-treatment, the mean score for global eating disorder psychopathology fell below the clinical cut-off of 2.8 for a probable eating disorder. However, mean scores for eating disorder-related impairment, anxiety, and depression remained above clinical cut-offs at both post-treatment and follow-up.

Results of the partially overlapping samples' *t*-tests are reported in Table 2. From pre- to post-treatment, there was statistically significant improvement in global eating disorder symptoms, restraint, eating concerns, BMI, eating disorder-related impairment, and depression, with large effect sizes. Improvements from pre- to post-treatment in weight concerns and anxiety were no longer statistically significant after the Benjamini–Hochberg correction, but had medium effect sizes. There were no statistically significant differences between scores on any of the outcome variables between pre-treatment and the six-month follow-up.

Table 1. Descriptive Statistics.

Variable	Mean (*SD*)		
	Pre-Treatment	*Post-Treatment*	*6-Month Follow-Up*
n	15	11	13
Global eating pathology	3.91 (*1.43*)	2.23 (*1.26*)	3.62 (*1.38*)
Dietary restraint	3.67 (*1.25*)	0.98 (*0.91*)	3.54 (*1.75*)
Eating concerns	3.20 (*1.49*)	1.65 (*1.39*)	3.02 (*1.65*)
Shape concerns	4.59 (*1.70*)	3.56 (*1.55*)	4.00 (*1.38*)
Weight concerns	4.17 (*1.92*)	2.71 (*1.62*)	3.91 (*1.40*)
BMI	19.07 (*4.14*)	21.78 (*4.43*)	-
Eating disorder-related impairment	36.40 (*9.50*)	21.73 (*10.86*)	28.31 (*13.69*)
Anxiety	14.33 (*4.72*)	9.18 (*6.05*)	11.00 (*6.77*)
Depression	16.53 (*6.40*)	9.73 (*5.75*)	14.38 (*7.07*)

Note. *BMI* = body mass index, *SD* = standard deviation.

Table 2. Differences in Outcome Variables Across Timepoints.

Outcome Variable	n_1	n_2	*df*	*t*	*p*	95% CI	*d*
Global Eating Pathology							
T1–T2	15	11	14.31	3.59	0.012 *	[0.68, 2.69]	1.02
T1–T3	15	13	13.86	0.69	0.610	[−0.62, 1.21]	0.28
Restraint							
T1–T2	15	11	14.31	6.79	<0.001 ***	[1.83, 3.53]	1.73
T1–T3	15	13	13.86	0.28	0.786	[−0.87, 1.12]	0.37
Eating concerns							
T1–T2	15	11	14.31	3.44	0.013 *	[0.58, 2.51]	1.28
T1–T3	15	13	13.86	0.40	0.740	[−0.81, 1.18]	0.22
Weight concerns							
T1–T2	15	11	14.31	2.22	0.091	[0.06, 2.87]	0.50
T1–T3	15	13	13.86	0.57	0.651	[−0.73, 1.26]	0.27
Shape concerns							
T1–T2	15	11	14.31	1.67	0.181	[−0.29, 2.36]	0.64
T1–T3	15	13	13.86	1.17	0.368	[−0.49, 1.67]	0.14
BMI							
T1–T2	19	11	18	−8.57	<0.001 ***	[−3.37, −2.04]	−1.93
Eating disorder-related impairment							
T1–T2	15	11	14.31	4.39	0.003 **	[7.52, 21.83]	1.21
T1–T3	15	13	13.86	2.07	0.108	[−0.29, 16.47]	0.66
Anxiety							
T1–T2	15	11	14.31	2.51	0.060	[0.75, 9.55]	0.68
T1–T3	15	13	13.86	1.69	0.181	[−0.89, 7.56]	0.35
Depression							
T1–T2	15	11	14.31	2.96	0.029 *	[1.89, 11.72]	0.84
T1–T3	15	13	13.86	1.03	0.420	[−2.34, 6.63]	0.14

Note. T1 = pre-treatment, T2 = post-treatment, T3 = six-month follow-up. *BMI* = body mass index; *CI* = confidence interval; *d* = Cohen's *d* effect size (0.2 = small, 0.5 = medium, >0.8 = large); *df* = degrees of freedom; n_1, n_2 = sample size at first and second timepoint in paired comparison; *t* = partially overlapping samples' *t*-test statistic; *p* = Bonferroni-adjusted *p*-value. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

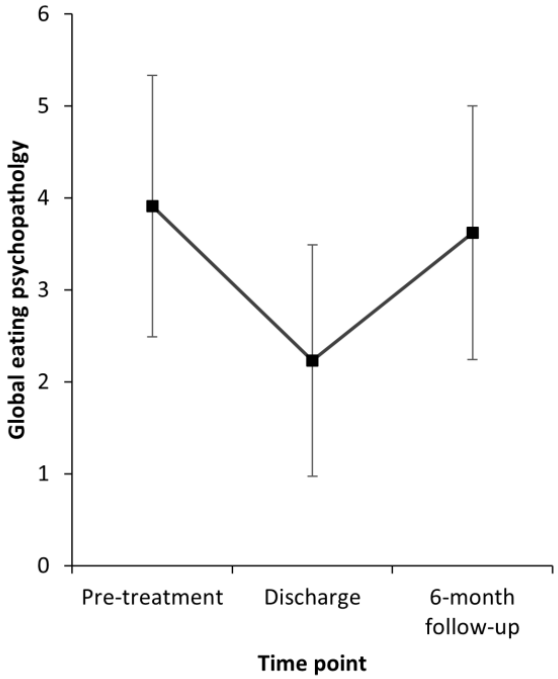

Figure 1. Mean global eating psychopathology over time (error bars represent standard deviation).

4. Discussion

This paper has documented the service model of the first Australian residential treatment for eating disorders and outcomes from a pilot study of its effectiveness. These preliminary findings from the first six months of admissions to Wandi Nerida show promising results at discharge from this new residential program for eating disorders, but changes were not sustained at follow-up. There was improvement from pre- to post-treatment in total self-reported eating disorder symptoms as well as some eating disorder symptom subscales (dietary restraint, eating concerns), weight, and secondary outcomes of depression and eating disorder-related impairment.

These findings align with previous research on the benefits of residential treatment for eating disorders [16]. Moreover, in contrast to previous studies that have focused on behavioural outcomes, our findings indicate that residential treatment may also have benefits for cognitive eating disorder symptoms (e.g., eating concerns) and eating disorder-related impairment. The lack of significant improvement in shape concerns, weight concerns, and anxiety highlights challenges for targeting affective components of eating disorders. Moreover, the lack of significant results at follow-up indicates the challenges in maintaining treatment gains, as symptoms on average appeared to worsen after discharge and approached baseline levels. This may be reflective of a lack of appropriate step-down care options after discharge from this residential service, with further research needed to determine whether sufficient access to a hospital day program or other step-down services helps to maintain treatment gains. As pilot study data, all of these preliminary findings should be interpreted with caution.

4.1. Strengths and Limitations

This has been the first study of residential treatment outcomes for eating disorders in Australia, adding to a limited global evidence base. By providing a comprehensive description of the service model, we hope to assist clinicians involved in establishing similar programs as part of their planned roll-out across Australia and other countries.

However, Wandi Nerida experienced many challenges in the first six months of opening that also affected the collection of pilot data. There were changes to organisational and staffing structures, including increasing the number of therapy sessions with a registered psychologist (from once to twice per week) and added multidisciplinary support at

mealtimes, with these changes occurring four months after the service was opened. It is unclear whether these changes will enable further improvements in clinical outcomes in the planned larger clinical evaluation being conducted after this pilot study. As residential eating disorder treatment is a highly specialised area, recruitment of staff experienced in eating disorders and/or residential care was challenging, and a significant amount of staff time was required for regular training, supervision, and support in the early months of service delivery. Staffing levels were also affected by the COVID-19 pandemic, including border closures and isolation requirements. These disruptions contributed to difficulties establishing consistent data collection processes and may have affected reported clinical outcomes. A recent systematic review of 53 studies indicated that the COVID-19 pandemic was associated with increased symptom severity for individuals with eating disorders, which they attributed to factors including loss of routine, media influences, and social isolation [36]. Although many of these factors are likely to have been mitigated during treatment due to its live-in setting and structured treatment program, they may have contributed to more severe baseline psychopathology and difficulties maintaining treatment gains at follow-up. Ongoing data collection for the service is currently underway and will provide a comprehensive evaluation of the effectiveness of the service after its initial opening period, including use of a larger sample size to improve statistical power, comparison to a control group, and qualitative assessment of treatment experiences.

4.2. Implications

Based on our experiences establishing and evaluating this residential service, we make several recommendations for others hoping to implement similar programs. Firstly, we recommend the use of a dedicated staff member to manage data collection, as an early trial of individual clinicians collecting participant data showed poor fidelity. However, clinical staff should be well informed of research efforts in order to support participant recruitment and respond to any clinical issues that arise in the completion of measures. We recommend that data being collected for broader research questions, beyond service-specific quality assurance, be driven and overseen by an independent evaluation team who communicate regularly with key stakeholders. In addition, we suggest the benefits of using dedicated devices for administering online survey instruments, as opposed to allowing participants to complete measures on their personal devices. This is because, for clinical reasons, residential settings often only allow individuals restricted access to their personal devices. In this study, use of personal devices for research purposes was observed to result in distraction and distress in some participants. We hope that these recommendations, and the outcomes from further clinical evaluations of this service, will help other providers not only to establish similar residential programs but to also integrate high-quality outcome evaluation to drive service improvement and broader research.

5. Conclusions

The current study has presented the service model and pilot study outcomes from the first residential treatment program for eating disorders for Australia. Preliminary data showed improvement in eating disorder psychopathology, eating disorder-related impairment, and depression from pre-treatment to discharge, although these treatment gains were not maintained at a six-month follow-up. These outcomes are largely consistent with findings of eating disorder outcomes from evaluations of residential services globally and highlight additional potential treatment benefits for depression, anxiety, and functioning. We have provided recommendations for others involved in the planned roll-out of residential services and directions for future research, including a larger-scale clinical evaluation of this service that is currently underway.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/adolescents4030023/s1. References [37–44] are cited in the supplementary materials.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the ethics committee of Western Sydney University (approval numbers H14478 and H14742, approval dates 26 August 2021 and 17 February 2022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data available on request due to privacy/ethical restrictions.

Conflicts of Interest: C.H. is a former employee of Wandi Nerida, the treatment site used in this study. R.U. is a former employee of the Butterfly Foundation, which provided partial funding for this study.

References

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; American Psychiatric Association: Washington, DC, USA, 2013. [CrossRef]
2. Hay, P.; Mitchison, D.; Collado, A.E.L.; González-Chica, D.A.; Stocks, N.; Touyz, S. Burden and health-related quality of life of eating disorders, including Avoidant/Restrictive Food Intake Disorder (ARFID), in the Australian population. *J. Eat. Disord.* **2017**, *5*, 21. [CrossRef] [PubMed]
3. Galmiche, M.; Déchelotte, P.; Lambert, G.; Tavolacci, M.P. Prevalence of eating disorders over the 2000–2018 period: A systematic literature review. *Am. J. Clin. Nutr.* **2019**, *109*, 1402–1413. [CrossRef] [PubMed]
4. Cass, K.; McGuire, C.; Bjork, I.; Sobotka, N.; Walsh, K.; Mehler, P.S. Medical Complications of Anorexia Nervosa. *Psychosomatics* **2020**, *61*, 625–631. [CrossRef] [PubMed]
5. van Hoeken, D.; Hoek, H.W. Review of the burden of eating disorders: Mortality, disability, costs, quality of life, and family burden. *Curr. Opin. Psychiatry* **2020**, *33*, 521–527. [CrossRef] [PubMed]
6. Butterfly Foundation. *Paying the Price: The Economic and Social Impact of Eating Disorders in Australia*, 2nd ed.; [Report]; Butterfly Foundation: Crows Nest, Australia, 2024. Available online: https://butterfly.org.au/wp-content/uploads/2024/03/Paying-the-Price-Second-Edition-25-March-2024.pdf (accessed on 1 April 2024).
7. Streatfeild, J.; Hickson, J.; Austin, S.B.; Hutcheson, R.; Kandel, J.S.; Lampert, J.G.; Ma, E.M.M.; Richmond, T.K.; Samnaliev, M.; Velasquez, K.; et al. Social and economic cost of eating disorders in the United States: Evidence to inform policy action. *Int. J. Eat. Disord.* **2021**, *54*, 851–868. [CrossRef] [PubMed]
8. Fairburn, C.G. *Cognitive Behavior Therapy and Eating Disorders*; Guilford Press: New York, NY, USA, 2008. Available online: https://books.google.com.au/books?hl=en&lr=&id=KRvAlB3l8-MC&oi=fnd&pg=PA3&ots=71AwHdyy-8&sig=vMn0LunAMfU6w8yLiJIyY8kRH4I&redir_esc=y#v=onepage&q&f=false (accessed on 1 April 2024).
9. Atwood, M.E.; Friedman, A. A systematic review of enhanced cognitive behavioral therapy (CBT-E) for eating disorders. *Int. J. Eat. Disord.* **2020**, *53*, 311–330. [CrossRef] [PubMed]
10. Abbate-Daga, G.; Gramaglia, C.; Preda, S.; Comba, E.; Brustolin, A.; Fassino, S. Day hospital programmes for eating disorders: A review of the similarities, differences and goals. *Eat. Weight. Disord.* **2009**, *14*, e31–e41. [CrossRef] [PubMed]
11. Anderson, L.K.; Reilly, E.E.; Berner, L.; Wierenga, C.E.; Jones, M.D.; Brown, T.A.; Kaye, W.H.; Cusack, A. Treating Eating Disorders at Higher Levels of Care: Overview and Challenges. *Curr. Psychiatry Rep.* **2017**, *19*, 48. [CrossRef] [PubMed]
12. Hay, P.J.; Touyz, S.; Claudino, A.M.; Lujic, S.; Smith, C.A.; Madden, S. Inpatient Versus Outpatient Care, Partial Hospitalisation and Waiting List for People with Eating Disorders. *Cochrane Database Syst. Rev.* **2019**, *1*, CD010827. [CrossRef]
13. Ramjan, L.; Gill, B. An Inpatient Program for Adolescents with Anorexia Experienced as a Metaphoric Prison. *Am. J. Nurs.* **2012**, *112*, 24–33. [CrossRef]
14. Brewerton, T.D.; Costin, C. Treatment Results of Anorexia Nervosa and Bulimia Nervosa in a Residential Treatment Program. *Eat. Disord.* **2011**, *19*, 117–131. [CrossRef] [PubMed]
15. Brewerton, T.D.; Costin, C. Long-term Outcome of Residential Treatment for Anorexia Nervosa and Bulimia Nervosa. *Eat. Disord.* **2011**, *19*, 132–144. [CrossRef] [PubMed]

16. Peckmezian, T.; Paxton, S.J. A systematic review of outcomes following residential treatment for eating disorders. *Eur. Eat. Disord. Rev.* **2020**, *28*, 246–259. [CrossRef] [PubMed]
17. Costin, C.; Schubert Grabb, G. *8 Keys to Recovery from an Eating Disorder: Effective Strategies from Therapeutic Practice and Personal Experience*; Norton: New York, NY, USA, 2011.
18. Fairburn, C.G.; Cooper, Z.; Shafran, R. Cognitive behaviour therapy for eating disorders: A "transdiagnostic" theory and treatment. *Behav. Res. Ther.* **2003**, *41*, 509–528. [CrossRef] [PubMed]
19. Hay, P.; Chinn, D.; Forbes, D.; Madden, S.; Newton, R.; Sugenor, L.; Touyz, S.; Ward, W. Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the treatment of eating disorders. *Aust. N. Z. J. Psychiatry* **2014**, *48*, 977–1008. [CrossRef] [PubMed]
20. Kenny, T.E.; Lewis, S.P. Reconceptualizing Recovery: Integrating Lived Experience Perspectives into Traditional Eating Disorder Recovery Frameworks. *Psychiatr. Serv.* **2021**, *72*, 966–968. [CrossRef] [PubMed]
21. Fairburn, C.G.; Beglin, S.J. Assessment of eating disorders: Interview or self-report questionnaire? *Int. J. Eat. Disord.* **1994**, *16*, 363–370. [CrossRef]
22. Mond, J.M.; Hay, P.J.; Rodgers, B.; Owen, C.; Beumont, P.J.V. Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behav. Res. Ther.* **2004**, *42*, 551–567. [CrossRef] [PubMed]
23. Mond, J.M.; Hay, P.J.; Rodgers, B.; Owen, C.; Beumont, P.J.V. Temporal stability of the Eating Disorder Examination Questionnaire. *Int. J. Eat. Disord.* **2004**, *36*, 195–203. [CrossRef]
24. Mond, J.M.; Myers, T.C.; Crosby, R.D.; Hay, P.J.; Rodgers, B.; Morgan, J.F.; Lacey, J.H.; Mitchell, J.E. Screening for eating disorders in primary care: EDE-Q versus SCOFF. *Behav. Res. Ther.* **2008**, *46*, 612–622. [CrossRef]
25. Bohn, K.; Fairburn, C.G. Clinical Impairment Assessment Questionnaire (CIA 3.0). In *Cognitive Behaviour Therapy and Eating Disorders*; Guilford Press: New York, NY, USA, 2008.
26. Raykos, B.; Erceg-Hurn, D.; McEvoy, P.; Byrne, S.M. Evidence That the Clinical Impairment Assessment (CIA) Subscales Should Not Be Scored: Bifactor Modelling, Reliability, and Validity in Clinical and Community Samples. *Assessment* **2019**, *26*, 1260–1269. [CrossRef] [PubMed]
27. Reas, D.L.; Rø, Ø.; Kapstad, H.; Lask, B. Psychometric properties of the clinical impairment assessment: Norms for young adult women. *Int. J. Eat. Disord.* **2010**, *43*, 72–76. [CrossRef] [PubMed]
28. Spitzer, R.L.; Kroenke, K.; Williams, J.B.W.; Löwe, B. A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Arch. Intern. Med.* **2006**, *166*, 1092–1097. [CrossRef] [PubMed]
29. Plummer, F.; Manea, L.; Trepel, D.; McMillan, D. Screening for anxiety disorders with the GAD-7 and GAD-2: A systematic review and diagnostic metaanalysis. *Gen. Hosp. Psychiatry* **2016**, *39*, 24–31. [CrossRef] [PubMed]
30. Kroenke, K.; Spitzer, R.L.; Williams, J.B.W. The PHQ-9. *J. Gen. Intern. Med.* **2001**, *16*, 606–613. [CrossRef] [PubMed]
31. Costantini, L.; Pasquarella, C.; Odone, A.; Colucci, M.E.; Costanza, A.; Serafini, G.; Aguglia, A.; Murri, M.B.; Brakoulias, V.; Amore, M.; et al. Screening for depression in primary care with Patient Health Questionnaire-9 (PHQ-9): A systematic review. *J. Affect. Disord.* **2021**, *279*, 473–483. [CrossRef] [PubMed]
32. Manea, L.; Gilbody, S.; McMillan, D.A. diagnostic meta-analysis of the Patient Health Questionnaire-9 (PHQ-9) algorithm scoring method as a screen for depression. *Gen. Hosp. Psychiatry* **2015**, *37*, 67–75. [CrossRef] [PubMed]
33. Derrick, B.; Russ, B.; Toher, D.; White, P. Test statistics for the comparison of means for two samples that include both paired and independent observations. *J. Mod. App. Stat. Meth.* **2017**, *16*, 137–157. [CrossRef]
34. Derrick, B.; White, P. Review of the partially overlapping samples framework: Paired observations and independent observations in two samples. *Quant. Methods Psychol.* **2022**, *18*, 55–65. [CrossRef]
35. Cohen, J. *Statistical Power Analysis for the Behavioral Sciences*; Lawrence Erlbaum: Hillside, NJ, USA, 1988.
36. Devoe, D.J.; Han, A.; Anderson, A.; Katzman, D.K.; Patten, S.B.; Soumbasis, A.; Flanagan, J.; Paslakis, G.; Vyver, E.; Marcoux, G.; et al. The impact of the COVID-19 pandemic on eating disorders: A systematic review. *Int. J. Eat. Disord.* **2023**, *56*, 5–25. [CrossRef]
37. Butler, R.M.; Heimberg, R.G. Exposure therapy for eating disorders: A systematic review. *Clin. Psychol. Rev.* **2020**, *78*, 101851. [CrossRef] [PubMed]
38. Costin, C. *The Eating Disorders Sourcebook: A Comprehensive Guide to the Causes, Treatments, and Prevention of Eating Disorders*; McGraw Hill Professional: New York, NY, USA, 2007.
39. Fennig, M.W.; Weber, E.; Santos, B.; Fitzsimmons-Craft, E.E.; Wilfley, D.E. Animal-assisted therapy in eating disorder treatment: A systematic review. *Eat. Behav.* **2022**, *47*, 101673. [CrossRef] [PubMed]
40. Griffin, C.; Fenner, P.; Landorf, K.B.; Cotchett, M. Effectiveness of art therapy for people with eating disorders: A mixed methods systematic review. *Arts Psychother.* **2021**, *76*, 101859. [CrossRef]
41. Hibbs, R.; Rhind, C.; Leppanen, J.; Treasure, J. Interventions for caregivers of someone with an eating disorder: A meta-analysis. *Int. J. Eat. Disord.* **2015**, *48*, 349–361. [CrossRef] [PubMed]
42. Johnson, A. Pathworking: A Mixed Methods Study of Eco-Art Therapy and Mindfulness in Women with Eating Disorders. Master's Thesis, Saint Mary-of-the-Woods College, Saint Mary-of-the-Woods, IN, USA, 2021. Available online: https://scholars.smwc.edu/handle/20.500.12770/260 (accessed on 1 April 2024).

43. Linardon, J.; Fairburn, C.G.; Fitzsimmons-Craft, E.E.; Wilfley, D.E.; Brennan, L. The empirical status of the third-wave behaviour therapies for the treatment of eating disorders: A systematic review. *Clin. Psychol. Rev.* **2017**, *58*, 125–140. [CrossRef]
44. Neumark-Sztainer, D. Yoga and eating disorders: Is there a place for yoga in the prevention and treatment of eating disorders and disordered eating behaviours? *Adv. Eat. Disord.* **2014**, *2*, 136–145. [CrossRef]