ABSTRACT

Background and purpose: This study examines the relationship between the use of complementary medicine (CM) interventions or consultations with CM practitioners and women's choice of contraceptive method. *Materials and methods:* A secondary analysis of a cross-sectional survey of Australian Women aged 34-39 years from the Australian Longitudinal Study on Women's Health (ALSWH) was conducted. Associations between use of CM and contraception were analysed using Chi-squared tests and multivariate logistic regression. *Results:* Based on the responses from the included women (n=7299), women who consulted a naturopath/herbalist were less likely to use implant contraceptives (OR 0.56; 95% confidence interval (CI) 0.33; 0.95). Those consulting a chiropractor (OR 1.54; 95%CI 1.05; 2.25) or an osteopath (OR 2.16; 95% CI 1.32; 3.54) were more likely to use natural contraception. *Conclusion:* There may be a link between women's choice of contraceptive method and their use of CM, in particular, with CM practitioner consultations.

Keywords:

Contraception; complementary medicine; survey; women's health

1. INTRODUCTION

The use of complementary medicine (CM) – a broad array of treatments, practices and therapies not commonly included in conventional medical training [1] – is substantial in many countries throughout the world [2]. The users of CM are characterised as commonly female, mid-age and having more education when compared with non-users [3]. CM users also tend to have at least one medical condition and report poorer general health [3, 4]. However, additional factors such as the location of residence may also impact on CM use in Australia whereby people in rural areas may be more likely to use CM compared to their urban counterparts [4]. Links exist between attitudinal factors and CM utilisation in the general population including concerns about the safety of pharmaceutical medication [4]. Parallel to these attitudes, CM users may also be interested in CM due to a desire to reduce unwanted side effects from conventional medicine, dissatisfaction with standard care and to assist disease management [4].

1.1. Contraception as preventive medicine

Contraception – here defined as "a product or medical procedure that interferes with reproduction from acts of sexual intercourse" [5] - is recognised as an important pillar to preventive medicine at a global level [6]. Broad categories of the available contraceptive methods are barrier methods; hormonal methods; emergency contraception; intrauterine methods; and sterilisation [7]. The safety [8], effectiveness [9], accessibility and acceptability [10] of contraceptive methods varies substantially between methods and among population groups. The decision to use one particular contraception method is often made based upon all of these factors as well as whether the method is long-lasting and the degree to which use of the method is easily remembered by the couple [11]. However, the most dominant three attributes described by women as informing their choice of contraception is effectiveness, safety and side effects [11].

1.2. Contraception methods for reproductive complaints

In addition to the use of contraception in family planning, hormonal-based contraceptive methods are also recommended for the management of a range of reproductive symptoms and conditions [12]. These recommendations are sometimes irrespective of the poor evidence of efficacy of this approach to treatment [13]. In line with this, 52% of conventional care providers have identified as prescribing hormonal contraceptives to suppress menstruation in women with bleeding complaints in addition to, or irrespective of, the drug's action as contraceptive [14].

1.3. Contraception use in Australia

Over half of Australian women aged 18-49 years use some form of contraception [15]. Contraceptive methods most commonly used by women in Australia are the oral contraceptive pill (OCP) (30%) and condoms (23%), with long-term methods such as a contraceptive implant or intrauterine device (IUD) reported much less frequently (5%) [16]. OCP use declines as women age [17] while long-acting or permanent methods of contraception are more common among women living in inner regional or outer remote locations compared with women living in the major cities [18]. The choice of contraceptive method by women in Australia is influenced by the woman's aversion to real or perceived side effects [15] or overall dissatisfaction with the method [19]. Recommendations from medical doctors may also influence women's choice of contraceptive method [15].

1.4. Complementary medicine and reproductive health

A substantial prevalence of CM use has been reported in women attempting to conceive or improve their fertility [20], particularly in couples with diagnosed fertility issues [21], and in pregnant women [22]. Research has also identified CM use for the management of female sexual health complaints [23]. The relationship between CM use and other population-level

preventive medicine interventions, such as childhood immunisations, have also been examined and the underlying factors associated with CM use identified as heterogeneous [24]. Additionally, there is emerging evidence that some CM have specific benefit in the management of some female reproductive complaints [25]. Alongside this growing evidence base is an increased awareness of potential interactions between some specific CM and existing contraceptive methods [26] and a philosophical and practical conflict between CM and conventional medicine in the approach to management of female reproductive conditions [27]. With this in mind, the relationship between choice of contraception and use of CM practitioners and products warrants further investigation. To advance our empirical understanding, the study presented in this paper analysed whether consulting with CM practitioners or using a variety of CM interventions is associated with the use of particular contraception methods in Australian women aged 34-39.

2. MATERIALS AND METHODS

The study reported here was conducted using data from the Australian Longitudinal Study on Women's Health (ALSWH), which has been designed to assess health and wellbeing and associated factors in Australian women [28]. For the sub-study reported here, analyses focused on 9151 women from the ALSWH 1973-1978 cohort, aged between 34 and 39 years at the time of the 2012 survey.

2.1. Instrument

2.1.1. Contraception utilisation

The survey asked women whether they had been using a variety of contraception methods momentarily. The following methods were collated to oral contraception: combined OCP, progestogen-only OCP, and unknown type of oral contraceptive. For implants, the following categories were collated: implant (e.g. Implanon), copper intrauterine IUD, progestogen IUD

(e.g. Mirena), and vaginal ring (e.g. Nuvaring). Natural methods included the withdrawal method and the safe period method (e.g. natural family planning, rhythm method, Billings (ovulation) method, body temperature method, periodic abstinence). Furthermore, a separate category described the use of condoms.

The analysis excluded responses from women who indicated that they were trying to become pregnant. The analysis included responses from women who had recently given birth, had no sexual partner, or were unable to conceive for a variety of reasons as they may have used contraceptives for reasons other than contraception, e.g. hormonal conditions, prevention of sexually transmitted diseases.

2.1.2. Complementary medicine utilisation

The survey asked all participants if they had consulted a CM practitioner in the last 12 months (e.g. massage therapist, naturopath/herbalist, chiropractor, acupuncturist or other alternative health practitioners). It also asked how often they had used the following CM products and treatments in the past 12 months (e.g. vitamins/minerals, yoga/meditation, herbal medicines, Chinese medicines, other alternative therapies).

2.2. Statistical Analyses

Chi-squared tests were used to compare the use of contraceptive methods between those who had consulted a CM practitioner or used CM therapies vs. those who did not. Multiple logistic regression analyses were conducted to determine whether CM utilisation, i.e. consulting a CM practitioner or using CM therapies (independent variables), was associated with the use of oral contraceptives/implant contraceptives/natural contraception/condoms (dependent variables). Analysis of all predictor variables provided adjusted odds ratios with 95% confidence intervals. The analysis was also adjusted for socio-demographic characteristics and confounding

variables. Statistical significance was set at $p < 0.05$. All statistical analyses were performed using IBM SPSS ® software (IBM SPSS Statistics for Windows, release 22.0. Armonk, NY: IBM Corp.).

2.3. Ethical approval

The study was negligible/no risk as it employed secondary analysis of existing data, and as such was not required to be considered for ethical approval.

3. RESULTS

Of the 8009 women, 84 did not provide data on contraception, and 626 women were trying to get pregnant. As such these two groups of women were excluded from the analysis. Of the remaining women (n=7299), 35.1% reported using no contraception, 25.0% used oral contraception, 12.5% used implant based contraception, 10.8% used natural contraception, and 23.4% used condoms.

Table I shows the associations between consulting a CM practitioner and the use of contraception. Women were significantly less likely to use an oral contraception if they consulted a naturopath, acupuncturist, chiropractor, massage therapist or 'other CM' practitioner, (all $p<0.05$). The women were also less likely to have a contraceptive implant if they consulted with a naturopath, chiropractor, osteopath or 'other' CM practitioner (all $p<0.05$). Women were more likely to use a natural method of contraception if they reported consulting a naturopath, chiropractor, osteopath or 'other CM' practitioner, (all $p<0.05$), and more likely to use condoms if they consulted a naturopath, massage therapist or osteopath (all $p<0.05$). Women were more likely to report not using any contraception if they were consulting with a naturopath ($p=0.001$) or an acupuncturist ($p<0.001$).

Table II shows the associations between the use of CM therapies and contraceptive use with similar patterns. For almost all CM therapies there was a negative association with the use of oral or implant contraceptives, but positive associations with natural contraception methods and condom use ($p<0.05$). Women who reported no contraceptive use were more likely to report use of all CM except yoga/meditation ($p=0.20$).

Tables III and IV present the outputs from the adjusted logistic regression models. Women who consulted naturopaths/herbalists were less likely to use implant contraceptives (OR 0.56; 95% CI 0.33 to 0.95; $p=0.032$). Those consulting with chiropractors (OR 1.54; 95% CI 1.05 to 2.25; $p=0.026$) and osteopaths (OR 2.16; 95% CI 1.32 to 3.54; $p=0.002$) were more likely to use natural contraception. Women consulting with massage therapists were less likely to use condoms (OR 0.75; 95% CI 0.58 to 0.96; $p=0.022$). However, women consulting with osteopaths were more likely to use condoms (OR 1.65; 95% CI 1.12 to 2.45; $p=0.012$) and less likely to report not using any contraception (OR 0.62; 95% CI 0.43 to 0.90; $p=0.012$). Women consulting with a naturopath (OR 1.61; 95% CI 1.12 to 2.32; $p=0.01$) or acupuncturist (OR 0.62; 95% CI 1.09 to 2.33; $p=0.016$), Table III.

For the use of CM interventions, only a few were predictive of contraceptive use. Women using yoga frequently, for example, were less likely to use oral contraceptives (OR 0.61; 95% CI 0.38 to 0.97; $p=0.035$), while those with occasional use were more likely to use implant contraceptives (OR 1.36; 95% CI 1.02 to 1.80; $p=0.037$). Finally, those using other alternative therapies occasionally were more likely to use natural contraception methods (OR 1.82; 95% CI 1.14 to 2.90; $p=0.012$) and women who often take vitamin or mineral supplements were more likely to not use any contraception (OR 1.55; 95% CI 1.14 to 2.11; $p=0.005$), Table IV.

4. DISCUSSION

This study presents the first examination of the relationship between the use of CM and women's choice of contraception. The analysis identified some key findings of importance. Firstly, while correlations between specific complementary medicines and contraceptive methods were significant, there was no consistent pattern. Similar heterogeneity has been reported in other areas of preventive medicine such as attitudes towards childhood immunisations amongst CM users [29], as well as in other aspects of women's reproductive health including fertility treatment [21], preconception care [20] and pregnancy [22]. Factors reported in these previous studies as impacting on the use of CM include education level, health insurance coverage, health status, and attitudes towards health and health services. However, similar to our study, the impact of these factors varies based upon the use of specific CM. Overall, this study reinforces the need to view the various treatments, therapies and practices within the broad category of CM, individually.

This study identified lower rates of contraceptive use overall and implant contraceptive use in particular for women who visited a naturopath and a trend towards a significantly lower rate of oral contraceptive use among women consulting with a naturopath. It is unclear, due to the nature of the analysis, whether this relationship is due to the influence of the naturopath on women's contraceptive choice, or on the preference for women who do not use these categories of contraception to consult with a naturopath for their health care needs. It may be hypothesised that this correlation may be due to the naturopath preferring non-hormonal contraceptives based on a preference for supporting the natural physiological processes of the body [27]. It is also possible that naturopaths are encouraging women to use other contraceptive methods due to concerns about herb-drug interactions when managing other health conditions such as depression [26]. This lower rate of hormonal contraceptive use among women consulting with

a naturopath may also be linked to the naturopathic management of chronic reproductive complaints – an approach centring on balancing endogenous hormone production [27] - as these conditions are commonly reported amongst women consulting with a naturopath, particularly as it relates to fertility care [20]. While there is emerging evidence that some naturopathic treatments for hormonal irregularities may be effective [25], further research is needed. There is also a need to clarify the role of the naturopath in this observed pattern towards the lower use of hormonal contraceptives, particularly as it pertains to any impacts on women's health, women's fertility and their ability to undertake family planning.

Across other CM professions, the pattern of women's chosen method of contraception identified through our analysis falls outside of existing research. For example, the rate of non-hormonal methods of contraception was higher amongst women consulting with manual therapists (with the exception that condom use was lower amongst women who consulted a massage therapist). However, no previous research has been conducted which may assist in explaining this correlation. It is possible that this relationship may be indicative of the broader preference amongst CM users to prefer natural treatments over perceived synthetic or pharmaceutical interventions [4]. Underscoring this hypothesis is the reported influence of adverse effects and perception of safety upon women's choice of contraception [15, 19]. However, as there is no identified relationship between the use of CM products and the preference for natural contraception within our analysis, this hypothesis has limited application. A second possibility is that the higher use of non-hormonal therapy by women consulting with a manual therapist may be compounded by the health status of patients seeking manual therapy. Women consulting with a manual therapist may be more likely to be experiencing musculoskeletal complaints rather than the reproductive ailments which would commonly result in the use of hormonal therapy. As such, this pattern of higher use of non-hormonal methods of contraception may be patient driven based on needs and indicate reverse causality,

but this interpretation remains hypothetical until additional research examines the nature of the practitioner-patient relationship within these professions. Alternatively, the relationship between choice of contraceptive method and CM use may be incidental based upon women's location of residence, particularly given differences in the use of contraception [18] and the use of CM have been reportedly linked to rurality [4]. However, previous research reports different patterns for the two groups. Women in rural areas are more likely to use longer acting contraception [18]. Women living in a rural area also report higher rates of consultations with chiropractors [4] which correlates in our study with use of natural contraception. As such, residential location may not be influential in this relationship.

This study has several limitations. Self-reported data means women may not have recollected the use of all contraception correctly, and a social desirability bias cannot be ruled out. Also, as the data is cross-sectional, no causality can be determined through the analysis, and as such, there is limited ability to infer practice or policy directions from the data. On the other hand, the ALSWH is a comprehensive and well-respected source for epidemiological data and comprises of a large number of participants. The inclusion of the most important confounders within the regression models also provides strength to the analyses reported here. However, as this is the first examination of the relationship between CM and contraceptive use this study should be primarily viewed as hypothesis-generating as such requires further research to better explain the findings.

4.1. Implications for Practice and/or Policy

This data suggests an association between women's chosen contraceptive method and their consultations with CM practitioners. While the treatments used by CM practitioners are commonly of primary interest to researchers examining the safety and efficacy of CM, this analysis also highlights the need for health professionals and policymakers to be cognisant of

the more general health advice proffered by CM practitioners during their consultations with patients [30]. Many CM practitioners function as frontline or primary care health professionals within the health system and as such may be impacting public health outcomes in a number of areas including women's choice of contraceptive method [30]. While our data does not demonstrate causality, the significant association between consultation with CM practitioners and use of contraception does highlight the need to better understand the approach CM practitioners take to public health messages with their patients. This need has been emphasised in other areas of public health [29] but a focus on family planning has been missing to date. There may be a benefit to the general population for policy makers to ensure that CM practitioners are able to provide accurate, appropriate and evidence-based information on contraceptive methods if discussing family planning with their patients. Conventional health professionals may also benefit from understanding women's motivations for choosing CM as part of their health care and the relationship that has on their overall health decision-making.

5. CONCLUSION

There may be a link between women's choice of contraceptive method and their use of CM, in particular, with CM practitioner consultations. As such, there is a need for more information regarding the nature of advice and discussion about contraception occurring with CM practitioner-patient interactions. This study uncovers important and novel findings that impacts public and clinical health sectors and as such has relevance for women, clinicians, researchers and policymakers alike.

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