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Naturopathic knowledge and approaches to managing endometriosis: a cross-sectional survey of naturopaths with experience in endometriosis care

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Abstract

Objectives: Endometriosis is a chronic gynaecological disease with varying symptomatology and negative health outcomes. To ensure the best care for women with endometriosis, women require a multidisciplinary team approach. While some women consult with naturopaths for endometriosis, there has been little research on naturopathic knowledge and the naturopathic approach to endometriosis care.

Methods: This cross-sectional survey recruited naturopaths with experience in menstrual disorders from the Practitioner Research and Collaboration Initiative (PRACI) a Practice-Based Research Network (PBRN). Data collection was conducted via an online self-administrated 62-item questionnaire.

Results: Invitations were sent to 109 naturopaths who self-reported having experience in menstrual disorders, of whom 29 completed the survey (26.6% response rate). Naturopaths perceived endometriosis to be caused by inflammation (n=28, 96.5%) and risk factors associated with familial history (n=26, 89.6%). Many naturopaths aimed at reducing inflammation (n=27, 93.1%) and supporting gastrointestinal function (n=25, 86.2%) in their prescriptions. Naturopaths reported using various healthcare referrals to support women with endometriosis, primarily general practitioners (n=12, 41.3%), acupuncturists/Traditional Chinese Medicine practitioners (n=11, 37.9%), and gynaecologists (n=9, 31%). Naturopaths reported receiving referrals from general practitioners (n=8, 27.5%) and psychologists (n=6, 20.6%).

Conclusions: Naturopathic knowledge and management of endometriosis targets known problematic areas of endometriosis that can have debilitating effects on women's quality of life. Naturopathic care has the potential to align with important health outcomes for women with endometriosis however, further attention is needed to assess the effectiveness and continue to establish a multidisciplinary approach involving naturopathic care.

Keywords: chronic disease; endometriosis; health services; naturopathy; women's health.

Introduction

Globally, endometriosis is estimated to affect 10% of reproductive-age women with symptoms presenting differently among individuals [1]. Endometriosis is defined as a chronic gynaecological disease that has multifactorial pathophysiology [2]. Although the pathogenesis for endometriosis is unclear, there are several dominant theories involving retrograde menstruation, coelomic metaplasia, genetics, inflammation, stem cells, and immune dysfunction [2, 3]. Symptoms of endometriosis can include dysmenorrhoea, menorrhagia, dyspareunia, dysuria, chronic pelvic pain, and infertility [4]. However, some women can be asymptomatic and disease severity (i.e. the extent of endometrial lesions) does not correlate to the presence or severity of symptoms [5]. The varying impacts of endometriosis can result in substantial negative implications on a woman's quality of

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life involving their social life, relationships, employment, financial burden, education, and overall health and well-being [6]. The cost of endometriosis in Australia alone is estimated to be $9.7 billion annually [7]. Women with endometriosis often receive healthcare through pharmaceutical interventions and laparoscopic surgery [8, 9]. The effectiveness of pharmaceutical interventions can vary depending on the type of treatment and presentation of endometriosis. Some pharmaceutical treatments (e.g. oral contraceptive pill, GnRH analogues) show promise in providing endometriosis-associated pain relief and are well tolerated in symptomatic women [2]. After diagnosis, women can still experience disease progression [8] with reports of recurrence between 6 and 67% post laparoscopic surgery within an average of two to five years [10].

Women with endometriosis are known to seek care from various healthcare professions within conventional medicine [5, 11], allied health, and traditional and complementary medicine (T&CM) [5, 12, 13]. Research suggests that women with endometriosis need to have access to a multidisciplinary team for ongoing management [5], to improve long term clinical outcomes [14], and for access to pain management services [9]. As a healthcare service, T&CM professions such as naturopathy are utilised by reproductive-age women, particularly those with chronic diseases [13, 15–17]. Reasons for T&CM use by women with endometriosis can be due to medical dismissal, taking control of their symptoms and disease, dissatisfaction with standard care [12] or that some T&CM treatments provide better effectiveness compared to hormonal interventions [18]. Naturopathy, defined as a traditional medicine system is one T&CM profession [19, 20] that is utilised by women with endometriosis [13, 16, 21, 22]. Australian research suggests that naturopaths are one of the most common T&CM professions utilised by women with endometriosis, who are 1.5 times more likely to seek naturopathic care than those without endometriosis [13]. Australian prevalence data reports that 0.7–19.8% of women with endometriosis seek care from a naturopath [13, 16, 21, 22].

Reports of naturopathic treatments for endometriosis [23, 24] and the effectiveness of those naturopathic treatments are in their infancy [23], however, one study reported various naturopathic treatments and the perceived effectiveness by naturopathy users who sought care for endometriosis management [21]. The naturopathic approach to care is underpinned by a philosophical framework emphasising the treatment, prevention, and promotion of health through the application of therapeutic practises (such as herbal medicine, clinical nutritional medicine, dietary counselling, and lifestyle recommendations) [19, 20]. This approach provides individualised care that is suitable in chronic and complex diseases where a holistic approach is needed [25]. The utilisation of naturopathic therapeutic practises is applied to a patient-centred framework involving an integrative and multidisciplinary approach [26, 27], in conjunction with various forms of naturopathic knowledge.

The patient-centred framework delivered by naturopaths has potential to address areas of endometriosis care that are of importance to women. These areas could be addressed through naturopathy by using a hierarchy of therapeutics [28] that aligns to reducing endometriosis-associated pain, symptom management (particularly bothersome symptoms), improving quality of life, and supporting women's satisfaction with treatment [29] through patient empowerment and self-management strategies, where appropriate. Further, this approach utilises naturopathic knowledge involving the application of traditional knowledge, scientific research, clinical intuition, and expertise delivered through evidence-based practice and adherence to the philosophical frameworks of the profession.

Currently, the Australian Endometriosis Clinical Practice Guideline recommends a multidisciplinary approach to ensure comprehensive care [9]. Research into multidisciplinary care and clinical management programs for endometriosis has investigated the role of conventional and allied healthcare [14, 30] in managing endometriosis. However, there has been little research exploring the naturopathic knowledge and approaches to endometriosis, despite the use of this profession by women with endometriosis [21, 22] and the acknowledgement of naturopathy as a healthcare service for women [9]. In direct response to these gaps, this study aims to explore the naturopathic knowledge and clinical approach including multidisciplinary involvement for endometriosis by naturopaths with experience in menstrual disorders.

Materials and methods

Study design

This study employed a cross-sectional survey design as a sub-study of the Practitioner Research and Collaboration Initiative (PRACI) – a practice-based research network (PBRN) of complementary medicine practitioners in Australia [31].

Setting

The survey was a self-administered questionnaire that was accessible on the SurveyGizmo platform. Data collection was open in June 2019

and closed in September 2019. Participation reminder invitations were sent to registered PRACI members in July and August 2019 by email.

Participants

Participants were recruited through the PRACI PBRN. Members of PRACI self-opted to enter the PBRN to support naturopathic advancements in Australia. Registered PRACI members who were in clinical practice as a naturopath (n=317) and who self-identified as having experience in women's menstrual disorders (n=109) were invited to participate in the study. From this sample n=109 (34.4%) of naturopaths in PRACI received an invitation to participate in this study. Naturopaths were included if they were practising as a naturopath in clinical practice at the time of data collection, had consulted with a woman for endometriosis in the previous 12 months and could read English. Naturopaths who were PRACI members who were not currently in clinical practice and/or did not reside in Australia at the time of data collection were excluded from the survey.

Data instrument

The self-administered survey domains included *naturopath sociodemographics*, *naturopathic treatments for endometriosis*, *naturopathic disease knowledge of endometriosis*, *naturopathic clinical management for endometriosis*, and *interprofessional approach to endometriosis care*. The survey was developed based on previous research [24]. The results presented in this study report on the survey domains including *naturopath sociodemographics*, *naturopathic disease knowledge of* endometriosis, *naturopathic clinical management for endometriosis*, *and interprofessional approach to endometriosis care*. The other domains included in the survey have been reported elsewhere [23]. In the context of this study, the domain *naturopathic disease knowledge of endometriosis* refers to the alignment of traditional knowledge, naturopathic philosophical frameworks and medical science [25] in understanding endometriosis. The questionnaire involved both multiple choice (binary and categorical multiple-choice questions) and open response questions and took approximately 15–20 minutes to complete. Survey logic was used to open consecutive questions depending on the participant's responses; therefore, some surveys may have taken 20–30 minutes to complete. Participation was anonymous and survey responses were unable to be edited after submission. The questionnaire was pilot tested for face validity by five qualified (degree granted) naturopaths in Australian clinical practice. Pilot testing involved selecting all questions that may be selected from participants to gauge an accurate time to complete the survey and to ensure all survey logic was functional. The final self-administered questionnaire was a 62-item online survey.

Sample size

The PRACI database had 317 naturopaths in clinical practice in Australia within their membership. From this sample, recruitment invitations were emailed to 109 naturopaths who self-identified as having experience in menstrual disorders. Using a margin of error of 5%, confidence interval of 95%, and 50% response distribution, the sample size was calculated at n=86. The invitations were sent by the PRACI administrators on behalf of the research team.

Statistical analysis

Raw data was collected through SurveyGizmo and extracted to Microsoft Excel for data cleaning. Participants were required to respond to the eligibility criteria at the start of the survey. Participants that did not meet the eligibility were directed to exit the survey. Those that were eligible were invited to proceed with the survey. Incomplete surveys were also removed from the data set during the cleaning stage. Cleaned data was imported into STATA 14 for analysis. Variables were developed in accordance with the participant responses to the survey questions. Statistical analysis was conducted as descriptive statistics using categorical and binary variables represented as frequencies and percentages. Additional analysis was conducted using the Chi-squared test to determine the main reasons for referrals from naturopaths and to naturopaths from other healthcare professions.

Results

Practitioner sociodemographics

A total of 29 naturopaths met the inclusion criteria and completed the survey (26.6% response rate). Of the naturopaths that were invited to participate (n=109), 72 participants did not respond to the recruitment invitations and begin the survey, leaving 37 naturopaths who commenced the survey. During data cleaning, six responses were removed as they were incomplete and an additional two responses were also removed for not meeting the inclusion criteria of being a naturopath in Australia at the time of data collection. Most of the naturopaths reported being female (n=27, 93.1%) and practising in New South Wales (n=14, 48.2%). Respondents reported holding a bachelor's degree (n=10, 34.4%) or an advanced diploma (n=8, 27.5%) in naturopathy. Most respondents reported having either between one and five years (n=7, 24.1%) or 16 and 20 years (n=7, 24.1%) experience in clinical practice as a naturopath. More than half of those who responded were working in solo clinical practice (n=18, 62%) and most frequently working between 16 and 20 h per week (n=10, 34.4%). One-third of respondents (n=9, 31%) reported providing naturopathic care to between 11 and 15 women with diagnosed endometriosis in the previous 12 months (see Table 1).

Clinical knowledge of the causes and risks of endometriosis

Naturopaths who had consulted with women with endometriosis in the previous 12 months reported that inflammation (n=28, 96.5%) was the main cause of endometriosis pathogenesis. Other reported causes of endometriosis perceived by

Table 1: Sociodemographics of participant naturopaths who consult with women for the management of endometriosis.

Sociodemographics	n (%)
Sex	
Female	27 (93.1)
Male	2 (6.9)
State	
ACT/NT/TAS	0 (0.0)
NSW	14 (48.2)
QLD	5 (17.2)
SA	2 (6.9)
VIC	5 (17.2)
WA	3 (10.3)
Qualification	
Certificate IV	1 (3.4)
Diploma	4 (13.7)
Advanced diploma	8 (27.5)
Bachelor's degree	10 (34.4)
Graduate certificate	1 (3.4)
Graduate diploma	0 (0.0)
Master's degree	5 (17.2)
Professional doctorate/Doctor of Philosophy	0 (0.0)
Years in practice	
1–5 yrs.	7 (24.1)
6–10 yrs.	4 (13.7)
11–15 yrs.	4 (13.7)
16–20 yrs.	7 (24.1)
21–25 yrs.	2 (6.9)
26–30 yrs.	2 (6.9)
31 yrs. or more	2 (6.9)
Hours per week in practice	
1–5 h	3 (10.3)
6–10 h	1 (3.4)
11–15 h	5 (17.2)
16–20 h	10 (34.4)
21–25 h	3 (10.3)
26–30 h	2 (6.9)
31 h or more	5 (17.2)
Clinical setting	
Sole practitioner	18 (62.0)
Multidisciplinary clinic with complementary medicine (CM) practitioners	8 (27.5)
Multidisciplinary clinic with conventional medicine and CM practitioners	1 (3.4)
Health food shop	0 (0.0)
Pharmacy	2 (6.9)
Number of women[a]	
1–5 women	6 (20.6)
6–10 women	6 (20.6)
11–15 women	9 (31.0)
16–20 women	1 (3.4)
21–25 women	1 (3.4)
26–30 women	3 (10.3)
31 women or more	3 (10.3)

[a]Number of women with endometriosis consulted with over the previous 12-month period.

naturopaths was genetics (n=24, 82.7%), excessive oestrogen levels (n=20, 68.9%), microbiome dysbiosis (n=20, 68.9%), and excessive exposure to toxins (n=19, 65.5%). The risks that respondents most frequently perceived as associated with endometriosis were a familial history of endometriosis (n=26, 89.6%) and environmental exposures (n=25, 86.2%). Other frequently reported risks were poor liver detoxification (n=21, 72.4%) and poor dietary intake and behaviours (n=20, 68.9%) (see Table 2).

Table 2: Clinical knowledge and opinion of causes and risks associated with endometriosis.

	Frequency of clinical disease beliefs		
	Strongly agree/Agree n (%)	Undecided n (%)	Disagree/ Strongly disagree n (%)
Causes of endometriosis			
Autoimmunity	12 (41.3)	10 (34.4)	7 (24.1)
Environmental toxins	19 (65.5)	7 (24.1)	3 (10.3)
Microbiome dysbiosis	20 (68.9)	8 (27.5)	1 (3.4)
Excessive oestrogen	20 (68.9)	6 (20.6)	3 (10.3)
Genetics	24 (82.7)	3 (10.3)	0 (0.0)
Inflammation	28 (96.5)	1 (3.45)	0 (0.0)
Retrograde menstruation	15 (51.7)	6 (20.6)	8 (27.5)
Intercourse while menstruating	0 (0.0)	11 (37.9)	16 (55.1)
Imbalance of oestrogen/progesterone ratio	19 (65.5)	5 (17.2)	4 (13.7)
Poor liver detoxification	19 (65.5)	6 (20.6)	4 (13.7)
Poor dietary intake/ habits	19 (65.5)	4 (13.7)	6 (20.6)
Risk of endometriosis			
Early menarche	10 (34.4)	15 (51.7)	2 (6.9)
Environmental exposures	25 (86.2)	3 (10.3)	1 (3.4)
Excessive consumption of alcohol	12 (41.3)	11 (37.9)	5 (17.2)
Family history of endometriosis	26 (89.6)	2 (6.9)	1 (3.4)
Irregular menstrual cycle	12 (41.3)	8 (27.5)	8 (27.5)
Lack of exercise	10 (34.4)	7 (24.1)	11 (37.9)
Low body weight	4 (13.7)	8 (27.5)	16 (55.1)
Multiple sexual partners	2 (6.9)	3 (10.3)	22 (75.8)
Tampon usage	5 (17.2)	12 (41.3)	12 (41.3)
Poor liver detoxification	21 (72.4)	5 (17.2)	3 (10.3)
Poor dietary intake/ habits	20 (68.9)	4 (13.7)	5 (17.2)

Naturopathic treatment aims

Most naturopaths indicated that their main aim for endometriosis management was to reduce inflammation (n=27, 93.1%). Other frequently reported treatment aims were supporting gastrointestinal function (n=25, 86.2%), promoting oestrogen detoxification (n=25, 86.2%), and reducing exposure to environmental toxins (n=24, 82.7%) (see Table 3).

Frequent presenting patient complaints and outcomes

Participants frequently reported that dysmenorrhoea was the most common presenting complaint by women with endometriosis identified in their clinical practice (n=27, 93.1%), followed by menorrhagia (n=24, 82.7%), chronic pelvic pain (n=23, 79.3%), and abdominal bloating (n=23, 79.3%). Naturopaths indicated that women most regularly experienced an improvement in general wellbeing (n=23, 79.3%) and quality of life (n=23, 79.3%), a reduction in dysmenorrhoea (n=22, 75.8%), and use of pharmaceutical pain medication (n=21, 72.4%) after receiving naturopathic care for endometriosis management (see Table 4).

Table 3: Frequently reported naturopathic treatment aims for women with endometriosis.

	Naturopathic treatment aims		
	Always/ Very often n (%)	Sometimes/ Rarely n (%)	Never n (%)
Primary naturopathic treatment aim			
Reducing inflammation	27 (93.1)	1 (3.4)	0 (0.0)
Addressing autoimmune factors	14 (48.2)	12 (41.3)	1 (3.4)
Addressing immune dysregulation	20 (68.9)	8 (27.5)	0 (0.0)
Balancing oestrogen and progesterone ratios	19 (65.5)	9 (31.0)	0 (0.0)
Promoting oestrogen clearance	25 (86.2)	3 (10.3)	0 (0.0)
Reducing environmental toxins	24 (82.7)	4 (13.7)	0 (0.0)
Microbiome modulation	21 (72.4)	7 (24.1)	0 (0.0)
Supporting gastrointestinal function	25 (86.2)	1 (3.4)	1 (3.4)
Modulating the hypothalamic pituitary ovarian axis (HPO axis)	21 (72.4)	7 (24.1)	0 (0.0)

Interprofessional care and referrals

The most common referral from a naturopath was to general practitioners (GPs) (n=12, 41.3%), acupuncturists/Traditional Chinese Medicine (TCM) practitioners (n=11, 37.9%), and gynaecologists (n=9, 31%). Their main reasons for referral were that they had identified a need for multidisciplinary team care (GPs: n=10, acupuncturists/TCM practitioners: n=10, gynaecologists: n=8), the women's symptoms had not improved after naturopathic care (GPs: n=7, acupuncturists/TCM practitioners: n=8), and the naturopath felt the case was outside of their scope of practice (GPs: n=7, acupuncturists/TCM practitioners: n=7, gynaecologists: n=5) (see Table 5).

Participants reported commonly receiving referrals from GPs (n=8, 27.5%), psychologists (n=6, 20.6%),

Table 4: Presenting complaints of women with endometriosis who sought care from a naturopath.

	Presenting complaints by women with endometriosis		
	Always/Very often n (%)	Sometimes/ Rarely n (%)	Never n (%)
Presenting complaint			
Dysmenorrhoea	27 (93.1)	1 (3.4)	0 (0.0)
Menorrhagia	24 (82.7)	4 (13.7)	0 (0.0)
Chronic pelvic pain	23 (79.3)	4 (13.7)	0 (0.0)
Infertility	20 (68.9)	8 (27.5)	0 (0.0)
Preconception care	16 (55.1)	11 (37.9)	0 (0.0)
Dyspareunia	9 (31.0)	18 (62.0)	0 (0.0)
Abdominal bloating	23 (79.3)	5 (17.2)	0 (0.0)
Constipation	18 (62.0)	10 (34.4)	0 (0.0)
Diarrhoea	11 (37.9)	17 (58.6)	0 (0.0)
Lower abdominal pain without menstruation	15 (51.7)	12 (41.3)	1 (3.4)
Musculoskeletal pain	16 (55.1)	11 (37.9)	1 (3.4)
Fatigue	21 (72.4)	7 (24.1)	0 (0.0)
Primary treatment patient outcomes			
Improved fertility	18 (62.0)	3 (10.3)	0 (0.0)
Improved general wellbeing	23 (79.3)	0 (0.0)	0 (0.0)
Improved quality of life	23 (79.3)	0 (0.0)	0 (0.0)
Pregnancy	13 (44.8)	7 (24.1)	0 (0.0)
Reduced episodes of dyspareunia	13 (44.8)	9 (31.0)	0 (0.0)
Reduced episodes of menorrhagia	18 (62.0)	4 (13.7)	0 (0.0)
Reduced episodes of dysmenorrhoea	22 (75.8)	1 (3.4)	0 (0.0)
Reduced episodes pelvic pain	19 (65.5)	4 (13.7)	0 (0.0)
Reduced pharmaceutical usage	21 (72.4)	2 (6.90)	0 (0.0)

Table 5: Referrals and multidisciplinary care management by naturopaths for women with endometriosis.

Referrals from naturopaths to other healthcare professionals[b]	n (%)	Reasons for referrals to other healthcare professionals							
		Outside of scope of practice	Advanced endometriosis	Diagnosed with another reproductive disease	Patient requested referral	Symptoms not improved aftercare	Referral for specialist care	Needs a multidisciplinary team	Transfer of care
		n	n	n	n	n	n	n	n
Acupuncturist/TCM	11 (37.9)	7	4	3	6	8	1	10	3
Chiropractor	2 (6.9)	2	2	1	1	2	1	2	0
Fertility specialist	2 (6.9)	2	2	3	2	2	0	2	2
General practitioner	12 (41.3)	7	4	4	4	7	3	10	3
Gynaecologist	9 (31.0)	5	3	3	5	5	2	8	2
Laparoscopic surgeon	7 (24.1)	4	2	2	4	4	1	7	2
Massage therapist	3 (10.3)	2	1	1	1	2	1	3	2
Osteopath	6 (20.6)	5	4	3	4	6	0	6	2
Pain specialist	3 (10.3)	2	2	2	3	2	0	3	2
Physiotherapist	4 (13.7)	2	1	1	2	1	1	4	1
Psychologist	8 (27.5)	6	5	4	5	5	2	8	2

[b]Only frequencies are reported due to the low responses to the survey item.

Table 6: Referrals from other healthcare professionals to naturopaths for women with endometriosis.

Referrals from other healthcare professionals to naturopaths[a]	n (%)	Referrals received from naturopaths from other healthcare professionals			
		Patient requested referral n	Symptoms not improved aftercare n	Needs a multidisciplinary team n	Transfer of care n
Acupuncturist/TCM practitioner	5 (17.2)	1	1	5	2
Chiropractor	2 (6.9)	2	2	1	1
Fertility specialist	2 (6.9)	0	1	2	1
General practitioner	8 (27.5)	3	2	8	3
Gynaecologist	1 (3.4)	0	0	1	0
Homoeopath	1 (3.4)	0	0	1	0
Laparoscopic surgeon	1 (3.4)	0	0	1	0
Massage therapist	4 (13.7)	3	2	4	2
Nutritionist/Dietitian	5 (17.2)	2	3	5	4
Osteopath	5 (17.2)	2	1	5	1
Pain specialist	1 (3.4)	0	1	1	1
Pharmacist	2 (6.9)	1	1	2	1
Physiotherapist	3 (10.3)	1	2	3	2
Psychologist	6 (20.6)	2	2	6	3

[a]Only frequencies are reported due to the low responses to the survey item.

acupuncturists/TCM practitioners (n=5, 17.2%), nutritionists/dietitians (n=5, 17.2%), and osteopaths (n=5, 17.2%). Naturopaths reported that the main referral reason from these professions was the need for a multidisciplinary team (GPs: n=8, psychologists: n=6, acupuncturists/TCM practitioners: n=5, nutritionists/dietitians: n=5, osteopaths: n=6) (see Table 6).

Discussion

An important aspect to consider for this research is the different perspectives in healthcare from naturopaths compared to medical doctors. In the context of this study, some results may not align with contemporary medical knowledge of endometriosis. This relates to the differences in terminologies, definitions, and approaches between the two aforementioned healthcare professionals. While the differing views between naturopathy and conventional healthcare are known [32], this study adds to previous work by enhancing the understanding of the value and potential role and application of naturopathy in a complex disease like endometriosis.

The majority of naturopaths involved in this study identified inflammation and genetics as the causes of endometriosis. While the pathogenesis of endometriosis is unclear [2, 33], both inflammation and genetics are involved in the proposed pathogenesis theories [2]. Whether inflammation is the factor that perpetuates the disease is not yet known [2, 34]. However, increasing evidence suggests that endometriosis may be a systemic inflammatory disease due to notable increases in activated macrophages and inflammatory cytokines [2, 35]. Medical research does not define endometriosis to be caused by inflammation, however, inflammation is acknowledged as an essential aspect [2, 34]. Study participants stated their patient's primary concern was symptoms that can be caused by inflammation, such as dysmenorrhoea and chronic pelvic pain [36]. To address these concerns, participants described aiming to reduce inflammation, as well as supporting gastrointestinal function and promoting oestrogen clearance. These three aspects of naturopathic care demonstrate that naturopaths may be addressing the philosophical principles *Tolle causam* (treat the cause) and *Tolle totum* (treat the whole person) by focussing on multiple factors in endometriosis pathophysiology. While the clinical naturopathic approach to endometriosis has complexities [25], the approach identified through our

study highlights that naturopaths are targeting a key area of endometriosis pathophysiology in an attempt to achieve positive patient outcomes such as quality of life and reducing dysmenorrhoea. While this approach to care is important in endometriosis management, the efficacy and impact of the naturopathic approach in modulating inflammation-related symptoms are unclear.

Genetics was also considered a cause and risk of endometriosis by participants in our study. The inheritable nature of endometriosis has gained research attention as part of the potential cause of the disease [37, 38]. However, clear identification of genetic variations and inheritance patterns has yet to be fully established [2, 38]. Although, familial aggregation is known to be a high-risk factor for endometriosis [3]. Familial aggregation and linkage analysis studies have identified endometriosis in first-degree family members with continued prevalence in second and third-degree family members [39]. In Australia, naturopathic curriculum does not include in-depth training in genetics but does include the role of genetics in disease processes to understand an individual's metabolic and physiologic risk [37, 40]. Identifying genetics as a cause and risk factor in endometriosis may be indicative of holism which is a focal point in naturopathic philosophy and principles. This holistic approach may present in clinical practice by addressing risk factors that may increase the likelihood of endometriosis such as environmental exposures (e.g. dioxin, polychlorinated biphenyls, diethylstilboestrol) [41]. Additionally, this approach may draw on features of precision medicine whereby naturopaths employ individualised treatments to support the philosophical underpinnings of their clinical care [42]. While consideration of genetics is important, naturopaths drawing on features of precision medicine may be innovative care within naturopathy. However, it could lead to the potential use or overuse of complex or ineffective treatments as an indiscriminate approach rather than resulting in a more conservative approach to endometriosis care. As this study did not collect data on genetic treatments or tests recommended by naturopaths, research focused on this topic is warranted.

Findings in this study suggest that naturopaths aim to support gastrointestinal function and the promotion of oestrogen clearance in endometriosis care. Interesting, both abdominal bloating and menorrhagia were reported as frequent presenting concerns by women with endometriosis. The gastrointestinal system is an important aspect of naturopathic care for reasons relating to its bi-directional function in endocrine, neural, and immunological biomechanisms [43]. Naturopaths have historically targeted the gastrointestinal system to improve immunological functioning, reduce inflammatory processes, balance regulatory systems, and optimise metabolic functioning [44]. Study participants may be targeting this biological system for various reasons. The rationale for addressing gastrointestinal involvement in endometriosis may relate to the immunomodulation and inflammatory process known within the microbiome [45] and addressing abdominal symptoms (such as bloating and irritable bowel syndrome) [46, 47]. From a naturopathic perspective supporting the gastrointestinal system may also promote oestrogen clearance by reducing the reabsorption of deconjugated oestrogen [48]. However, the effectiveness of this approach in endometriosis and symptom management is currently unknown.

Naturopaths in our study appear to attempt multidisciplinary care, by referring women with endometriosis to and receiving referrals from both practitioners within the conventional medicine and T&CM professions. Naturopaths reported referring to General Practitioners (GPs) primarily for a multidisciplinary approach to endometriosis care. GPs are well positioned to provide collaborative support for women with endometriosis with the use of prescribed pharmaceuticals and additional referrals, both of which are commonplace in endometriosis care [2, 49]. Referrals to T&CM professionals – acupuncturists/TCM practitioners – may be indicative of the supportive evidence for these practitioners in treating endometriosis, particularly pelvic pain, and dysmenorrhoea [50–52]. Likewise, the reported referrals from healthcare professionals (such as GPs and psychologists), indicate that these referrals to naturopaths were conducted to establish a multidisciplinary team approach to endometriosis care. This suggests that naturopaths may be a profession to consider for endometriosis multidisciplinary management.

Multidisciplinary care is an essential factor in ensuring adequate evaluation of endometriosis and improvement in patient outcomes [5, 14]. While the findings of referrals in our study are important, there is some evidence of poor communication between naturopathy and other health professionals [32]. Reasons for poor multidisciplinary collaboration between naturopaths and conventional healthcare professionals are often attributed to the differences between philosophical frameworks, negative professional perception of naturopathy, professional competition, and questionable validity of naturopathic care [32, 53]. The limited cross-communication between naturopathy and conventional healthcare professions often relies on the patient to pass knowledge between both healthcare professionals [54, 55]. Ensuring open and respectful communication between healthcare professionals is important in providing optimal care for individuals utilising these professions [15, 17]. Therefore, infrastructure improvement is needed to

encourage cross healthcare collaborations to deliver safe and effective multidisciplinary care involving naturopaths for women with endometriosis.

Limitations

Limitations regarding the low response rate in this study are noted. As low response rates are common within healthcare professions [56], this study attempted to counter this by recruiting through a PBRN as evidence indicates that healthcare professionals who are members of a PBRN may exhibit greater research participation [57]. However, given the sample was drawn from a PBRN, the results may not be generalisable and there were administrative limitations on the number of PBRN email reminders enforced by the PBRN Substudy Guidelines that may have contributed to the small sample size. Additional limitations are noted regarding participation bias and non-responders bias due to the self-administered design of the survey. The survey instrument was designed and pilot tested to ensure alignment to the naturopathic philosophical principles and perspective in clinical care. As such, the results are from a naturopathic perspective which may differ from standard conventional approaches. For example, participants in our study indicated inflammation as a cause of endometriosis. While the direct cause of endometriosis has yet to be identified, inflammation is an essential component of endometriosis pathophysiology [2]. An additional limitation to take into consideration relates to the perspective of the effectiveness of naturopathic treatments by the participants and that the participants recruited in this study self-reported having clinical expertise in endometriosis care. As such, naturopaths with insufficient endometriosis knowledge may pose a risk to women seeking care. Nevertheless, this is the first time to our knowledge that research has examined the naturopathic knowledge and clinical approach to endometriosis care from experienced naturopaths in menstrual disorders. The findings present important insights into the naturopathic approach to care for women with endometriosis in the Australian community. These findings may help to understand the naturopathic approach to managing endometriosis for medical doctors, integrative doctors, and allied healthcare professionals who may consider a collaborative care approach with a naturopath either at their discretion or if a woman with endometriosis is also seeking care from a naturopath. This study provides foundational information that can inform the design and implementation of specific naturopathic research for endometriosis that can be evaluated in more rigorous designs.

Further research

This study provides a preliminary exploration of naturopathic care for the management of endometriosis. However, further research is needed to examine this topic in greater detail. Given the context and methodology used in this study, the ability to capture the depth of the naturopathic patient-centred approach and the naturopathic perspective to care is a missed opportunity. Research reporting on naturopathic perspectives in care is in its infancy with some research conducted on cardiovascular disease [58, 59], however, the naturopathic perspective on endometriosis care has yet to be explored. As the naturopathic approach to endometriosis appears to align with emerging scientific evidence of disease pathophysiology in some areas, additional research is needed to explore the effectiveness of naturopathic care in endometriosis management. Additionally, the investigation of patient outcomes from naturopathic care for endometriosis management also requires attention. The naturopathic approach of targeting gastrointestinal support for women with endometriosis also requires a richer investigation to ascertain the benefit of managing the gastrointestinal system and presenting symptoms that are common with the presentation of endometriosis. To effectively capture naturopathic understanding and conceptual philosophical approaches to endometriosis, further research is needed in line with research frameworks that support naturopathic philosophy. As such, additional research utilising complexity science could be developed to capture rich data on the contemporary holistic approach to endometriosis care [25]. Further research is also needed to provide a deeper examination of the role and value naturopaths may play in the multidisciplinary team approach to endometriosis care, to inform evidence-based incorporation of naturopathic services in endometriosis management, if and when appropriate.

Conclusions

Naturopathic knowledge and management of endometriosis targets known problematic areas of endometriosis that can have debilitating effects on women's quality of life. Naturopathic care has the potential to align with important health outcomes for women with endometriosis however, further attention is needed to assess the effectiveness and continue to establish a multidisciplinary approach involving naturopathic care.

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