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Psychological well-being, mid-life and the menopause

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Abstract

Few studies of women's health in the menopausal years have formally assessed well being. The present study aimed to determine whether well-being during mid-life related to menopausal status, social circumstance, health status, interpersonal stress, attitudes and lifestyle behaviours. A random sample of 2000 Melbourne women aged 45–55 years were sought by random digital telephone dialling. A response rate of 70.6% was achieved. Interviews conducted on the telephone included a well-being scale — the Affectometer 2. The final data set, comprising 1503 individuals, was subjected to analyses of variance. Menopausal status did not significantly affect well-being. Well-being was found to be significantly related to current health status variables of general psychosomatic symptoms, general respiratory symptoms, history of premenstrual complaints, overall health assessment and interpersonal stress. Attitudes to ageing and to menopause were also significantly related to well-being scores. Lifestyle behaviours of smoking, exercise and marital status were also significantly related to well-being. Thus well-being of urban Australian-born, mid-aged women was related to current health status, psychosocial and lifestyle variables rather than to endocrine changes of the menopause.

Keywords: Menopause; Well-being; Mid-life; Psychological; Mood

1. Introduction

In 1946 the World Health Organization defined health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'. Member nations reaffirmed this definition in 1978 in the Alma Ata Declaration and utilising this positive construct of health, outlined a fundamental health strategy of health promotion and of preventive health services. Yet emphasis on symptoms, diseases and disorders (indicators of ill-health) continues to pervade much of the medical literature. Research on the menopause has an overwhelming focus on pathology and medical treatments and has led to increasingly vocal critiques of the apparent medicalization of a normal part of women's experience [1–2].

Studies of the psychological aspects of the menopause have similarly highlighted morbidity, such as depression and other psychological symptoms [3]. An underlying theme in much western

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medical literature is that the menopausal woman is depressed, anxious and low in self-esteem [3]. Ballinger [4] attributes these negative viewpoints to the experience of gynaecologists with patients who seek their help. Clinic attendance is determined by a range of personal, social and cultural factors [5]. Several studies have confirmed that women who seek medical help for menopausal symptoms differ on many variables from women of the same age and menopausal status [6,7] and are likely to report more distress [8]. Conflicting findings in the literature have also reflected other methodological problems of menopause research. Major problems have included those of inadequate description and definition of the menopausal status of the women investigated, problems of recall and expectancy bias, and the failure to define concepts and use validated psychological measuring instruments [3]. Surveys which have drawn their samples from general populations rather than menopause clinics contradict assertions that the menopause has a negative effect on mental health [4]. No increase in the incidence of major depression associated with the menopause has been demonstrated [9]. Depression was not associated with the natural menopause transition but was associated with surgical menopause [10]. Some studies suggest a small increase in psychological symptoms in the premenopausal years [11–13], while in others no perimenopausal change was evident [14,15], or the increase was not significant [10]. Social and family factors were found to be more important in the aetiology of psychological morbidity than were physiological changes [4].

Few studies have addressed psychological well-being during the menopausal transition. Journal article titles may be misleading so that articles purporting to measure well-being in fact address illness-measures. For example Adelmann et al. [16] entitled their study 'Empty nest, cohort and employment in the well-being of midlife women'. The psychological well-being measure used was based on indices derived from factor analysis from a checklist of 20 symptoms including anxiety, immobilisation and physical health. In a paper entitled 'Emotional well-being, sexual behaviour and hormone replacement therapy' Hunter [17] fails to discuss the construct of well-being and instead describes the results of studies measuring psychological symptoms, depression scales, attitudes and help-seeking behaviours. Only one of the studies reviewed included a measure of well-being, and this measure was utilised only during the pilot phase of the study [3]. This pilot study of 148 women patients of a family practitioner found no significant changes in well-being, assessed by the Bradburn Index of Well-being [18] in women of differing menopausal status.

This paper provides further evidence of the relationship between well-being during mid-life and menopausal status. A second aim is to establish the relationship between well-being and other factors such as differing social circumstances, health status, stress, attitudes and lifestyle behaviours.

The construct of well-being used in this paper was derived from the work of Bradburn [18] who considered that well-being was a quality of experience that arises from the relative prevalence of good and bad feelings or positive and negative affect. Kammann et al. [19] suggest that global life satisfaction and the balance of affect come very close to an identity of meaning and that both of these interpret the phrase 'sense of well-being'. They also recognised that well-being is a degree word and that people may experience any number of gradations between the extremes of well-being, between complete happiness and total misery. Kammann et al. [19] examined the intercorrelations and factor structures of 13 well-being scales and found that there were many plausible scales available but some of these were better than others in measuring general well-being. Factor analysis demonstrated a common dimension of experience with many scales loading highly on a general well-being factor. It was further found that scales of depression, anxiety and the dimension of neuroticism appear to be measuring the negative region of an overall well-being spectrum, but well-being could not necessarily be inferred from scales which measured negative mood only [18].

2. Methods

Data presented here are drawn from the baseline cross-sectional phase of the Melbourne Women's Midlife Health Study. This phase involv-

ed a survey of a random sample of 2000 Melbourne women during 1991. The symptomatology experienced is described in a separate report [20]. The study was approved by the Human Research Ethics Committee of the University of Melbourne.

2.1. Subject acquisition

Subjects eligible to enter the study were those women who were Australian-born, and aged between 45 and 55 years inclusive at the time of interview. They were contacted by random selection of telephone numbers from the Melbourne White Pages. Subjects completed a 20–25 min interview by telephone conducted by trained interviewers.

2.2. Measures

The Melbourne research team were allowed access to a questionnaire [21] carefully constructed by Kaufert and McKinlay, used with a sample of 2500 Manitoba women [21] and as the basis for a study of 8050 women in Massachussets [22]. The original questionnaire was also modified and used by Locke [23] in Japan. A description of the variables utilised in the Melbourne study follows.

Psychological well-being. A validated measure of psychological well-being was utilised — the Affectometer 2 [24]. Patterned on Bradburn's Affect Balance Scale [18], the Affectometer 2 differs in the content and selection of items. Findings indicate high reliability and high validity [24]. The Affectometer provides three measures of psychological well-being, a measure of positive affect, a measure of negative affect, and an overall measure of well-being which was the difference between the positive affect and negative affect scales [24]. Positive affect and negative affect are inversely correlated on this scale with an r of -0.66. Each scale contains ten adjectives with the score being the mean of responses. In the current study women are asked whether, in the last week, they had felt that way most of the time, often, sometimes, or hardly ever. This differs from Kammann and Flett [24] who described 5 possible responses to each question. The scale was simplified for ease of administration by telephone. The distributional characteristics and degree of inter-correlation among the scores were similar to those published [24], suggesting that the validity and reliability of the measures were not significantly affected.

Demographic variables. Date of birth, marital status, parity, level of education completed and current employment status were recorded. Additionally, current living arrangements were explored with respondents identifying whether they lived with: their partner; any of their children; their parents or parents-in-law; other adults; or, whether they lived alone. Sexual orientation was not included in this study, but will be examined in the prospective study currently underway.

Menopausal status. Women who were using the oral contraceptive pill are excluded from the analysis. Respondents who were using hormone replacement therapy were assigned a separate menopausal status and were treated separately in the analyses carried out in the present study.

Following Avis and McKinlay [25] and others, we adopt a three stage classification for (non-surgical) menopause. Natural menopause was determined to have occurred if no menses had occurred in the prior twelve months and the respondent had not undergone hysterectomy and/or bilateral oophorectomy. If menses had been reported in the prior twelve months, but there were any changes in menstrual frequency or flow, the respondents were classified as being perimenopausal. Respondents were identified as premenopausal if they had experienced no changes in menstrual frequency or flow in the prior twelve months. For the purpose of comparability with other studies, hysterectomy and/or bilateral oophorectomy were placed in a separate category of 'surgical menopause'.

Health status. A number of measures of health status were available. Firstly, in a separate single question, each respondent was asked to evaluate their health as worse, the same, or better than her peers. Secondly, a checklist of 22 common symptoms [26] was included and respondents indicated which had bothered them in the two weeks prior to interview. Following factor analysis [20], the symptoms were grouped to construct three new explanatory variables. Separate binary variables were used to distinguish between those who had experienced no, or only one general psychosomatic or respiratory symptom, from those who had ex-

perienced two or more. A simple three level factor was used to explore differences among women who had experienced neither, either or both vasomotor symptoms.

Three additional measures of health status related to chronic conditions and the use of prescription and non-prescription medication. Specifically, a dichotomous variable identified those who were currently under treatment for any of: diabetes; asthma; allergies or eczema; hypertension; heart disease; stomach or bowel ulcers; arthritis or rheumatism; cancer and migraine, from those who were not under such treatment. Also, dichotomous variables separated those who were currently taking one or more prescription medications from those who were not, and those who were taking two or more non-prescription medications from those who were taking none or one.

Respondents were asked if they had ever experienced premenstrual, physical or psychological changes. These premenstrual changes were classified as premenstrual complaints if they were considered to be problematic and of moderate or higher intensity, (that is, causing personal distress and/or affecting work and relationships).

An additional measure of health status used was body mass index (kg/m^2) which was coded as a three level factor: < 20; 20–25; and > 25.

Lifestyle related behaviours. Three measures of health related behaviours were included. The first behaviour was current smoking (Yes/No). The second measure was exercise, with those women who engaged in exercise for fitness or recreational purposes at least once a week being considered to be exercisers. Thirdly, those women who had consumed alcoholic drinks in the previous week were identified as drinkers (Yes/No).

Interpersonal stress. Respondents indicated whether anyone close to them had been particularly demanding, had caused them worry, had been seriously ill or had died within the prior twelve months. This was used as a surrogate measure of interpersonal stress, with those respondents who identified no more than one source of stress being considered to have experienced a low level of stress; those who identified two or three sources being considered to have experienced a moderate level of stress, and those identifying more than three sources being considered to have experienced a high level of stress.

Attitudes to ageing. Six items explored the respondent's attitudes to ageing and were based on those developed by Kaufert [3]. The items asked women whether they worried about being too old to have children, being less physically attractive, children moving away, having a reduced income, deaths of other people close to the respondent, and the death of the respondent coming closer. As two of the items dealt with either having had children or the ability to have children, they related not only to the respondent's parity, but also to whether or not she was surgically menopausal. In order to compute a single scale therefore, it would have been necessary to have excluded women with a parity of zero or who had experienced surgical menopause. Given that such a reduction in the scope of the study was considered undesirable, the items were retained as individual variables.

Responses to each of the above items were either 'a lot', 'a little', or 'not at all', except in the case of the two items relating to having had children or the ability to have children where the additional category of 'not applicable' was available.

Attitudes to menopause. Seven items explored the respondent's perceptions of how most women viewed menopause. The items consisted of a statement to which the respondent replied that most women believed, some women believed, or hardly any women believed the statement. Statements were: (a) women get depressed or irritable during menopause; (b) women with many interests in their lives hardly notice menopause; (c) women worry about losing their minds during menopause; (d) women think that they are no longer 'real' women after menopause; (e) menopause does not cause women to change in any important way; (f) women regret when their periods stop for the last time; (g) men and women think that menopause means the end of a meaningful life. These questions were based on statements used by Neugarten et al. [27], Kaufert [3] and more recently by Avis and McKinlay [25].

2.3. Statistical analysis

Analysis of variance (ANOVA) was the technique selected for analysis. Each of the three mea-

sures of well-being (positive affect, negative affect and overall well-being) was subjected to a separate analysis. Explanatory variables were treated as discrete blocks. The blocks were demographic (age, marital status, parity, years of education, employment status and living arrangements), health status (menopausal status, self-rated health, general psychosomatic symptoms, general respiratory symptoms, the number of vasomotor symptoms, the use of one or more prescription medications, the use of two or more non-prescription medications, being under treatment for one or more chronic conditions, stress, previous or current premenstrual complaints and body mass index), health behaviours (current smoking, drinking alcohol in previous week and exercising at least once a week), attitudes to ageing (six items) and attitudes to menopause (seven items).

One-way ANOVA was used to determine which of the variables in each of the blocks were related to any of the three dependent variables. In the case of age and parity, correlations were used as the measure of association.

After the significant variables in each of the blocks had been identified, ANOVA was used for each of the blocks. Variables were entered on the basis of the significance determined by one-way ANOVA (as measured by the sum of squares attributable to the particular variable) and any variable whose significance was not supported by the analysis of variance was discarded. A final analysis then included each of the significant variables retained in the analysis of variance and the significance of second-order interactions was determined.

3. Results

3.1. Sample

A total of 2938 numbers resulted in identifying women eligible to enter the study. Of those, 105 were unavailable through being either ill or absent for the duration of the study (if respondents were not available to speak at that time, appointments to conduct interviews could be made any time in the following two weeks). Of the remaining 2833, 832 women refused to take part in the study, or had someone else refuse on their behalf. Thus, the response rate among those women eligible and available for the study was 70.6% (2001/2833).

Preliminary analysis and/or subsequent contact indicated that, contrary to the subject's statement of eligibility, 39 were too young, 26 were too old, 12 refused to give their date of birth and four were not born in Australia. A further seven subjects were excluded from analysis when they proved unsure of whether they had a hysterectomy and/or bilateral oophorectomy thus making the determination of their menopausal status impossible. The same reason lead to the exclusion of 16 subjects who were using the oral contraceptive pill, bringing the number of responses eligible for analysis to 1897. Of those, 78.7% were married and the median age was 50 years. Ten or more years of formal education was completed by 48.2% of the sample, 33.6% were in full-time paid employment and an additional 30.4% were in part-time paid employment. The majority of those employed (60.2%) were in white collar/clerical positions.

Data were incompletely available for a number of variables. Specifically, 34 respondents failed to rate their health relative to their peers; an additional 332 failed to complete one or more of the items relating to their attitudes to ageing; an additional 27 failed to complete one or more items relating to their attitudes to menopause; and, one respondent failed to state her parity. The reduced complete data set was for 1503 individuals.

The median age of the women was 50 years (range 45–55 years). A total of 79% were either married or living with a partner, 14% were divorced, 4% were widowed and the remainder were single. In terms of paid employment outside of the home, 36% were not employed, 30% were employed part-time and the remaining 34% were employed full-time. Of those who were employed, 15% were professional or in executive positions, 60% were employed in white collar, sales or semi-professional occupations, 16% were skilled or semi-skilled and 8% were employed as unskilled labourers.

3.2. Analysis of variance

Demographic variables. Of the demographic variables available, only three proved significant by one way analysis of variance (marital status, cur-

rent living arrangement variables of living with partner and living alone) and they were significantly related to the three well-being measures. Clearly, the three explanatory variables are tapping the same variance.

In all three cases, marital status was the most significant by one-way ANOVA and when entered first into the analysis of variance rendered the other two variables non-significant. For positive affect, those respondents married or living with their partner scored best. There was little difference between those respondents who were separated/divorced and those who were widowed and both groups scored lower than those living with their partner, but not as low as those who were single (the group which scored the lowest).

The pattern for negative affect suggested a less clear pattern, with those living with a partner scoring the best, but with little difference among the other three groups. The pattern for the overall well-being scale indicated that single respondents scored the lowest, followed by the group who were widowed, with the separated/divorced group scoring slightly higher and the respondents living with a partner scoring the highest.

Marital status accounted for 0.8%, 1.1% and 1.1% of the total variance in the positive, negative and overall well-being scales, respectively.

Health status. Analysis of variance rendered the number of prescription medications, the number of non-prescription medications, the number of chronic conditions currently under treatment and menopausal status non-significant in relation to positive affect, negative affect and overall well-being. Additionally, the number of vasomotor symptoms proved non-significant in respect of positive affect and overall well-being.

Respondents who experienced two or more general psychosomatic symptoms, two or more general respiratory symptoms, or who were current or past sufferers of pre-menstrual complaints scored lower on positive affect, higher on negative affect and lower on overall well-being. Women who rated their health as better than their peers scored higher on positive affect, lower on negative affect and higher on overall well-being. The effect of stress was such that increasing levels of stress were associated with decreasing positive affect, increasing negative affect and decreasing overall well-being. The number of vasomotor symptoms was significantly related to negative affect with increasing symptomatology being related to increasing negative affect.

Of the interactions, none were significant for positive affect, three were significant for negative affect and one was significant for overall well-being. For negative affect significant interactions were found between level of stress and number of psychosomatic symptoms, between current or past premenstrual complaints and number of general psychosomatic symptoms, and between self-rated health and the number of vasomotor symptoms. The influence of number of general psychosomatic symptoms was such that the presence of two or more such symptoms exacerbated the influence of the presence of stress, especially at high levels, and the influence of current or past premenstrual complaints. The relationship between the number of vasomotor symptoms and self-rated health was that, while increasing vasomotor symptomatology was associated with increasing negative affect, this effect was much more marked for those who rated their health as worse than their peers.

The single significant interaction for overall well-being was between the number of general psychosomatic symptoms and stress. The relationship was that the coincidence of two or more such symptoms with high levels of interpersonal stress was associated with reduced overall well-being. The main effects accounted for 12.8%, 16.5% and 16.9% of the variance in positive affect, negative affect and overall well-being, respectively.

Health behaviours. Of the three measures of health behaviour, whether the respondent had consumed alcohol in the previous week was not related to any of the three measures of well-being. Whether the respondent exercised at least once a week was related to all three measures and current smoking was related to both the negative affect and the overall well-being scale.

Those individuals who exercise at least once a week scored higher on the positive affect scale, lower on the negative affect scale and higher on the overall well-being scale. The effect of smoking was such that those who currently smoke scored higher on negative affect and lower on the overall well-being scale.

Exercise accounted for 0.8% of the variance in

Table 1
Mean and standard deviation of positive affect, negative affect and overall well-being, cross-tabulated by the demographic, health status and health-related behaviour variables, shown to be significantly related by analysis of variance to at least one of the outcome measures

Variable	*N*	Positive affect	Negative affect	Overall well-being
Marital status				
Married/living with partner	1206	2.26 ± 0.59**	0.67 ± 0.40***	1.59 ± 0.89***
Separated/divorced	194	2.16 ± 0.63	0.76 ± 0.45	1.39 ± 1.00
Widowed	52	2.18 ± 0.61	0.83 ± 0.46	1.34 ± 0.98
Single	51	2.02 ± 0.65	0.79 ± 0.52	1.23 ± 1.04
General psychosomatic symptoms				
None or 1	365	2.52 ± 0.43***	0.46 ± 0.24***	2.06 ± 0.57***
≥ 2	1138	2.14 ± 0.61	0.77 ± 0.43	1.38 ± 0.94
General respiratory symptoms				
None or 1	1279	2.28 ± 0.58***	0.66 ± 0.39***	1.61 ± 0.86***
≥ 2	224	2.01 ± 0.67	0.87 ± 0.52	1.14 ± 1.09
Premenstrual complaints				
No	802	2.33 ± 0.54***	0.62 ± 0.37***	1.71 ± 0.81***
Yes	701	2.13 ± 0.63	0.78 ± 0.45	1.35 ± 0.99
Self-rated health				
Worse than most	97	1.81 ± 0.71***	0.93 ± 0.55***	0.88 ± 1.17***
Same as most	729	2.20 ± 0.61	0.71 ± 0.42	1.49 ± 0.93
Better than most	677	2.33 ± 0.53	0.65 ± 0.38	1.69 ± 0.80
Interpersonal stress				
Low	496	2.36 ± 0.52**	0.59 ± 0.36***	1.77 ± 0.77***
Moderate	694	2.19 ± 0.61	0.70 ± 0.41	1.49 ± 0.93
Severe	313	2.13 ± 0.64	0.84 ± 0.48	1.30 ± 1.02
Vasomotor symptoms				
None	1006	2.27 ± 0.57	0.66 ± 0.40*	1.61 ± 0.87
One	393	2.19 ± 0.64	0.73 ± 0.41	1.46 ± 0.96
Two	104	2.11 ± 0.65	0.86 ± 0.53	1.24 ± 1.09
Current smoking				
No	1191	2.25 ± 0.59	0.68 ± 0.40**	1.57 ± 0.90*
Yes	312	2.19 ± 0.62	0.76 ± 0.46	1.43 ± 0.99
Exercise				
No	531	2.17 ± 0.62**	0.74 ± 0.43**	1.43 ± 0.96***
Yes	972	2.27 ± 0.58	0.67 ± 0.41	1.60 ± 0.89

*$0.05 > P > 0.01$.
**$0.01 > P > 0.001$.
***$0.001 > P$.

the positive affect scale, and exercise and smoking accounted for 1.1% and 1.0% of the negative affect scale and overall well-being scales, respectively. The interaction between exercise and smoking was insignificant for the negative affect scale and overall well-being scale.

Attitudes to ageing. Of the six items which related to respondents' attitudes to ageing, four were significantly related to positive affect, six to negative affect and five to overall well-being. Three of the four that were related to all three measures of well-being were each related in a consistent fashion. Specifically, those respondents concerned about reduced physical attractiveness, reduced income and the deaths of people close to them, also scored lower on the positive affect scale, higher on the negative affect scale and lower on overall well-being.

Concern about children moving away was associated with all three measures of well-being, but the pattern was such that only those who were most concerned about this differed from the other

respondents in terms of the well-being scores. Concern about being too old to have children was significantly associated with negative affect, with those being most concerned scoring worst. Finally, concern about the respondent's own death coming closer was significantly related to both the negative affect scale and overall well-being scale. Those who were most concerned scored worse on both negative affect and overall well-being.

The questions dealing with attitudes to ageing accounted for 11.5%, 15.2% and 15.4% of the variance in the positive affect, negative affect and overall well-being, respectively.

Attitudes to menopause. Those women who felt that most women believed that depression or irritability is associated with menopause scored lowest on positive affect, highest on negative affect and lowest on the overall well-being. Women who felt that most women believed that women with a lot of interests hardly noticed menopause scored highest on positive affect, lowest on negative affect and highest on overall well-being. Women who believed that most women worried about losing their minds during menopause scored lowest on positive affect, highest on negative affect and lowest on overall well-being.

Of the interaction terms, only one was significant and that was for the negative affect scale. The interaction was between feeling that women who had a lot of interests hardly notice menopause and that women worried about losing their minds during menopause.

The main effects accounted for 3.5%, 5.4% and 4.9% of the variance in positive affect, negative affect and overall well-being, respectively.

Table 2
Mean and standard deviation of positive affect, negative affect and overall well-being, cross-tabulated by the variables related to respondent's attitudes to ageing, shown to be significantly related by analysis of variance to at least one of the outcome measures

Variable	*N*	Positive affect	Negative affect	Overall well-being
Worry about being too old to have children				
A lot	17	1.98 ± 0.70	1.10 ± 0.56*	0.87 ± 1.14
A little	47	2.12 ± 0.64	0.80 ± 0.34	1.32 ± 0.89
Not at all	1422	2.24 ± 0.60	0.69 ± 0.41	1.55 ± 0.91
Not applicable	17	2.53 ± 0.43	0.46 ± 0.25	2.08 ± 0.61
Worry about being less physically attractive				
A lot	73	1.87 ± 0.65***	0.99 ± 0.50***	0.88 ± 1.05***
A little	396	2.09 ± 0.60	0.79 ± 0.44	1.31 ± 0.93
Not at all	1034	2.32 ± 0.57	0.64 ± 0.38	1.68 ± 0.86
Worry about children moving away				
A lot	139	1.92 ± 0.71***	0.93 ± 0.54**	0.99 ± 1.16***
A little	282	2.21 ± 0.55	0.71 ± 0.40	1.50 ± 0.84
Not at all	1011	2.29 ± 0.58	0.65 ± 0.39	1.64 ± 0.87
Not applicable	71	2.16 ± 0.61	0.73 ± 0.46	1.43 ± 0.95
Worry about having a reduced income				
A lot	323	1.96 ± 0.67***	0.91 ± 0.48***	1.05 ± 1.06***
A little	498	2.25 ± 0.57	0.64 ± 0.37	1.60 ± 0.83
Not at all	682	2.35 ± 0.54	0.63 ± 0.38	1.73 ± 0.82
Worry about deaths of people you love				
A lot	428	2.08 ± 0.64**	0.83 ± 0.48***	1.24 ± 1.04***
A little	569	2.29 ± 0.55	0.65 ± 0.37	1.64 ± 0.82
Not at all	506	2.32 ± 0.58	0.63 ± 0.37	1.69 ± 0.85
Worry about your own death coming closer				
A lot	74	1.93 ± 0.67	1.01 ± 0.57***	0.92 ± 1.15*
A little	278	2.17 ± 0.59	0.77 ± 0.44	1.40 ± 0.92
Not at all	1151	2.27 ± 0.59	0.65 ± 0.39	1.62 ± 0.88

*$0.05 > P > 0.01$.
**$0.01 > P > 0.001$.
***$0.001 > P$.

4. Discussion

The present study utilises a similar methodology to other recent population studies of women in the mid-life years [10]. The main features of these studies incorporated into this study design are: use of strictly random community-based samples from a general population; a culturally homogenous population; an appropriate age band of 45–55 years; use of standardised objective definitions of different menopausal status groups; distinctions between naturally menopausal and surgically menopausal women and the use of validated and reliable instruments. Kaufert and Syrotuik [3] described how negative stereotypes of the menopause are likely to influence symptom reporting when extensive recall periods are used, and are less likely to become operational when subjects do not know the topic of the research. The recall period for symptoms was therefore limited to the previous 2 weeks and to the previous week for affect. The study was identified to women as a 'Women's Midlife Health Study' and questions pertaining to menopausal experiences were mingled in a list of other health-related symptoms. Thus, this study of a representative sample of urban Australian-born women sought to diminish recall and expectancy biases.

The findings of the present study confirm earlier findings [3] that menopausal status is not associated with well-being in any of its dimensions. Previous population studies have yielded information on the way in which measures of depression (or negative affect) relate to other factors, particularly health status, inter-personal stress, sociodemographic factors and attitudes to menopause. McKinlay et al. [10] in a study of 2500 middle-aged women found that the major influences on the risk of developing depression as measured by the Centre for Epidemiologic Studies Depression Scale, were health status problems such as physical symptoms and multiple causes of worry, particularly those involving adolescent children, ailing husbands and ageing parents or parents-in-law. Similar results were reported by Kaufert et al. [9] who found that the risk of depression was increased by poor general health and by current stress, particularly in relationships with partner

Table 3
Mean and standard deviation of positive affect, negative affect and overall well-being, cross-tabulated by the variables related to respondent's feelings about women's beliefs about menopause, shown to be significantly related by analysis of variance to at least one of the outcome measures

Variable	*N*	Positive affect	Negative affect	Overall well-being
Women get depressed or irritable during menopause				
Is believed by				
Most women	585	2.15 ± 0.62	0.79 ± 0.45	1.35 ± 0.97
Some women	830	2.28 ± 0.58	0.63 ± 0.38	1.65 ± 0.86
Hardly any women	88	2.40 ± 0.55	0.61 ± 0.38	1.79 ± 0.83
Women with many interests in their lives hardly notice menopause				
Is believed by				
Most women	654	2.33 ± 0.58***	0.65 ± 0.40*	1.67 ± 0.89***
Some women	649	2.15 ± 0.60	0.73 ± 0.41	1.42 ± 0.92
Hardly any women	200	2.22 ± 0.61	0.73 ± 0.45	1.50 ± 0.95
Women worry about losing their minds during menopause				
Is believed by				
Most women	99	2.07 ± 0.66*	0.90 ± 0.50***	1.17 ± 1.07***
Some women	476	2.20 ± 0.60	0.72 ± 0.41	1.48 ± 0.92
Hardly any women	928	2.27 ± 0.59	0.66 ± 0.40	1.62 ± 0.89

*$0.05 > P > 0.01$.
**$0.01 > P > 0.001$.
***$0.001 > P$.

and children. The present study also found that current health status (self-rated, and the presence of symptomatology) was associated with increased negative affect and that interpersonal stress had both direct and interactive associations with negative affect. Another major explanatory variable for negative affect was that of attitudes to ageing. Attitudes to menopause were of less but still significant importance to negative affect scores. Avis and McKinlay [25] also found that depression and psychological and physical symptoms reporting are highly related to attitudes towards menopause. The present study also confirmed previous findings of Holte and Mikkelsen [15], that what he termed earlier 'menstrual coping style' was related to the experience of psychological symptoms in the mid-life years. Lifestyle factors of current smoking and lack of exercise also contributed a small but significant amount of variance in negative affect scores. The measures of those factors as used here are relatively crude and a much more detailed examination of smoking, alcohol use, exercise and interpersonal stress will follow.

The results for marital status differed somewhat from other findings. In the present study those women living with a partner scored lowest on negative affect. McKinlay et al. [10] reported a similar low but significant amount of variance in depression scores explained by marital status (1.5%) but found the lowest rate of depression among women who never married. Hunter [17] also found that single women were less likely to be depressed. A possible explanation for the contradictory results of the Melbourne study is that this study was carried out some years later than the other studies, and may be affected by sociological changes, particularly the ease of divorce. Thus, those women who have remained married, have remarried or are living with a partner by mid-life may be those with less conflict and more positive aspects to the marriage.

Important new findings from the present study indicate how these and other variables affect positive moods and overall well-being. Women with high positive affect and overall well-being reported good general health, few psychosomatic or respiratory symptoms, low interpersonal stress, positive attitudes to ageing, positive attitudes to menopause, were married or lived with a partner, were less likely to be current smokers and exercised at least once a week.

In conclusion this population-based study of urban Australian-born women found that current health status, psychosocial and lifestyle variables were significantly related to positive moods, negative moods and overall well-being. Menopausal status was not related to mood measures or to overall well-being. This report is based on the cross-sectional phase of the study. Demonstration of the direction of causality will require prospective data. Nevertheless, our results for negative affect are similar to those of other population samples with a pospective component. Information from the longitudinal phase of the Melbourne study will help to further elucidate the role of psychosocial and lifestyle factors in well-being during mid-life and possible relationships to endocrine changes.

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