Prevalence, impact and management strategies for dysmenorrhea in Aotearoa New Zealand: a scoping review

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ABSTRACT

BACKGROUND AND AIM: Dysmenorrhea affects the majority of young women worldwide, but geographical and cultural differences can influence the reporting, impact and management of symptoms. Aotearoa New Zealand is a culturally diverse country, with a high proportion of Māori and Pacific peoples. The aim of this scoping review was to assess the current literature on the prevalence, impact and management strategies for dysmenorrhea in Aotearoa New Zealand.

METHOD: The Joanna Briggs Institute (JBI) scoping review methodology was used to systematically map the evidence of prevalence, severity and symptoms, impact and management strategies for dysmenorrhea in Aotearoa New Zealand. Eight electronic databases were searched in August 2024.

RESULTS: Ten studies met the inclusion criteria. Our findings show that the current data for the prevalence, impact and management strategies for dysmenorrhea in Aotearoa New Zealand are both limited and outdated.

CONCLUSION: The results from this scoping review highlight the need for updated data on dysmenorrhea in Aotearoa New Zealand, with particular focus on Māori and Pacific peoples, and geographical diversity.

Dysmenorrhea affects the majority of women and those who menstruate under the age of 25 years, with prevalence estimated at 71% worldwide[1] and 92% in Australia.[2] Primary dysmenorrhea is the most common cause of dysmenorrhea, defined as painful uterine cramps of menstrual origin in the absence of underlying pelvic pathology.[3] Conversely, secondary dysmenorrhea is associated with an identifiable pelvic pathology, with endometriosis being the single most common cause.[4]

Dysmenorrhea has been shown to impact many aspects of an affected woman's life, including school/university/work absenteeism and reduction in participation in sporting or social activities, as well as overall physical and mental health.[1,2,5] Dysmenorrhea is often managed with analgesic drugs and/or the oral contraceptive pill (OCP). However, differences in management strategies have been observed between high-income and low-middle-income countries, with significantly higher OCP use in high-income countries.[6] Differences in dysmenorrhea management strategies may be influenced by geographical discrepancies in menstrual health education and literacy,[7] as well as access to, and quality of, healthcare services. Similarly, religious beliefs and/or cultural values can influence the reporting of menstrual symptoms, their impact on an affected person's life and the utilisation of treatment strategies.[6,8] Many factors may underpin these differences, including cultural taboos around menstruation, and knowledge and education on dysmenorrhea.[6]

Aotearoa New Zealand is a culturally diverse country with a high proportion of Māori (18% of total population) and Pacific peoples (8% of total population), who experience a higher burden of disease compared with their non-Māori and non-Pacific counterparts.[9] Specifically, Māori and Pacific peoples are at greater risk of metabolic, cardiovascular and reproductive disorders,[9] and have less engagement with healthcare services and higher rates of unmet needs.[10,11] The recently released *Women's Health Strategy*[12] by the New Zealand Ministry of Health underpins the importance of improving health equity and achieving equitable health outcomes for Māori and Pacific peoples, with disease services, pathways and treatments based on evidence from high-quality research. It is currently unclear as to how geographical and cultural differences in a New Zealand context may influence the prevalence,

impact and management of dysmenorrhea.

This scoping review aims to assess the literature on the prevalence, impact and management strategies for dysmenorrhea among New Zealand women and those who menstruate. This review of the available literature will identify research gaps and highlight the need for any future research to help inform appropriate education, management and treatment of dysmenorrhea in a New Zealand context.

Methods

Research question

The research question for this scoping review was "What evidence is available on the prevalence, impact and management strategies for dysmenorrhea in New Zealand women?". The researchers' original research question was focussed solely on primary dysmenorrhea; however, pilot testing of the search strategy returned a paucity of research. As such, the search strategy was amended and widened to include women with dysmenorrhea in New Zealand.

Study design

A scoping review was selected to answer the research question, and the Joanna Briggs Institute (JBI) scoping review methodology[13] was followed. The inclusion criteria consisted of women with dysmenorrhea in New Zealand, while papers that reported only secondary dysmenorrhea and/or chronic pelvic pain were excluded to remain aligned with the original research question. The key outcomes included prevalence of dysmenorrhea in New Zealand; severity and symptoms of dysmenorrhea; impact of dysmenorrhea; management/treatment strategies and their perceived effectiveness. It was expected that the results from this scoping review would elucidate the insufficient research in this area and highlight the need for further research.

Search strategy

A search strategy was designed, including key search terms (Table 1), which was adapted for each database. Eight electronic databases (PubMed, Web of Science, Cochrane Library, Scopus, EMBASE, CINAHL, PsycINFO, AMED) were systematically searched in February 2023 and again in August 2024 to ensure any recent research was included. The reference lists of included records were screened for additional studies.

We included all available literature published since 1980, including case reports, randomised controlled trials and reviews.

Research selection

All identified citations were uploaded into Mendeley Desktop 1.19.8 (Elsevier, Mendeley Ltd) and duplicates were manually removed. Two members of the research team independently screened the titles and abstracts of all citations, assessing them against the pre-specified inclusion and exclusion criteria. The full text of included citations were independently assessed by two members of the research team to identify research to be included in the scoping review. Any conflicts for inclusion/exclusion of citations during the title/abstract screening and full text review was discussed with the two researchers and one other member of the research team if a consensus was not achieved. The results of the search process are presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA-ScR) flow diagram[14] (Figure 1).

Data extraction

Data was extracted from the included papers independently by two of the research team and compared upon completion. Discrepancies were discussed and conflicts were resolved with a third member of the research team if required. Data on the study characteristics (design, location, participant description and demographics) and each of the following outcome measures was extracted from all papers, if available:

1. Prevalence of dysmenorrhea in New Zealand
2. Severity and symptoms of dysmenorrhea
3. Impact of dysmenorrhea
4. Management or treatment strategies
5. Perceived effectiveness of management or treatment strategies.

Results

Searches were performed on 16 August 2024 and the flow of studies through the selection process is illustrated in Figure 1. Ten papers met the inclusion and exclusion criteria and were included in the scoping review.

Study participants

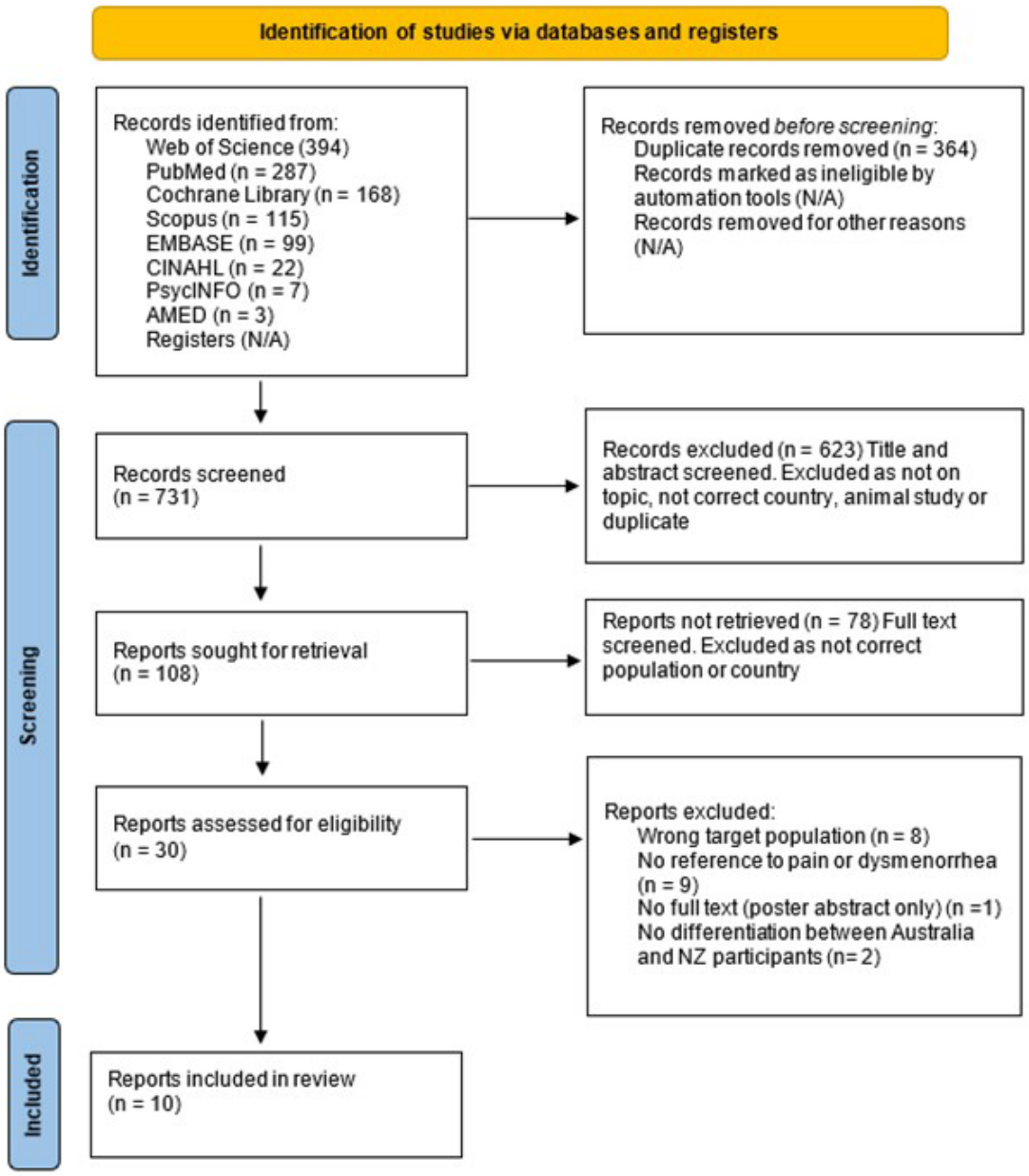
Table 2 gives an overview of the study participants in the included studies. Across the

Table 1: Search terms.

Dysmenorrhea in New Zealand				**Prevalence, impact and treatment**				
Dysmenorrh* “Menstrual pain” “Painful menst*” “Period pain” “Menstrual cycle”	AND	“New Zealand” NZ Aotearoa	AND	Prevalence	OR	Impact Symptom Affect Consequence Risk Well-being School Academic University Social Family Relationship Sleep Sport Exercise “Physical activity” Extracurricular Professional Employment Stress Anxiety “Mental health” “Quality of life”	OR	Treat* Manage* Self-care Hormonal “Oral contraceptive pill” “Non-steroidal anti-inflammatory drugs” “Electrical stimulation” Lifestyle Breathing Meditation Yoga Acupuncture Acupressure Massage Aromatherapy Mindfulness

*Truncation of root term in literature search.

Figure 1: PRISMA flow diagram of search screening results for a scoping review.



10 studies there are a total of 4,300 participants; however, some participant data were reported in multiple studies.[15,16,21,22] After deduplication, 3,277 individual participants were included. The participants ages' range from 13–54 years old, and include 3,123 women from the general population[15–19,23] and 154 participants with suspected or confirmed primary dysmenorrhea.[20–22,24] Four studies did not report ethnicity,[15,16,21,22] while two studies only reported the percentage of European participants and did not specify the ethnic categories for the remaining participants.[20,23] Of the remaining four studies, NZ European was the highest proportion of participants in all studies, followed by Māori (Table 2). Only two studies included (or reported on) Pacific peoples in their research.[19,24]

Study characteristics

The publication date of the included studies ranged from 1988 through to 2019 and consisted of a mixture of quantitative and qualitative study designs. No single study reported on all five outcomes.

Table 2: Study characteristic and reported outcomes from the studies (n = 10) included in this scoping review.

Study characteristics			**Participant characteristics**				**Outcomes**
	Study type	Study design	Number of participants	Participant age (years)	Participant description	Ethnicities reported	Outcomes reported on
Pullon et al. 1988[15] Reinken et al. 1990[16]	Quantitative	Cross-sectional Telephone questionnaire	1,456	16–54	Currently menstruating women recruited from a population of women who attended New Zealand general practice surgeries in Wellington in 1985	Not stated	1. Prevalence 2. Severity/symptoms 3. Impact
Grace, Zondervan 2004,[17] 2006[18]	Quantitative	Cross-sectional Random sample survey	1,160	18–50	Random sample of women from the electoral roll	European (83%) Māori (10%) Other (7%)	1. Prevalence 2. Severity/symptoms 3. Impact 4. Management/treatment
Farquhar et al. 2009[19]	Quantitative	Cross-sectional Pilot survey	78	16	School students from four secondary schools in Auckland	NZ European (19%) Māori (16%) Samoan (13%) Cook Island Māori (13%) Tongan (1%) Chinese (3%) Indian (1%) Other (8%) No data (26%)	1. Prevalence 2. Severity/symptoms 3. Impact 4. Management/treatment

Table 2 (continued): Study characteristic and reported outcomes from the studies (n = 10) included in this scoping review.

Kannan et al. 2015[20]	Quantitative	Feasibility for RCT (Aerobic exercise intervention)	10	21–44	Women with self-reported PD, and menstrual pain scoring at least 4 on 10cm VAS for at least 2 consecutive months	NZ European (50%) Not stated (50%)	2. Severity/symptoms 4. Management/treatment 5. Perceived effectiveness
Armour et al. 2017[21]	Quantitative	RCT (TCM acupuncture intervention)	74	18–45	Confirmed or suspected PD	Not stated	2. Severity/symptoms 4. Management/treatment 5. Perceived effectiveness
Armour et al. 2016[22]	Qualitative	Focus groups and semi-structured interviews	12	18–45	Small sample from Armour et al. 2017 RCT	Not stated	5. Perceived effectiveness
Righarts et al. 2018[23]	Quantitative	Longitudinal cohort study questionnaire	429	13–38	Women from the Dunedin Multidisciplinary Health and Development Study	NZ European (92%) Not stated (8%)	1. Prevalence 2. Severity/symptoms
Kannan et al. 2019[24]	Quantitative	RCT (Aerobic exercise intervention)	70	18–43	Women with confirmed PD	Reported in another publication:[25] NZ European (40%) Māori (1%) Pacific peoples (6%) Asian (49%) African (4%)	2. Severity/symptoms 4. Management/treatment 5. Perceived effectiveness

PD = primary dysmenorrhea; RCT = randomised controlled trial; TCM = traditional Chinese medicine.

Study outcomes

1. Prevalence of dysmenorrhea in New Zealand

Five of the included studies reported on prevalence of dysmenorrhea in New Zealand, incorporating four sets of unique participants. The reported dysmenorrhea prevalence observed in the cross-sectional studies was 53%,[15] with 33% reporting pain in their most recent menstrual cycle;[16] 55.2% and 66.5% reporting pain in the previous 3- or 12-months, respectively;[17] and 90% reporting sometimes or always having pain with their period.[19] Using a longitudinal cohort study, Righarts et al. 2018[23] reported that 57.6%, 68.9% and 46.3% of menstruating women at the ages of 13, 15 and 38 years, respectively, experienced dysmenorrhea in the previous 12-months. Among the 46.3% of women at the age of 38 years experiencing dysmenorrhea, this was divided into 28.1% primary and 18.1% secondary dysmenorrhea. Age-related differences were only compared in two studies,[15,17] with the highest rates of dysmenorrhea in the younger age groups (18–25 years), compared to >25 years. One study reported on ethnic differences for the prevalence of dysmenorrhea,[17] where NZ European women had a statistically significant higher rate (56.8%) of 3-month prevalence compared to Māori women (48.1%). However, after the authors adjusted for age, the difference between ethnic groups was no longer statistically significant.

2. Severity and symptoms of dysmenorrhea

Seven studies reported on severity and symptoms of dysmenorrhea. Studies involving an intervention reported average baseline dysmenorrhea pain scores as 7.7[20] using a 10cm Visual Analogue Scale (VAS), 2.7[21] and 6.5–6.8[24] on the 0–10 Numeric Rating Scale (NRS), with 0 being no pain and 10 being the worst pain imaginable. Peak pain or pain intensity was reported by two interventional studies at baseline, with a score of 5.1[21] on the 0–10 NRS, and 59.8 and 58.8[24] on the 0–100mm VAS for the intervention and control group, respectively. Across the observational studies, dysmenorrhea pain was described as moderate or severe for 51.4% using a verbal rating scale, and 40.3%[17] using a 10cm VAS; 32%[19] using a multidimensional scoring system; and 32.1%[23] (severity scale used not reported) of included women. One study[15] included the timing and duration of pain, with over half of women having pain both before and during menstruation, while 36% and 12% of women reporting pain that lasts 2, or 3 or more days, respectively.

3. Impact of dysmenorrhea

The impact of dysmenorrhea on New Zealand women was the outcome least frequently reported, with only three studies including dysmenorrhea impact details or data. From these studies, 12% of surveyed women have experienced dysmenorrhea discomfort severe enough to warrant time off work or school,[15] while 46% stated that their pain affected their everyday activities, with specific limitations in mobility and doing housework without having to use analgesics.[18] Farquhar et al. 2009[19] surveyed school-aged participants about the impact of their period pain on daily activities, with 45% reporting that their bleeding and period pain restricted their physical activities, while 17% reported limited school work and social activities, and 26% had missed school because of bleeding and/or pain. Half of all the high school-age study participants reported disturbed sleep during their menstrual cycle;[19] however, it is unclear if this is due to pain or other associated symptoms.

4. Management or treatment strategies

Two observational studies provided detail on the management or treatment of dysmenorrhea among their study participants: 10% of the 1,160 participants from the random sample survey had consulted with a general practitioner in the previous 12-months for their dysmenorrhea, and 2.9% had consulted with a specialist.[17] Of the 75 high school-aged participants, 41% had purchased over-the-counter medication for their dysmenorrhea in the previous 6-months, and 30% had consulted a healthcare professional (including the school nurse).[19]

Within the included texts, there were three studies in which the participants underwent an intervention aimed at reducing dysmenorrhea-related pain: aerobic treadmill exercise three times per week for 3–4 weeks, with an additional 4-weeks[20] or 6-months[24] of unsupervised training at home; and traditional Chinese medicine (TCM) acupuncture treatment over the course of three menstrual cycles.[21] Of the three interventional studies only one included a control group[24] for comparison against standard care.

5. Perceived effectiveness of management/ treatment strategies

All study interventions (aerobic exercise and TCM) resulted in a reduction in dysmenorrhea-related pain. Armour et al. 2017[21] observed a significant reduction in peak abdominal pain and a reduction in analgesic use in all four

acupuncture groups (a combination of high [HF] and low [LF] frequency, and manual [MA] and electro [EA] acupuncture). Peak pain was measured on a 0–10 NRS during the first 3 days of menses at the 12-month follow-up, with no difference observed between the groups; pre to post mean (95% CI) HF-MA: 4.4 (3.4–5.5) to 2.9 (1.8–4.0), HF-EA: 5.7 (4.7–6.8) to 4.2 (3.1–5.2), LF-MA: 5.5 (4.5–6.5) to 4.0 (3.0–4.9), LF-EA: 5.0 (3.9–6.0) to 4.2 (3.2–5.3). A subset of 12 participants from the acupuncture randomised controlled trial (RCT) took part in focus groups and semi-structured interviews to examine the impact of the TCM acupuncture treatment.[22] The subset of participants rated their perceived effectiveness of the treatment on a 0–10 NRS, with eight of twelve participants scoring >5/10 and were therefore classified as a responder. A key overarching theme that emerged from the focus groups and interviews was that the TCM acupuncture was "more than needles" and the participating women reported a benefit from the patient–practitioner relationship and the self-care advice delivered through the TCM framework. While a feasibility study investigating the 8-week exercise intervention (4-weeks in clinic and 4-weeks at home)[20] was not sufficiently powered to detect a statistically significant change in menstrual pain quality and intensity, the reductions in the dysmenorrhea pain intensity on a 0–100mm VAS from 71.7±16.4 (mean±SD) to 51.5±18.1 at 4-weeks and 35.8±19.3 at 8-weeks informed the development of the larger cohort RCT.[24] As such, the RCT demonstrated statistically significant benefits of exercise for reducing dysmenorrhea pain intensity on a 0–100mm VAS from 59.8±14.2 (mean±SD) at baseline to 54.1±11.8 at 1-month, 39.2±7.9 at 4-months and 38.1±6.8 at 7-months, as well as improving quality of life (mental and physical) at 4- and 7-months versus the control group.[24]

Discussion

Our scoping review found a paucity of contemporary evidence on the prevalence, impact and management of dysmenorrhea among women in New Zealand, and also reveals the lack of ethnic diversity within the cohorts, which do not accurately reflect the current demographic within New Zealand. Of the 3,277 study participants included in this review, <4% were reported as Māori and <1% as Pacific peoples—far below nationally representative levels; in addition, the actual number of Māori and Pacific participants remains unclear due to the majority of studies not reporting ethnic groups beyond NZ European. No studies included data on the geographical location of participants within New Zealand.

With the exception of the study by Farquhar et al. 2009,[19] who reported 90% prevalence of dysmenorrhea among their high school-age participants, the prevalence data described in this scoping review (33–69%) is lower compared to previously reported global (71%)[1] and Australian (92%)[2] dysmenorrhea prevalence. Variances in survey and interview question phrasing may contribute to differences in prevalence levels between studies. Moreover, the wide age range of participants included in this scoping review may contribute to the lower prevalence, with younger age often being associated with higher prevalence.[26] Grace and Zondervan 2004[17] were the only authors to compare ethnic differences for prevalence of dysmenorrhea, observing no difference after adjusting for age. The heterogeneity among the recall period for dysmenorrhea makes comparison between studies difficult, with some reporting pain in the most recent menstrual cycle,[16] while others reporting prevalence in the past 3-, 6-, or 12-months,[17,23] and some not stating the recall time.[15,19] Importantly, the studies with the largest sample size collected their data 39[15,16] and 23[17,18] years ago, respectively, and given the shift in prioritisation of women's health in New Zealand[12] the relevance of this data to present-day is unknown.

Dysmenorrhea symptoms and severity were reported in interventional and observational studies. As expected, the reported dysmenorrhea for those participants in the interventional studies is more severe than that reported in the observational studies, due to the specific target population and inclusion/exclusion criteria. The lack of data and the heterogeneity among the participants' age and the symptom severity tools/scales used in the observational studies make it difficult to draw any conclusions about the severity and symptoms of dysmenorrhea in New Zealand, and impossible to draw comparisons between ethnic groups. Of the small number of studies that have reported dysmenorrhea impact, it appears that the pain is sufficient to physically limit almost half of affected individuals and occasionally severe enough to cause time off work or school for between 12–26% of women,[15,19] similar to the 20.1% reporting absence from school or university due to dysmenorrhea in a previous systematic review.[1] Menstrual pain-related academic absentees

and physical, social and emotional impairments can have negative effects on an affected individuals' life course potential.[27] Greater understanding around dysmenorrhea and its impact on the different aspects of an affected person's life is required to further improve awareness and education in a New Zealand context to reduce the potential life burden.

The included observational studies yield little information regarding management or treatment of dysmenorrhea and their perceived effectiveness. Grace and Zondervan 2004[17] state that 10% of their sample had consulted with a general practitioner, and 2.9% with a specialist for their dysmenorrhea in the past 12-months, but do not detail the treatment strategies suggested or prescribed. Similarly, Farquhar et al. 2009[19] comment on over-the-counter medication use by students; however, the types of medication were not described, nor was their effectiveness at reducing dysmenorrhea. Previous research has found that self-care strategies such as analgesic use, exercise and heat application for managing dysmenorrhea are common, with the minority of affected individuals seeking medical intervention.[6] Given the current general practice workforce crisis in New Zealand,[28] in combination with higher costs of living, access to sexual and reproductive healthcare services is suboptimal.[29] It is unclear from previous research how ethnic and geographical differences observed in a New Zealand context may impact health literacy, access and willingness to visit healthcare services for dysmenorrhea. Additionally, the COVID-19 pandemic has also changed the landscape of healthcare within New Zealand, with longer wait times and a reduction in access to primary and secondary care.[30] Provided the aforementioned points, the relevance of previously collected dysmenorrhea impact and treatment data to present day is unknown; therefore, it is crucial to obtain more recent data on the unmet needs of those with dysmenorrhea in New Zealand.

The interventional studies included in this review are disparate in nature. While both interventions employed were effective for improving dysmenorrhea for New Zealand women, any comparisons between the studies are difficult due to the different interventions and lack of comparison to an appropriate control group.

Conclusions and future recommendations

The current available data on the prevalence, impact and management strategies for dysmenorrhea in New Zealand women is limited and out-of-date. This scoping review has highlighted the need for future research to update these data and encompass a range of ethnic groups, including Māori and Pacific peoples, as well as different geographical regions. This up-to-date data will quantify the current impact of dysmenorrhea among New Zealand women to inform appropriate development and implementation of treatment strategies.

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