Adjunctive Naturopathic Medicine in the Management of Depression and Anxiety Symptoms: A Retrospective Chart Review

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ABSTRACT

Background: Naturopathic medicine uses natural and evidence-based treatments to promote health. The objective of this study was to characterize and evaluate the effectiveness of naturopathic medicine in reducing symptoms of anxiety and depression in patients seeking care from the Mental Health Shift at a Canadian naturopathic teaching clinic.

Methods: Charts of 192 consecutive patients who attended appointments between 1 January 2019 and 6 March 2020 were reviewed. Subjects were included if they screened positive on the General Anxiety Disorder 7 (GAD7) or the Patient Health Questionnaire 9 (PHQ9) and attended follow up at least 4 weeks after initial treatment.

Results: Of the 22 included subjects, a clinically significant decrease of at least 5 points occurred in 76% of individuals with elevated baseline PHQ9 scores and 59% of individuals with elevated GAD7 scores. Mean PHQ9 and GAD7 scores decreased 7.5 ($p<0.0001$) and 4.6 ($p<0.008$) points, respectively. Mild adverse events were reported in 9 charts (41%). No serious adverse events were reported. Most subjects were also in the care of a medical doctor and counsellor.

Conclusion: Naturopathic medicine as performed on the Mental Health Shift may be effective in reducing depression and anxiety symptoms as an adjunctive treatment. Further research incorporating comparison groups is warranted.

Key Words Complementary, integrative, naturopathy, dietary supplement, psychiatry, observational, nutrition, herbal medicine

INTRODUCTION

Depression and anxiety are common mental health disorders affecting about 10% of Canadians each year.[1] These conditions account for decreased health-related quality of life and perceived life satisfaction as well as increased rates of disability,[2] absenteeism and annual healthcare expenditures.[3] Despite this considerable impact, many individuals may not seek health services for anxiety and depression. In recent surveys, only 42% of Canadians screening positive for generalized anxiety disorder (GAD)[4] and 53% screening positive for major depressive disorder (MDD) sought medical help for these conditions.[5] One influencing factor is stigma.[6] In other cases, first-line therapies may not be accessible to patients due to local availability or cost.[7] In addition, some patients find the side effects of pharmaceutical treatment to be intolerable or do not find adequate symptom relief from first-line therapies.[8,9] Any of these factors may influence an individual to seek out adjunctive or alternative care from service providers such as naturopathic doctors (NDs).

Naturopathic doctors are trained to treat illness and promote optimal health through a variety of traditional and evidence-based treatments. The core tenets of the profession include treating the underlying cause of illness and treating the whole person rather than individual body systems.[10] In North America, education standards are controlled by the Council on Naturopathic Medical Education, which accredits 4-year campus-based postgraduate training programs, and the Association of Accredited Naturopathic Medical Colleges. This study took place in Ontario, Canada, where NDs are licensed healthcare practitioners. Therapeutic modalities include nutraceutical, herbal, myofascial, acupuncture, homeopathy, dietary and lifestyle counselling, and some pharmaceutical treatments. While treatment approaches used by NDs vary due to a limited number of clinical practice guidelines, education and qualification standards are maintained in regulated jurisdictions.[11,12]

First-line therapies for anxiety and depression include psychotherapy, psychopharmacology, or a combination.[13,14] The safety and tolerability of these treatments are generally considered to be acceptable; common side effects include gastrointestinal (GI) upset, somnolence or insomnia, central nervous system effects (i.e. drowsiness, headache, confusion), weight gain, and sexual dysfunction.[15] There are also serious risks of serotonin syndrome,

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gastrointestinal (GI) bleeds, and discontinuation syndrome.[15] In efficacy trials, only about 15% to 25% of subjects discontinue due to adverse events.[9] However, in real-world studies, up to 60% of patients discontinue antidepressants within 3 months.[16] Premature discontinuation affects real-world results, but even adherent patients may not achieve remission with first-line treatments. In a recent meta-analysis of second-generation antidepressants, 63% of MDD patients achieved response within 6 to 12 weeks and 47% achieved remission.[9] The response rate to first-line medications for GAD patients is estimated to be 60% to 75% and the discontinuation rate after an average of 4 months to be 46%.[17] As such, the real-world effectiveness of these treatments is diminished due to nonadherence of about half of patients and response of about two-thirds of adherent GAD and MDD patients.

As a result of issues related to access, tolerability, and efficacy, high rates of inadequately treated anxiety and depressive disorder persist.[18] There is a need for adjunctive or alternative treatment options that are safe and effective. There are many randomized controlled trials (RCTs), systematic reviews, and meta-analyses supporting the effectiveness of individual herbal and nutraceutical supplementation for the treatment of depressive and anxiety disorders when compared with placebo and first-line pharmaceuticals.[19-23] However, the real-world effectiveness of these therapies has been explored in only a few pragmatic, whole-systems studies. Whole systems research methods have emerged as a discipline in response to concerns about RCTs' suitability for studying complex, individualized, traditional and complementary medical approaches.[24]

Three whole-systems studies have previously evaluated the effectiveness of naturopathic medicine for depression and anxiety using both observational[25,26] and clinical trial[27] methodologies. All three studies found statistically significant improvements in symptom severity using validated questionnaires. No serious adverse events were reported. This small body of mostly observational research suggests that naturopathic medicine may be safe and effective at treating anxiety and depression. However, more data is required to understand whether this system of care may be positioned to support the ongoing needs of this population of patients.

METHODS

Objective

The objective of this project was to determine whether naturopathic care, as performed on the Mental Health Shift of a Canadian naturopathic teaching clinic, is effective in reducing anxiety and depression symptoms among patients with anxiety and depressive disorders. This project also aimed to characterize the patients, the recommendations provided, and the level of adherence.

Study Site

This study was performed at the Robert Schad Naturopathic Clinic (RSNC), a teaching clinic at the Canadian College of Naturopathic Medicine's (CCNM) Toronto Campus in Ontario, Canada. At the RSNC, fourth-year naturopathic students and a licensed ND supervisor provide care to outpatients on a weekly basis. This audit analyzed charts from a shift that is reserved for patients with psychiatric complaints and which is largely supervised by one ND who provides consistent treatment recommendations and follow-up.

Study Design

This study is an observational, retrospective chart review of patients with self- or practitioner-diagnosed GAD and/or MDD. Severity of anxiety and depression symptoms at presentation and at the final visit were compared. Eligible participants were identified by screening all patient records from the beginning of the clinic's electronic medical records (EMR) to when the COVID-19 pandemic disrupted clinic operations (1 January 2019 to 6 March 2020) using *a priori* criteria. This study was approved by CCNM's Research Ethics Board.

Instruments

The General Anxiety Disorder 7 (GAD7) and Patient Health Questionnaire 9 (PHQ9) were used to identify eligible study subjects, and the differences between the initial and final scores were the primary outcomes of this study. The PHQ9 and GAD7 were chosen to measure depression and anxiety symptoms, respectively. They are both validated screening questionnaires with a high internal consistency and are commonly used in clinical settings.[28,29] For each questionnaire, scores greater than 10 indicate a positive screening result. There is debate regarding the cut-off score for the GAD7, but 10 was chosen in this study to be consistent with comparable research.[25,29,30]

Study Population

Patients were eligible for inclusion if their chart contained a diagnosis of GAD or MDD, an initial PHQ9 or GAD7 score of at least 10, and a subsequent PHQ9 or GAD7 score at least 4 weeks after the initial screening results. Four weeks was chosen as a minimum treatment period to be consistent with the time to therapeutic effect reported in previous intervention studies of natural health products (NHPs) for anxiety and depression symptoms.[23,31]

Patients were excluded if they were under 18 years of age during the study period, were current CCNM staff or students or had any of the following listed as diagnoses or symptoms in their chart: psychosis, bipolar disorder, borderline personality disorder, premenstrual dysphoric disorder, post-partum depression, obsessive compulsive disorder, addiction, untreated thyroid disease, seasonal affective disorder, or any neurological or neurodevelopmental condition. These conditions were excluded because they require additional treatment considerations.

Data Extraction

Data extraction was completed using a piloted extraction template by the primary investigator (PI) and three additional data extractors. Extracted data included demographic information, diagnoses, GAD7 and PHQ9 scores, social history, visit history, current treatments, and information pertaining to adherence, adverse events, and subjective changes as described in Table 1. The PHQ9, GAD7, Perceived Stress Scale (PSS), and Insomnia

TABLE 1 Data Extracted from Electronic Medical Records

Category	Data Extracted
Demographics	Age, sex
Medical information	Psychiatric diagnoses, insomnia,[a] history of self-harm, PHQ9, GAD7, ISS, and PSS scores at first and last appointments
Social history	Marijuana, alcohol and recreational drug use, employment status
Visit history	Date of first and last visit, number of completed appointments, number of missed appointments
Current treatments	Pharmaceuticals, self-prescribed NHPs, naturopathic recommendations, current psychotherapy, current healthcare practitioners
Adherence[b] and adverse events	Documentation of treatments initiated, taken at less than the prescribed dose, and discontinued early, adverse effects, reasons for nonadherence
Subjective changes	Documentation of patient-reported subjective change in mood and anxiety symptoms and change in lifestyle or quality of life, self-harm during treatment period

[a] Insomnia was recorded if a patient reported difficulty initiating or maintaining sleep.

[b] Adherence was divided into three parts: initiation, implementation and premature discontinuation. (Vrijens B, De Geest S, Hughes DA et al. A new taxonomy for describing and defining adherence to medications. *British Journal of Clinical Pharmacology.* 2012;73(5):691–705.) Adherence, or lack thereof, was recorded based on subjective reporting in the patient chart.

GAD7 = generalized anxiety disorder 7; ISS = insomnia severity index; NHP = natural health product; PHQ9 = patient health questionnaire; PSS = perceived stress scale

Severity Index (ISI) scores were extracted for first and last available scores only (Table 1).

Consistency between reviewers was achieved through video-training, a detailed extraction manual, and comparing "training" chart extractions with the PI's extraction and providing guidance and further training extractions until the reviewer's results had greater than 95% similarity with the PI's results. All charts were extracted by at least two extractors, and extractions with less than 95% similarity were additionally verified by the PI. All dates and primary outcome measures (PHQ9 and GAD7) were verified by the PI.

Sample Size Calculation

Sample size was determined using a power test with G*Power v3.1.9.6. To calculate power *a priori*, effect size was estimated by calculating the sample standard deviation, Pearson's correlation, and mean of the PHQ9 and GAD7 values from the first 10 charts extracted. Effect size was calculated in G*power and all other tests in Microsoft Excel 360 (2017). Given (alpha)=0.05 and a desired power of 0.9, a minimum of ten participants were needed for the PHQ9 analysis and nine for GAD7.

Statistical Analysis

The primary outcome of this study was the change in GAD7 and PHQ9 scores from initial to final assessment, evaluated using two-tailed paired T-tests in Microsoft Excel 360 (2017). Data were included in the analysis only if the initial score was at least 10 (i.e., if a participant's baseline PHQ9 was 12 and GAD7 was 6, only PHQ9 data for this participant was included in the analysis). Normality was assessed using a Q-Q plot on R (R 2020).

Descriptive statistics were used for secondary outcomes, including the frequency of treatments prescribed, patient characteristics, and adherence. Minimal clinically important difference (MCID) was defined as a 5-point reduction in either the GAD7 or PHQ9, using the validation data from Kroenke et al.[32] Remission was defined as a final score of less than 10. Response rate was added in the post-hoc analysis to permit comparison with similar studies and was defined as a reduction in score of greater than or equal to 50% or a final score of less than 10.

RESULTS

Patient Demographics and Naturopathic Appointments

Of the 192 charts reviewed, 22 met the inclusion criteria. Table 2 presents demographic information. The participants were primarily female (64%), with a mean age of 37. About half of the patients reported having a general practitioner (54%), and most (60%) had a therapist or counsellor of any type. About half of participants were taking psychiatric medication during the study (12/22), only 45% were fully employed or studying, and 73% reported insomnia. Four participants had a history of self-harm. On average, participants had visited the Mental Health Shift 1.8 times per month during their course of care, and about two-thirds (68%) had missed at least one appointment during the study period.

Naturopathic Recommendations

A total of 148 recommendations were made to the 22 participants in this review, including 97 NHPs, 43 lifestyle and education interventions, and 7 referrals. All participants received prescriptions for NHPs, averaging 4.4 products each. The most commonly prescribed NHPs were *Lavandula angustifolia* (lavender), vitamin B-complex, fish oil, magnesium, melatonin, *Rhodiola rosea*, and *Withania somnifera* (ashwaghanda) as seen in Table 3. Many participants (73%, 16/22) were taking at least one NHP at the time of the first visit. Self-prescribed NHPs are also described in Table 3. All herbal medicine was recommended as a concentrated extract form in a tablet or capsule. Most participants (14/22, 64%) also received a lifestyle recommendation involving diet counselling, exercise recommendations, mindfulness activities, goal setting, sleep hygiene and/or psychoeducation.

PHQ9 and GAD7 Changes

Of the 22 included participants, 21 had an initial PHQ9 score of greater than or equal to 10 and 17 participants had a GAD7 score of greater than or equal to 10. Sixteen participants (73%) had elevated scores (≥ 10) for both initial GAD7 and PHQ9. Table 4 presents the changes in symptom severity from initial to final assessment. For the primary outcome, mean PHQ9 and GAD7 scores decreased by 7.5 (p=0.00001) and 4.6 (p=0.008) points, respectively. A minimally clinically significant decrease (MCID)

TABLE 2 Patient Demographic and Baseline Information

Characteristic	Subjects N=22
Sex, *n* (%)	
Female	14 (64)
Male	8 (46)
Other	0
Age, years	
Mean (SD)	37 (16)
Median (range)	30 (20–71)
Appointments	
Mean visits per month (SD)	1.8 (1.0)
Mean duration of care at the MHC, months (SD)	4.0 (2.8)
At least one missed appointment, *n* (%)	15 (68)
Employment	
Full-time employment or schooling, *n* (%)	10 (45)
Unemployed, *n* (%)	7 (32)
Unknown, *n* (%)	5 (23)
Associated conditions, *n* (%)	
Insomnia	16 (73)
Alcohol misuse[a]	2 (9.1)
Marijuana misuse[b]	4 (18)
Recreational drug use	2 (9.1)
Diagnoses, *n* (%)	
MDD	19 (86)
GAD	13 (59)
ADHD	2 (9.1)
Panic disorder	2 (9.1)
PTSD	1 (4.5)
Other[c]	11 (50)
History of self-harm, *n* (%)	4 (18)
Psychiatric medication	
One medication	6 (27)
Two medications	4 (18)
Three medications	2 (9.1)
Total	12 (54)
Other providers	
General Practitioner, *n* (%)	12 (54)
Psychiatrist, *n* (%)	4 (18)
Counsellor,[d] *n* (%)	13 (60)

[a] Alcohol misuse defined as >1 drink/day for females and >2 drinks/day for males or binge-drinking behaviour.
[b] Marijuana misuse defined as >1 joint/week
[c] Other diagnoses included irritable bowel syndrome (IBS), gastritis, malaise and fatigue, adjustment disorder, intestinal disorder not otherwise specified, non-alcoholic fatty liver disease, iron deficiency anemia, atrial fibrillation, abnormal weight gain, and history of breast cancer.
[d] Counsellor includes psychotherapist, counsellor, social worker, group therapy
ADHD = attention deficit and hyperactivity disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; MHC = mental health centre; PTSD = posttraumatic stress disorder; SD = standard deviation.

of at least 5 points was seen in 76.2% of PHQ9 scores and 58.8% of GAD7 scores. Remission and response occurred in about half of the PHQ9 group and one-third of the GAD7 group.

Noted subjective improvement by the patient was recorded in 73% (16/22) of charts; however, some of those cases represent improvement to select symptoms only. An improvement in quality of life was recorded in 45% (10/22) of charts, including applying for work, increased energy, leaving the house more frequently, regular exercise, and mindfulness practices.

Adherence and Adverse Events

As can be seen in Table 5, treatment nonadherence was documented for at least one recommended treatment in the majority of patient charts (73%, 16/22). Mild adverse events were found in 41% of the patients' charts, and no serious adverse events were reported. Five treatments were discontinued due to mild adverse events, representing 5.1% of NHPs prescribed.

There was one incident of self-harm (cutting) recorded during the study period, which occurred after 1 week of treatment. The self-harm occurred weekly for this patient prior to the study period; whether the self-harm resolved or worsened in the following months was not reported.

DISCUSSION

This retrospective chart review assessed the impact of naturopathic care delivered at a teaching clinic on the severity of anxiety and depression symptoms among 22 individuals with a diagnosis of anxiety and/or depression. It found a significant overall improvement in depression and anxiety symptoms: the average PHQ9 and GAD7 scores decreased between initial and final visits during the study period by 7.5 (p=0.0001) and 4.6 (p=0.008) points respectively and few, mild adverse events were reported.

The findings of the present study are comparable with previously completed studies on this topic. The observational study by Breed and Bereznay reported similar decreases in PHQ9 and GAD7 scores (7.8 and 5.2 respectively; p<0.0001) among patients receiving naturopathic medical care at an integrative healthcare clinic.[25] The response rates in the present study were 52.4% for PHQ9 scores and 35.3% for GAD7 scores, which were less than those reported by Breed and Bereznay, who reported 58.6% and 50% respectively.[25] In the previous study, patients consulted with multiple healthcare providers and 32% commenced psychopharmaceuticals during the study period.[25] The additive effect of these treatment approaches may explain the higher response rate. The response rate in the present study was less than the reported response rates for first-line medications found in studies by Gartlehner et al. and Bereza et al.[9,8] They found response rates of 56% to 65% for MDD treatment and 67.7% for GAD treatment respectively.[8,9] In the present study, remission was found in 48% (10/21) of the PHQ9 group and 35.3% (6/17) of the GAD7 group, which is similar to the remission rates of first-line pharmaceutical therapies.[8,9] While the response rate for anxiety in this study appears to be lower than the rate reported in pharmacology trials, the change in symptom severity is similar to the change reported by a prospective whole-practice naturopathic observational study and the remission rates found in this study are comparable with metanalyses on first-line therapies for MDD and GAD.[8,9,25]

Mention of nonadherence was found in most charts (73%), including 32% of charts in which one or more treatments were prematurely discontinued. This is comparable with the 30% of antidepressant medication that is typically prematurely discontinued within 1 month.[16] Considering there were an average of five recommendations per patient, most patients were likely engaged in some active treatment for the duration of the study period. More complete collection of adherence information would help clarify this attribute in future research.

TABLE 3 Naturopathic Recommendations and Self-Prescribed Natural Health Products Taken by Study Participants

Treatment	ND Recommendation	Self-prescribed	Total (%) *N*=22
Nutraceuticals			
5-HTP	3	1	4 (18%)
Acetyl-L-carnitine	1	0	1 (4.5%)
Fish oil	11	5	16 (73%)
GABA	2	0	2 (9.1%)
L-theanine	2	1	3 (14%)
L-tryptophan	1	0	1 (4.5%)
Magnesium	7	4	11 (50%)
Melatonin	7		7 (32%)
Vitamin B complex	14	1	15 (68%)
Probiotics	2	3	5 (23%)
Vitamin C	3	3	6 (27%)
Vitamin D	5	6	11 (50%)
Zinc	1	0	1 (4.5%)
Herbal medicine			
Withania somnifera (ashwaghanda)	6	0	6 (27%)
Ocimum tenuiflorum (holy basil)	1	0	1 (5%)
Lavandula angustifolia (lavender)	14	1	15 (68%)
Silybum marianum (milk thistle)	2	0	2 (9.1%)
Passiflora incarnata (passionflower)	1	1	2 (9.1%)
Rhodiola rosea	6	1	7 (32%)
Crocus sativus (saffron)	4	0	4 (18%)
Hypericum perforatum (St. John's Wort)	2	0	2 (9.1%)
Valeriana officinalis (valerian)	2	0	2 (9.1%)
Lifestyle			
CBT	4	0	4 (18%)
Dietary recommendation	7	0	7 (32%)
Exercise recommendation	7	0	7 (32%)
Goal setting	7	0	7 (32%)
Mindfulness	7	0	7 (32%)
Psychoeducation	5	0	5 (23%)
Sleep hygiene	6	0	6 (27%)
Referrals			
EMDR	1		1 (4.5%)
General practitioner	2		2 (9.1%)
Psychiatrist	1		1 (4.5%)
Therapist	3		3 (14%)

5-HTP = 5-hydroxytryptophan; CBT = cognitive behavioural therapy; EMDR = eye movement desensitization and reprocessing; GABA = gamma aminobutyric acid

TABLE 4 Changes in PHQ9 and GAD7 Scores

	n	Initial mean (SD)	Final mean (SD)	Change	*P* value[a]	MCID, *n* (%)	Remission, *n* (%)	Response, *n* (%)
PHQ9	21	16.5 (4.6)	9.1 (6.6)	7.5	0.0001	16 (76.2)	10 (47.6)	11 (52.4)
GAD7	17	15.2 (3.3)	10.6 (6.4)	4.6	0.008	10 (58.8)	6 (35.3)	6 (35.3)

[a] *P* value calculated using two-tailed Student T test.
GAD7 = generalized anxiety disorder 7; MCID = minimally clinically significant decrease; PHQ9 = patient health questionnaire; SD = standard deviation of the sample.

TABLE 5 Rates of Adherence and Adverse Events

Any nonadherence, *N*=22	*n* (%)
Not initiated	4 (18)
Not implemented at 75% of recommendation	5 (23)
Prematurely discontinued	7 (32)
Total	16 (73)
Adverse events, *n* (%)	3 (14)
"Grogginess"	1 (4.5)
Disturbed sleep	4 (18)
Upper gastrointestinal disturbance[a]	1 (4.5)
Unpleasant taste	9 (41)
Total	5 (23)
Treatments discontinued due to adverse events	

[a] Upper gastrointestinal disturbance includes nausea and "acid reflux."

Subjects in this study had varying degrees of depression and anxiety symptom severity, with mean initial scores of 16.5 and 15.2, respectively. This range represents mild to severe symptoms.[28,29] Many subjects (73%) screened positively for both anxiety and depression which is about 10% higher than what has been found in larger samples.[33,34] This comorbidity is associated with a higher likelihood of treatment resistance, higher neuroticism, reduced functioning, higher lifetime risk of hospitalization, and greater symptom severity and duration than subjects with depression alone.[33,35] The condition severity of this sample may also be informed by the presence of insomnia in most subjects (73%) and a history of self-harm in four subjects (18%), which is consistent with epidemiologic studies on MDD patients.[36]

Mood disorders are a common cause of unemployment and absenteeism from work and school.[37] The proportion of declared unemployed subjects of this study (32%) may be an underestimate, as 22% of charts did not have a record of the patients'

current occupation. The low level of fully employed participants may be correlated to the low price of services at the RSNC rather than symptom severity; however, two participants either returned to work or began to look for work after treatment, which suggests that their unemployment was related to their condition severity. In Ontario, the estimated prevalence of unemployment and disability among patients with MDD is 31%,[37] which is comparable to the unemployment rate in this study and several times higher than the population unemployment rate of 5.9% in 2019 (mid-way through the study period).[38] The ability to safely and effectively treat patients with depression, anxiety, and other comorbidities is important in reducing rates of disability and absenteeism, and this study demonstrates that naturopathic medicine may be part of an effective solution.

Safety of the Intervention

Based on the adverse event data, naturopathic care appears to be a safe and well-tolerated approach to managing depression and anxiety symptoms. In this study, there were no new incidents of self-harm and no serious adverse events; mild adverse events occurred in 41% of participants. Mild adverse events were more common in subjects taking psychiatric medication, emphasizing that informed consent and monitoring may be particularly important when using NHPs in this population. Overall, the use of NHPs in this study appears very safe, with only 5% of NHP recommendations leading to an adverse event that was cause for premature discontinuation of the product.

Similarly, naturopathic medicine could be a safe adjunctive treatment for patients with depression and anxiety currently taking psychiatric medication. In this study, 54.5% of participants were taking psychiatric medication. Within this group, there were no major adverse events and mild adverse events were reported in 67% (8/12). Combining NHPs and psychiatric medication can be harmful; one example is the potential for interaction between St. John's Wort (herbal medicine) and selective serotonin reuptake inhibitors. St. John's Wort can increase the risk of serotonin syndrome due to its serotonergic effects and the induction of enzyme CYP3A4.[39] Ng et al. report that 42% of surveyed patients did not disclose their NHP use to their medical doctors.[40] In the present study, 73% of participants were taking a NHP prior to their initial visit. It was not reported whether these participants had disclosed their NHP use to their other healthcare practitioners. NDs are trained in NHP–drug interactions and communicate with other prescribing practitioners when treating patients who are taking psychiatric medication.[41] Therefore, a qualified ND may help patients use NHPs more safely than patients who self-prescribe NHPs.

Limitations

This retrospective chart review was not controlled, and though it was adequately powered for the difference in mean PHQ9 and GAD7 scores, possible subgroup analyses were not adequately powered. Participants with a poor response to the initial treatment or who experienced adverse events may have been excluded from the present study if they discontinued care before 1 month. Conversely, 1 month as a minimum treatment period may have been too brief to capture effectiveness, as some trials of antidepressant and anxiolytic agents report benefits over longer time periods.[42] As this was a retrospective chart review, patient characteristics and subjective reports may have been influenced by recall bias and social desirability bias by the patient as well as biased recording by the care provider.[40] Due to the simple analysis of comparing average initial versus final scores instead of analyzing the score change over time, there could have been more variability than depicted by the average decrease of means. Additionally, there was no follow-up beyond the study period so the extent to which results persisted following the study period is unknown.

Future Research

Further research with larger sample sizes would allow subgroup analyses to assess which characteristics are most likely to be correlated with response to naturopathic medicine, such as the specification of "mild," "moderate," and "severe" GAD7 and PHQ9 scores. A prospective observational study including consistent use of validated questionnaires and adherence logs for all outcomes (e.g., quality of life, employment, and substance use) could provide a more complete evaluation of real-world effectiveness. A prospective trial with comparison groups receiving standard medical and psychotherapy treatments alone could clarify the effectiveness of adjunctive naturopathic treatment. In addition, a longer follow-up period would help provide insight into the impact of naturopathic medicine on the risk of recurrence since about half of patients with an MDD episode are likely to have a second episode, including those treated with antidepressants.[43]

CONCLUSION

Naturopathic care as performed on the Mental Health Shift may be safe and effective in reducing depression and anxiety symptoms. Further research using a prospective design and comparison group is warranted.

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CONFLICTS OF INTEREST DISCLOSURE

We have read and understood the *CAND Journal*'s policy on conflicts of interest and declare that we have none.

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