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Health services use among young Australian women with allergies, hayfever and sinusitis: A longitudinal analysis

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Health service;
Women

Summary

Objectives: The existing knowledge base on the use of complementary and alternative medicine among patients with allergies is built upon findings of cross-sectional surveys and there is a lack of longitudinal data. There is also a lack of studies that examine both the use of conventional medicine and complementary and alternative medicine among allergy patients.

Design and setting: : This paper reports the findings of the first ever longitudinal study of the use of conventional providers, practitioners of complementary and alternative medicine, and self-prescribed modalities amongst women with allergies, hayfever and sinusitis from a large nationally representative sample.

Main outcome measures: : Analysis focused upon data from 7538 women from the younger cohort of the Australian Longitudinal Study on Women's Health collected between 1996 and 2006. Chi-square tests were employed to compare the groups across consultations and self-prescribed treatments and one-way analysis of variance was used to compare the groups across health status. A modified Bonferroni test was used to correct for multiple comparisons.

Results: The study identified that women who sought help for their allergic disorder were more likely to consult a range of practitioners and self-prescribed complementary and alternative

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medicine than women who either did not seek help or did not have allergic disorders. The analysis shows that many women with allergic disorders use complementary and alternative medicine alongside or as a complement to conventional healthcare services.

Conclusions: The frequent use of a range of conventional providers and practitioner-based and self-prescribed complementary and alternative medicine amongst women with allergic disorders warrants further investigation.

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Introduction

Allergies have become a major public health challenge over recent decades with an increase in the prevalence of allergic disorders such as sinusitis, asthma, hayfever and atopic eczema in the developed world.^{1–3} Recent epidemiological studies suggest that the increase in allergic disorders is attributable, at least in part, to processes of urbanisation and western lifestyles which feature reduced microbial burden during childhood.⁴ As the share of the global population living in urban areas is projected to reach 6.3 billion in 2050,⁵ the number of persons suffering from allergic disorders appears set to continue to rise.

Allergies place a heavy burden on healthcare systems worldwide.⁶ In 2007, hayfever, chronic sinusitis and asthma were the most frequently reported long-term health conditions in Australia.⁷ Australia also has a high prevalence of asthma when compared with other countries⁸ and the prevalence of asthma in Australian children is amongst the highest in the world.⁹

There is evidence that the use of complementary and alternative medicine (CAM) – a range of healthcare practices and products not traditionally associated with biomedicine – is popular among patients of allergic disorders.¹⁰ In 2007, asthma, sinusitis and other allergies were ranked eighth, ninth and tenth in conditions treated with CAM for US children under 18 years old.¹¹ More broadly, international surveys of CAM consumption among patients with allergies have reported a prevalence rate of between 18% and 65%.^{10,12–16}

Accompanying the increase in prevalence of CAM among patients with allergies has been a growing interest in CAM amongst conventional practitioners in recent years.^{17–19} According to Bielory,²⁰ allergy is an area of medicine that has experienced a large increase in the popularity of CAM, second only to practitioners who treat lower back pain. There have been calls for additional CAM education for clinical immunologists.^{18,21} Although the evidence base of CAM use for allergies is developing rapidly,^{22–24} the benefits and risks of CAM in treating and managing allergic conditions remain contentious issues.^{25,26} Previous studies also reveal only a small proportion of patients with allergies inform their doctor about their use of CAM.^{12,15,27,28}

Like findings from general population surveys,^{11,29,30} studies of people with allergies confirm CAM users as more likely to be younger, female and with a higher educational background than those who do not use CAM.¹³ Studies suggest patients with allergies are motivated to use CAM as a result of: dissatisfaction with conventional medication; a

perception of fewer side-effects and the influence of social networks.^{13,31} There is also evidence that people with allergies who use CAM have higher life satisfaction and better quality of life than CAM non-users with allergy.³² However, the existing knowledge base on CAM use among patients with allergies is built upon findings of cross-sectional surveys and there is a lack of longitudinal data that reveals trends and patterns of CAM consumption and their relation to the use of conventional medicine over time among people with allergies. There is also a shortage of studies that examine both the use of conventional medicine and CAM among allergy patients. The present study directly addresses these gaps in the evidence.

Methods

Sample

This research was conducted as part of the Australian Longitudinal Survey of Women's Health and was approved by the Human Ethics Committee at the University of Queensland and University of Newcastle. The Australian Longitudinal Survey of Women's Health was designed to investigate multiple factors affecting the health and wellbeing of women over a 20-year period. Women in three age groups ('young' 18–23, 'mid age' 45–50 and 'older' 70–75 years) were randomly selected from the national Medicare database.³³ The focus of this study is women from the young cohort who have been surveyed four times over a ten year period (1996–2006). The baseline survey, survey 1 ($n = 14,779$), was conducted in 1996 and the respondents have been shown to be broadly representative of the national population of women in the target age groups.³³ Survey 2 was conducted in 2000, survey 3 was conducted in 2003 and survey 4 was conducted in 2006. Analyses for this study are restricted to the two most recent surveys (2003, 2006) as questions on individual CAM practitioners were only asked in these two surveys.

Measures of health service use and self-prescribed treatments

The women were asked about their frequency of use in the previous twelve months of a GP and a specialist doctor. In addition, they were asked if they had consulted with a range of conventional providers (i.e. hospital doctor, physiotherapist) and CAM practitioners (i.e. chiropractor, massage therapist, acupuncturist, naturopath/herbalist,

other CAM practitioner), as well as their consumption of self-prescribed CAM (i.e. vitamins/minerals, meditation/yoga, herbal medicines, aromatherapy oils, Chinese medicine) in the previous twelve months.

Measure of health status

The Short-Form 36 (SF-36) Quality of Life questionnaire was used to produce a measure of health status and quality of life.³⁴ Results of the SF-36 were reported in eight dimensions (bodily pain, general health, mental health, physical functioning, role emotional, role physical, social functioning, vitality).³⁴ The scores are standardised to a mean of 50 and standard deviation of 10, with higher scores representing better health.³⁵

Outcome measure

Women were asked if they had sought help for allergies, hayfever or sinusitis in the previous twelve months.

Statistical analyses

One-way analysis of variance was used to compare the allergies, hayfever or sinusitis groups across the eight SF-36 Dimensions. Chi-square tests were used to compare allergies, hayfever or sinusitis groups across consultations and self-prescribed treatments. To correct for multiple comparisons, a modified Bonferroni test was used.³⁶ All analyses were conducted using the statistical software SAS 9.2.

Results

There were 7538 women who answered the question regarding allergies, hayfever, sinusitis (AHS) in survey 4 (2006), of which the prevalence of women who experienced AHS sometimes or often was 44.3%. Overall, the percentage of women who sought help for their AHS was 17.0% ($n = 1280$).

Table 1 shows the mean value for the eight SF-36 dimensions across the AHS groups. Women who sought help for their AHS had significantly poorer health than women who did not have AHS for all eight dimensions ($p < 0.005$). Women who sought help for their AHS had significantly poorer health than women who did not seek help for their AHS for the dimensions of bodily pain, general health, physical functioning, role emotional (i.e. the extent to which emotional health affects work or other daily activities), role physical (i.e. the extent to which physical health affects work or other daily activities) and social functioning ($p < 0.005$). There was no significant difference between these two groups for the dimensions of mental health and vitality. With the exception of role emotional and social functioning dimensions, women who did not seek help for their AHS had significantly poorer health than women who did not have AHS for all other dimensions ($p < 0.005$).

In terms of the number of different CAM modalities and different conventional practitioners (data not shown), women who sought help for AHS consulted on average 1.1 (SD = 1.1) CAM practitioners and 2.1 (SD = 1.0) conventional practitioners, while women who did not seek help

for AHS consulted 0.8 (SD = 1.0) CAM practitioners and 1.9 (SD = 1.1) conventional practitioners, and women who did not have AHS consulted 0.7 (SD = 0.9) CAM practitioners and 1.9 (SD = 1.0) conventional practitioners. The differences in average number of CAM and conventional consultations were statistically significant ($p < 0.005$) between women who sought help for AHS and women who did not seek help for AHS or women who did not have AHS. Of the women who sought help for their AHS, 11% consulted three or more CAM practitioners, whereas 8% of women who did not seek help for their AHS and 7% of women who did not have AHS consulted three or more CAM practitioners ($p < 0.001$).

Of the women who sought help for AHS, 1% consulted with a CAM practitioner only, 41% consulted with a conventional practitioner only and 58% consulted with both a conventional practitioner and CAM practitioner. For the women who did not seek help for AHS, 1% consulted with a CAM practitioner only, 47% consulted with a conventional practitioner only, 52% consulted with both a conventional practitioner and CAM practitioner and 1% consulted with neither. For the women who did not have AHS, 1% consulted with a CAM practitioner only, 49% consulted with a conventional practitioner only, 47% consulted with both a conventional practitioner and CAM practitioner and 3% consulted with neither. These differences in consultations was statistically significant ($p < 0.005$).

Table 2 examines the association between the AHS groups and consultations with conventional care providers and CAM practitioners. Women who sought help for their AHS were more frequent visitors to a GP and a specialist and were more likely to visit a physiotherapist, naturopath/herbalist or other CAM practitioner, compared to women who did not seek help for their AHS and to women who did not have AHS. In addition, women who sought help for their AHS were more likely to visit a GP, specialist, physiotherapist, chiropractor, massage therapist, naturopath and other CAM practitioner than women who did not have AHS. All associations were statistically significant ($p < 0.005$). Of note is that of the women who sought help for their AHS 18% consulted a naturopath/herbalist and 41% consulted a massage therapist.

Table 3 shows that women who sought help for their AHS were significantly more likely to self-prescribe vitamins/minerals, herbal medicines and Chinese medicine than women who did not seek help for AHS and did not have AHS ($p < 0.005$). Women who sought help for their AHS were also significantly more likely to self-prescribe vitamins/minerals, herbal medicines, meditation/yoga, aromatherapy oils and Chinese medicine than women who did not have AHS ($p < 0.005$). In addition, women who did not seek help for their AHS were significantly more likely to self-prescribe aromatherapy oils than women without AHS ($p < 0.005$).

Table 4 illustrates a comparison of the consulting patterns of the women in 2003 and 2006. Compared to women who only sought help for AHS in 2006, women who sought help for AHS in both 2003 and 2006 were significantly more likely to consult with a chiropractor, osteopath and massage therapist ($p < 0.005$). For all other CAM practitioners and conventional practitioners there were no statistically significant differences between these two groups of women. Compared to those women who only sought help for AHS in 2003,

Table 1 Comparison of allergies groups across the eight SF-36 Dimensions in 2006.

SF-36 Dimensions	No allergies		Allergies: sought help		Allergies: did not seek help	
	Mean	SD	Mean	SD	Mean	SD
Bodily pain ^{†,^,‡}	77.5	(20.1)	70.6	(21.8)	73.6	(20.6)
General health ^{†,^,‡}	76.7	(17.7)	69.1	(21.0)	73.2	(19.0)
Mental health ^{†,^}	73.6	(16.5)	70.5	(16.9)	71.9	(16.7)
Physical functioning ^{†,^,‡}	92.2	(14.4)	89.2	(16.1)	91.0	(14.3)
Role emotional ^{†,‡}	81.6	(33.1)	75.3	(36.6)	79.2	(33.5)
Role physical ^{†,^,‡}	82.5	(31.7)	74.6	(36.8)	79.5	(33.5)
Social functioning ^{†,‡}	82.6	(21.7)	78.2	(23.1)	81.5	(21.8)
Vitality ^{†,^}	56.4	(19.8)	51.9	(20.1)	53.4	(19.7)

[†] Statistically significant difference between no allergies and allergies: sought help ($p < 0.005$).

[^] Statistically significant difference between no allergies and allergies: did not seek help ($p < 0.005$).

[‡] Statistically significant difference between allergies: sought help and allergies: did not seek help ($p < 0.005$).

women who sought help for AHS in both 2003 and 2006 were significantly more likely to consult with a GP ($p < 0.005$). For all other CAM practitioners and conventional practitioners there were no statistically significant differences

between these two groups of women. Those women who did not seek help for AHS in either 2003 or 2006 had significantly fewer consultations than the other 3 groups of women for specialist, physiotherapist, chiropractor massage

Table 2 Comparison of allergies, hayfever and sinusitis (AHS) groups against conventional care providers and CAM practitioners in 2006.

Consultations		Had AHS — did not seek help ($n = 3432$) %	Had AHS — did seek help ($n = 1280$) %	Did not have AHS ($n = 2881$) %	p
GP visits ^{†,⊗,‡}	0	5	1	6	<0.001
	1–2	35	24	38	
	3–4	30	33	29	
	≥5	30	42	27	
Specialist visits ^{†,⊗}	0	54	48	56	<0.001
	1–2	25	28	23	
	≥3	21	24	21	
Hospital doctor	Yes	24	26	24	0.360
	No	76	74	76	
Physiotherapist ^{†,⊗}	Yes	18	23	16	<0.001
	No	82	77	84	
Chiropractor ^{⊗,‡}	Yes	16	18	13	<0.001
	No	84	82	87	
Osteopath	Yes	5	6	5	0.188
	No	95	94	95	
Massage therapist ^{⊗,‡}	Yes	38	41	34	<0.001
	No	62	59	66	
Acupuncturist	Yes	6	7	6	0.165
	No	94	93	94	
Naturopath/herbalist ^{†,⊗}	Yes	12	18	11	<0.001
	No	88	82	89	
Other CAM practitioner ^{†,⊗}	Yes	8	11	8	0.002
	No	92	89	92	

[†] Statistically significant association: allergies, did not seek help vs. allergies, did seek help ($p < 0.005$).

[‡] Statistically significant association: allergies, did not seek help vs. no allergies ($p < 0.005$).

[⊗] Statistically significant association: allergies, did seek help vs. no allergies ($p < 0.005$).

Table 3 Comparison of allergies, hayfever and sinusitis (AHS) groups against self-prescribed CAM in 2006.

Self-prescribed treatments		Had AHS — did not seek help (n = 3432) %	Had AHS — did seek help (n = 1280) %	Did not have AHS (n = 2881) %	p
Vitamins/minerals ^{†,⊗,‡}	Yes	66	72	62	<0.001
	No	34	28	38	
Meditation/yoga [⊗]	Yes	21	24	19	0.002
	No	79	76	81	
Herbal medicines ^{†,⊗,‡}	Yes	20	25	16	<0.001
	No	80	75	84	
Aromatherapy oils ^{⊗,‡}	Yes	23	26	17	<0.001
	No	77	74	83	
Chinese medicine ^{†,⊗}	Yes	4	6	4	0.003
	No	96	94	96	

[†] Statistically significant association: allergies, did not seek help vs. allergies, did seek help ($p < 0.005$).

[‡] Statistically significant association: allergies, did not seek help vs. no allergies ($p < 0.005$).

[⊗] Statistically significant association: allergies, did seek help vs. no allergies ($p < 0.005$).

Table 4 Comparison of when a woman sought help for allergies, hayfever and sinusitis (AHS) against conventional care providers and CAM practitioners.

Consultations		Sought help for AHS in 2003 and 2006 (n = 303) %	Sought help for AHS in 2006 (n = 977) %	Sought help for AHS in 2003 (n = 1,157) %	Did not seek help for AHS in 2003 or 2006 (n = 5,156) %	p
GP ^{†,⊗,Δ,*}	Yes	99	99	95	95	<0.001
	No	1	1	5	5	
Specialist ^{⊗,*}	Yes	58	50	52	43	<0.001
	No	42	50	48	57	
Hospital doctor	Yes	24	26	26	23	0.136
	No	76	74	74	77	
Physiotherapist ^{⊗,*}	Yes	28	21	25	15	<0.001
	No	72	79	75	85	
Chiropractor ^{†,⊗,*}	Yes	30	15	31	11	<0.001
	No	70	85	69	89	
Osteopath ^{†,⊗,Δ}	Yes	10	5	10	4	<0.001
	No	90	95	90	96	
Massage therapist ^{†,⊗,*}	Yes	53	38	49	33	<0.001
	No	47	62	51	67	
Acupuncturist [⊗]	Yes	9	7	9	5	<0.001
	No	91	93	91	95	
Naturopath/herbalist ^{⊗,*}	Yes	22	17	17	11	<0.001
	No	78	83	83	89	
Other CAMPractitioner ^{⊗,*}	Yes	14	10	12	7	<0.001
	No	86	90	88	93	

[†] Statistically significant association: sought help in 2003 and 2006 vs. sought help in 2006 only ($p < 0.005$).

[‡] Statistically significant association: sought help in 2003 and 2006 vs. sought help in 2003 only ($p < 0.005$).

[⊗] Statistically significant association: sought help in 2003 and 2006 vs. did not seek help ($p < 0.005$).

^Δ Statistically significant association: sought help in 2006 only vs. sought help in 2003 only ($p < 0.005$).

^{*} Statistically significant association: sought help in 2006 only vs. did not seek help ($p < 0.005$).

[■] Statistically significant association: sought help in 2003 only vs. did not seek help ($p < 0.005$).

Table 5 Comparison of when a woman sought help for allergies, hayfever and sinusitis (AHS) against self-prescribed CAM.

Self-prescribed treatments		Sought help for AHS in 2003 and 2006 (<i>n</i> = 303) %	Sought help for AHS in 2006 (<i>n</i> = 977) %	Sought help for AHS in 2003 (<i>n</i> = 1157) %	Did not seek help for AHS in 2003 or 2006 (<i>n</i> = 5156) %	<i>p</i>
Vitamins/minerals ^{⊗,*,■}	Yes	75	71	70	63	<0.001
	No	25	29	30	37	
Meditation/yoga ^{⊗,■}	Yes	27	23	24	20	<0.001
	No	73	77	76	80	
Herbal medicines ^{⊗,*,■}	Yes	30	23	24	17	<0.001
	No	70	77	76	83	
Aromatherapy oils ^{⊗,*,■}	Yes	31	24	25	19	<0.001
	No	69	76	75	81	
Chinese medicine [⊗]	Yes	7	6	5	4	<0.001
	No	93	94	95	96	

† Statistically significant association: sought help in 2003 and 2006 vs. sought help in 2006 only ($p < 0.005$).

‡ Statistically significant association: sought help in 2003 and 2006 vs. sought help in 2003 only ($p < 0.005$).

Δ Statistically significant association: sought help in 2006 only vs. sought help in 2003 only ($p < 0.005$).

⊗ Statistically significant association: sought help in 2003 and 2006 vs. did not seek help ($p < 0.005$).

* Statistically significant association: sought help in 2006 only vs. did not seek help ($p < 0.005$).

■ Statistically significant association: sought help in 2003 only vs. did not seek help ($p < 0.005$).

therapist, naturopath/herbalist, and other CAM practitioner ($p < 0.005$).

The patterns of self-prescribed CAM use amongst the women in 2003 and 2006 are shown in Table 5. Women who sought help for AHS in 2003 and/or 2006 were more likely to self-prescribe vitamins/minerals ($p < 0.005$), herbal medicines ($p < 0.005$), and aromatherapy oils ($p < 0.005$) than women who did not seek help for AHS. Women who sought help for AHS in 2003 and 2006 were more likely to self-prescribe meditation/yoga ($p < 0.005$) and Chinese medicine ($p < 0.005$) than women who did not seek help for AHS. There was no difference in self-prescribing patterns between women who sought help for AHS in both 2003 and 2006 and women who only sought help for AHS in 2006 or only in 2003.

Discussion

Analysis of our data indicates that women who seek help for AHS were more likely to consult with massage therapists, naturopaths/herbalists, chiropractors and to self-prescribe a whole range of CAM modalities when compared to women who either did not seek help or did not have AHS. The data also suggest that these patterns of CAM use prevail regardless of the length of time the women have AHS and when they sought help for their conditions. In addition, the longitudinal data indicate that women with AHS begin using conventional, but with time expand to self-prescribed and consulting CAM practitioners. This finding provides insight into the relationship between conventional and CAM treatments, which is an important area that remains unexamined in previous studies of people with AHS conditions.^{10–15} In particular, the resultant data reveal how use of CAM, self-prescribed CAM and conventional medicine for AHS may be

differentially utilised over time, in turn indicating varying reasons for engaging with providers.

This study clearly demonstrates that a large proportion of women with AHS are attracted to the use of conventional and CAM therapies concurrently. The findings that a substantial proportion of the women (regardless of whether they have AHS or not) consulted both a conventional practitioner and CAM practitioner and that the use of a GP for AHS is greatest for those with long-term AHS suggest that CAM use is a supplement rather than a substitute for conventional health care services. At the same time, the decrease in using only conventional practitioners and the increase in use of both conventional and non-conventional health services among women who have AHS (compared to those who do not have AHS) indicate that women turn to CAM for help when they find that conventional medicine alone does not solve their AHS condition.

The interpretation of our findings is limited by the fact that the health and health care utilisation data is self-reported by the participants and as such our results may be open to the effects of recall bias. It is also unclear from the data whether the women used CAM for the treatment of their AHS conditions or for the improvement of general wellbeing. In addition, the extent of CAM use might also be related to the severity of the AHS, which is not covered in the ALSWH questionnaire. Nevertheless, these limitations are by far outstripped by the insight gained through collecting and analysing such a large, nationally-representative sample over time.

The discovery of frequent use of a range of CAM amongst women with allergic disorders warrants further investigation on efficacy as well as cost-effectiveness of these treatments for AHS. The findings of our study also support the calls for better understanding of CAM among practitioners in the speciality of immunology.^{17,21} In particular, the prevalence of

CAM consumption amongst AHS women highlights the importance of conventional health practitioners discussing CAM use with their patients and considering possible interactions between conventional and CAM treatments. Conventional practitioners should be aware that the majority of AHS patients seeking help will be using, or will have previously used CAM prior to consultation. Such physician–patient discussions regarding past and current CAM consumption will be a highly significant development in terms of safety and continuity of care especially when considered alongside the fact that many patients do not inform their doctor about their use of CAM for allergic disorders.^{12,15,27,28}

With a surge in the prevalence of allergies, hayfever and sinusitis in the developed world and a concurrent steady rise in consumption of CAM, there is an urgent need for research to examine health consumption behaviours in this specific context given the potential risks and benefits associated with the use of this kind of medicine. This longitudinal study of the use of health services amongst women with AHS reveals important information about the prevalence of CAM consumption among these women as well as their health-seeking behaviour over time. In line with findings of international cross-sectional surveys,^{10–16} this Australian study confirms that the use of CAM practitioners and self-prescribed CAM modalities is high among women with AHS. This is particularly the case among women who seek help for their AHS conditions. It is recommended that future rigorous qualitative studies be conducted to investigate the perception and experience of CAM use among these women as well as explore the ways cultural and biographical details shape their adoption of these treatments.

Conflict of interest

The authors declare that there is no conflict of interest.

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