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Stress, psychological distress, menopause symptoms and physical health in women

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Abstract

Objectives: Relatively few studies have evaluated relationships between stress, psychological distress, other psychosocial factors and menopause symptoms, and no studies have previously evaluated emotional intelligence (EI) in relation to menopause. In this study, direct and indirect relationships were evaluated between stress, psychological distress, other psychosocial factors (e.g. social support, coping, EI), menopause symptom severity and physical health in middle-aged women. **Methods:** One-hundred-sixteen women aged 45 – 55 years were recruited through women's health centres and community organizations. They completed a short questionnaire asking about stress, psychological distress (i.e. anxiety, depression), EI, attitude to menopause, menopause symptoms and physical health. **Results:** Low emotional intelligence was found to be related to worse menopause symptoms and physical health, and these associations were mediated by stress, anxiety and depression. The association of EI to menopause symptoms was also mediated by a negative attitude to menopause, and the association of EI to physical health was mediated by a lack of proactive coping. Conclusions: Women with high EI hold more positive attitudes to menopause and experience less severe stress, psychological distress and menopause symptoms and better physical health. These results suggest that women who expect menopause to be negative or were highly stressed or distressed may be more likely to have a negative menopause experience.

Menopause is a normal developmental transition that all women undergo with advancing age [1]. During menopause, women may experience a range of biological changes and possible social and psychological changes [2], and they may be more vulnerable to psychological distress, especially anxiety and depression [3]. This is particularly the case in women who have experienced premature menopause secondary to surgery, chemotherapy or other treatments [4,5].

Menopause symptoms are frequently reported by women including hot flashes, night sweats, vaginal dryness, reduced libido, sleep disturbance, headaches, palpitations, foggy thinking, poor concentration and fatigue [6], as well as weight gain, joint pain, short-term memory problems, urinary tract infection, itchy skin, sexual dysfunction and bowel upset. Women's experience of menopause symptoms may vary considerably; with 25% of Western women reporting severe symptoms and 50% reporting mild - moderate symptoms [5,7].

Some women also experience a profound sense of loss at menopause (e.g. loss of maternal role, youth or beauty) which may lead them to feel that life has lost its purpose [8]. Some peri-menopausal women may also experience anxiety, depression and/or irritability [6], although it is not clear exactly *how* mood symptoms are related to menopause. For example, mood disorders are reported to worsen the experience of somatic symptoms [9], and severe or protracted menopause symptoms may also worsen mood in some women [10].

Relatively few studies have systematically evaluated relationships between stress, psychological distress (i.e. anxiety, depression) and menopause symptoms and their results are not wholly consistent. Nor have many studies evaluated relationships between other related psychosocial factors (e.g. social support, coping), cognitive factors (e.g. attitude to menopause) and menopause symptoms. *Depression* and menopause have previously been linked in the literature, but there is limited supporting evidence [2,8,11,12]. For example, a recent 5-year observational study of 2,565 women aged 45 to 55 found no association

between menopausal status and depression, although women with a longer peri-menopause (> 27 months) experienced more depressive symptoms [10].

High *stress* and *anxiety* levels have been reported to potentially worsen the somatic symptoms of menopause [8,11,13-15]. For example, more undesirable life-events were recently found to be related to worse menopause symptom severity [16], although the nature of any possible temporal and/or causal relationships is not clear.

Social support is a well known correlate of menopause symptoms and physical and psychological wellbeing in women [12,17], and low social support and distressing relationships are reported to lead to stress and illness [12]. However, it is not clear *how* these resources may impact on menopause symptom severity; for example, whether the putative 'effects' are direct or are mediated through another variable (i.e. mediator). *Mediators* are defined as variables that are affected by and can affect other variables. For example, social support may potentially mediate between stress and menopause symptoms by first contributing to psychological distress. For a detailed discussion on mediation see Baron and Kenny [18].

Women's *attitude to menopause* may also impact on the experience of menopause. For example, women who held negative beliefs prior to menopause were more likely to experience depression [19] and worse menopause symptoms [13]. In a recent psychoeducation intervention, fostering a positive attitude to menopause was found to associated with less severe menopause symptoms and psychological distress [20], although it is not clear whether the changes were mediated by a change in attitude, proactive coping, social support or information provision.

Few studies have evaluated the relationship between stress, coping and menopause symptoms. One small study reported that treatment-seeking menopausal women used more avoidance coping than healthy menopausal women; and high avoidance and low aggressive-

expression coping were found to be correlated with menopause symptom severity [16], although this is not a consistent finding [21]. However, problem-focused coping is thought to mediate between particular dispositional factors (e.g. optimism) and menopausal health [22]. In this study, we evaluated the relationship between stress, proactive coping and menopause symptom severity.

Finally, *emotional intelligence* (EI) has recently been linked to a variety of health outcomes and emotional well-being [23-26], particularly levels of perceived stress, anxiety and depression [25]. EI is defined as the ability to recognise and regulate emotions in oneself and others and use the information to guide one's thinking and actions in an adaptive fashion [26,27]. EI is viewed as either an 'ability' similar to cognitive intelligence or an 'enduring trait' [23,28,29], although trait-based approaches provide stronger evidence of an association with mood [24,29,30] and health outcomes (e.g. fatigue) [23,25], thus, the latter approach was used in this study.

EI has recently been shown to be associated with the maintenance of better social and interpersonal relationships [30]. Thus, low social support may potentially mediate between EI and worse menopause symptoms, although such a proposition has not previously been evaluated. Thus, in this study we evaluated direct and indirect relationships between stress, anxiety, depression, social support, coping, EI, attitude to menopause, menopause symptom severity and physical health in middle-aged women. In accordance with the literature, it was expected that:

- (i) high stress, anxiety, depression, low social support (number & quality), proactive coping and EI and negative attitude to menopause will be directly related to poor physical health and worse menopause symptoms;
- (ii) relationships between EI to menopause symptoms and EI to physical health will be mediated by high levels of stress, anxiety and depression, low social support and proactive

coping and a negative attitude to menopause.

METHOD

Participants

Women aged 45 – 55 years were recruited through medical and community centres and other community organizations (e.g. Country Women's Association). One hundred and thirty questionnaires were distributed and 81 were returned (response rate=62%). A web link also provided access to an online version of the questionnaire which produced 35 usable responses, thus giving a total of 116 participants.

The mean age of participants was 50.04 years. Most women were married or in a de facto relationship (65%), with few being single/never married (9.5%), divorced/separated (22.4%) or widowed (2.6%). Most worked fulltime (46%) or part-time/casual (45%), with the remainder completing home duties (5%) or retired (2.5%). Nearly half (45%) had a university or college degree, with the remainder completing either a TAFE certificate/diploma (26%), Year 10 (17%) or Year 12/HSC or equivalent (11%). One-quarter (27%) were currently raising children under 18-years (27%), although most were parents of adult children (61%) or had never had children (12%). Most women indicated they were peri-menopausal (39%) or menopausal (25%), with the remainder being naturally (30%) or surgically (6%) post-menopausal.

Measures

Severity of *menopausal symptoms* was assessed using the Menopause Rating Scale (11-item) which contains three subscales evaluating urogenital, other somatic and psychological symptoms on 5-point Likert scales, ranging from 0 (*none*) to 4 (*very severe*) [31]. Only *total* symptom scores were used in this study, with high scores indicating more severe menopause symptoms. The scale has high internal consistency with Cronbach's alphas ranging from .83 to .87 [32]. In this study, internal consistency reliability was high with a

Cronbach's alpha of .88.

The Short-Form Health Survey (SF-36) assesses quality of life using an 8-scale profile of functional health and well-being scores and psychometrically-based physical and mental health summary scores [33]. In this study, the *Physical Health* subscale was used which comprises a range of items assessing limitations in self-care, severe body pain and tiredness and physical, social and role activities. High scorers on the subscale typically report few physical limitations, disabilities or decrements in well-being, high energy levels and excellent health. Reliability estimates for the subscale are high with a Cronbach's alpha of .92 [34]. In this study, internal consistency reliability was high with a Cronbach's alpha of .88.

The *Depression, Anxiety* and *Stress* Scale (DASS-21) is designed to assess the symptoms of stress, anxiety and depression [35]. This 21-item scale asks participants to rate the extent to which they have experienced each state over the past week, on 4-point scales ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much*). The scale has high internal consistency with Cronbach's alphas ranging from .87 - .94 for the subscales, and adequate validity using a variety of non-clinical samples [36]. In this study, internal consistency reliability was high with a Cronbach's alpha of .89 for depression, .84 for anxiety and .81 for stress.

Social Support was assessed using the Social Support Questionnaire (short-form, SSQ6), a 12-item self-report questionnaire evaluating the number of 'available others' individuals feel they can turn to in times of need in a variety of situations (SSQN); and the degree of satisfaction with those supports, in that particular situation (SSQS). Subjects indicated how satisfied they were on 6-point Likert scales from *very dissatisfied* to *very satisfied*, with weighted satisfaction scores for each item ranging from 1-6. The SSQ6 has high internal consistency with coefficient alphas for the number and satisfaction subscales ranging from 0.90 – 0.93 [37]. In this study, internal consistency reliability was high with

Cronbach's alphas of .92 for SSQN and SSQS.

Proactive coping was assessed using the Proactive Coping Inventory (PCI). Proactive coping is conceptualized as a life approach in which demands and stressful events are seen as challenges rather than inherently threatening, and individuals seek to modify, reduce or eliminate challenges in order to facilitate positive outcomes. The proactive coping subscale of the PCI consists of 14-items assessing autonomous goal-setting and self-regulatory goal attainment cognitions and behaviour. Participants were asked to rate their degree of agreement with each item, from 1 (not at all true) to 4 (completely true). The subscale has high internal consistency with a Cronbach's alpha of .84 [38]. In this study, internal consistency reliability was higher with a Cronbach's alpha of .90.

Attitude to menopause was assessed using the Menopause Attitude Scale [13] which asked participants to indicate (in their opinion) how a women who was currently experiencing menopause may feel. The scale consists 20 bipolar adjective scales (e.g. ugly-beautiful; unattractive-attractive), with responses ranging from 1 (most negative) to 7 (most positive), with high scores indicating a more positive attitude. Internal consistency for the scale is high with a Cronbach's alpha of .96 [20], and discriminant and convergent validity are adequate [13]. In this study, internal consistency reliability was high with a Cronbach's alpha of .95.

Emotional Intelligence was assessed using the Assessing Emotions Scale, a 33-item questionnaire evaluating the extent to which respondents characteristically identify, understand, harness and regulate emotions in themselves and others. Respondents rated themselves on each item from 1 (strongly disagree) to 5 (strongly agree), with high scores indicating greater emotional intelligence. The scale has high internal consistency with Cronbach's alphas ranging from .87 to .90, and adequate convergent and discriminant validity [29]. In this study, internal consistency reliability was high with a Cronbach's alpha of .87.

Statistical Analyses

SPSS (version 14) was used for routine statistical analyses. Correlations were reported as Pearson product moment correlations r (two-tailed) for all variables. Multiple linear regressions were used to determine direct relationships and potential mediators of the emotional intelligence – menopause symptom/physical health relationships. Further tests of mediation were then performed using the Sobel test [18] and the bootstrap method of Preacher and Hayes [39].

Results

Mean scores and standard deviations of the variables are presented in Table 1.

*** Insert Table 1 about here ***

Multiple regression analysis assessed the relationship between psychosocial and attitudinal factors and menopause symptom severity. All the variables including high stress, anxiety and depression, low social support (number, quality), proactive coping and EI and negative attitude to menopause were related to menopause symptom severity, F(8, 107) = 15.61, p< .0001, with the variables accounting for 54% (R^2 =.54) of the variance in menopause symptom score, see Table 2.

*** Insert Table 2 about here ***

Multiple regression analysis evaluated the relationship between psychosocial and attitudinal factors and physical health score. All the variables including high stress, anxiety and depression, low social support (number, quality), proactive coping and EI and negative attitude to menopause were related to physical health, F(8, 107) = 10.28, p < .0001, with the variables accounting for 44% (R^2 =.44) of the variance in physical health score, see Table 3.

*** Insert Table 3 about here ***

Regarding *indirect* effects, the relationship between EI to menopause symptoms was found to be partly mediated by high stress, anxiety and depression and negative attitude to menopause, but not low social support or proactive coping, see Table 2. In addition, the

relationship between EI to physical health was found to be partly mediated by high stress, anxiety and depression and low proactive coping, but not low social support or negative attitude to menopause, see Table 3.

Discussion

This is the first study reporting an association between emotional intelligence (EI), menopause symptom severity and physical health in middle-aged women. These findings extend previous reports of a direct association between EI and physical and psychological health [24-26]. As expected, high stress, anxiety and depression, low social support (number, quality), proactive coping and EI and negative attitude to menopause were all related to worse menopause symptoms and physical health, consistent with the relevant literature outlined below. High stress, anxiety and depression have previously been reported to potentially worsen menopause symptoms [8,11,13,14], whereas proactive coping, effective social support and high EI may potentially protect women as they enter mid-life, although they have rarely been evaluated in relation to menopause symptoms [16,17].

Attitude to menopause captured the greatest amount of variance in menopause symptom severity in this study, and a negative attitude to menopause partly mediated between EI and menopause symptoms. These results suggest that women who expected menopause to be negative were more likely to have a negative menopause experience [13,20] and they were more likely to have low EI. These results are consistent with other studies reporting an association between negative attitudes to menopause and more severe menopause symptoms [2,11,13].

Stress, anxiety and depression partly mediated between EI and menopause symptoms and physical health. These results suggest that stress and psychological distress may worsen the experience of menopause and general health, although it is also possible that worse menopause or other somatic symptoms may have contributed to a poorer mood in some

individuals. Nonetheless, these findings suggest that women with high EI were better equipped to regulate and express their emotions than women with low EI; for example, by coping more adaptively with stress [3,23,29], and they also appeared to experience less severe menopause symptoms.

Proactive coping was shown to partly mediate between EI and physical health in this study. Proactive coping has previously been reported to exert beneficial effects on health [38], with a key component being the ability to set goals and use self-regulatory strategies (e.g. exercise, relaxation). Fifty-six percent of women in this study indicated they currently exercised moderate – strenuously and one-third (37%) practiced some form of relaxation training, but these strategies were not shown to be related to menopause symptom severity or perceived physical health.

Finally, low social support and less proactive coping did not mediate between EI and menopause symptoms, and social support did not mediate between EI and physical health. Such non-significant results are unexpected since women with high EI might have been expected to seek out support from friends, family and health professionals more often than those with low EI [40], and such support might have been expected to be associated with less severe menopause symptoms [12,17].

Limitations

These results should be interpreted with caution given several obvious study limitations. First, the sample was relatively small and multiple analyses likely led to an increase in Type I error rate. Second, self-report measures of psychological distress, menopause symptoms and physical health were employed rather than using clinical interviews. Third, the strength of stress/psychological distress – menopause symptom associations were likely to have been overestimated because of the overlapping measurement of distress symptoms (e.g. anxiety, depression) in both the distress (i.e. DASS) and

menopause symptom scales. Thus, future studies should remove mood items from the Menopause Rating Scale so as to reduce this symptom overlap.

Fourth, nearly half of the women in this study were university educated and very few were unemployed or completing home duties. The sample was therefore likely to have been biased towards those holding more informed opinions and attitudes to menopause and physical health. Finally, the findings are only cross-sectional in nature; therefore precluding any causal inferences being made, although they may help build theoretical models that can then used to guide the design of longitudinal studies [41].

Conclusion

High EI was found to be related to less severe menopause symptoms and better physical health in peri-menopausal and menopausal women. These associations were partly mediated by high stress and psychological distress (i.e. anxiety, depression) levels. A negative attitude to menopause also partly mediated between EI and menopause symptoms and less proactive coping also mediated between EI and physical health. These results suggest that women with high EI hold more positive attitudes to menopause and experience less severe stress, psychological distress and menopause symptoms and better physical health. In addition, women who are highly stressed or distressed or expect menopause to be negative experience are more likely to have a negative menopause experience. Future psychoeducation programs may therefore wish to address menopause-related stress and distress and negative attitudes to menopause in more detail.

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Table 1

Mean Scores on Attitude to Menopause, Emotional Intelligence, Severity of Menopausal Symptoms, Stress, Anxiety, Depression, Social Support, Proactive Coping and Physical Health

			Range	
	Mean	SD	Min Max	
Attitude to Menopause	82.52	20.73	37 140	
Emotional Intelligence	130.85	16.28	80 162	
Severity of Menopausal Symptoms	13.41	8.03	1.0 38	
Stress	5.46	4.24	0 20	
Anxiety	2.85	3.36	0 13	
Depression	3.65	3.64	0 15	
Amount of Social Support	4.44	2.30	0 9	
Satisfaction with Social Support	5.40	0.90	1 6	
Proactive Coping	40.80	7.23	17 55	
Physical Health	61.23	8.96	32 74	

Table 2
Association between Emotional Intelligence and Severity of Menopausal Symptoms Controlling for the Effect of Depression, Anxiety, Stress, Attitude, Total of Social Support (SSQN), Satisfaction of Social Support (SSQS) and Proactive Coping.

Variable	В	SE B	В	t	R
Outcome Variable: Symptoms					
Predictor variables Combined					.70***
Emotional Intelligence Depression	14 1.09	.04 .18	28 .50	-3.38*** 6.00***	
Predictor Variable combined					.66***
Emotional Intelligence Stress	19 .72	.04 .15	40 .38	-4.99*** 4.78***	
Predictor variables combined					.70***
Emotional Intelligence Anxiety	17 1.11	.04 .18	39 .46	-4.36*** 5.97***	
Predictor Variables Combined					.58***
Emotional Intelligence Attitude	24 07	.04 .03	49 17	-5.65*** -2.02*	
Predictor Variables Combined					.57***
Emotional Intelligence SSQN	28 .04	5.40 .33	57 . 01	-6.14*** .12	
Predictor Variables Combined					.57***
Emotional Intelligence SSQS	27 25	.04 .75	56 03	-6.64*** 329	
Predictor Variables Combined					.57***
Emotional Intelligence Coping	25 09	.05 .11	52 08	-5.27*** .39	

Note; * indicates significance at p<.05, *** indicates at p<.001.

Table 3

The Association between Emotional Intelligence and Physical Health Controlling for the Effect of Depression, Anxiety, Stress, Attitudes, Coping, Total of Social Support (SSQN) and Satisfaction of Social Support (SSQS).

Variable	В	SE B	В	t	R
Outcome Variable: Physical I	Health				
Predictor variables Combined	I				.58***
Emotional Intelligence Depression	.17 86	.05 .23	.30 35	3.18*** -3.76***	
Predictor variables Combined	[.54***
Emotional Intelligence Stress	.22 50	.05 .19	.40 23	4.50*** -2.65***	
Predictor variables Combined	I				.62***
Emotional Intelligence Anxiety	.16 -1.13	.05 .23	.29 42	3.49*** 50***	
Predictor variables Combined	[.54***
Emotional Intelligence Coping	.19 .31	.06 .12	.35 .25	3.49*** 2.52**	
Predictor variables Combined					.52***
Emotional Intelligence Attitude	.24 .07	.05 .04	.43 .15	4.77*** 1.68	
Predictor variables Combined					.50***
Emotional Intelligence SSQN	.27 .07	.05 .38	.49 .02	5.05*** .18	
Predictor variables Combined					.50***
Emotional Intelligence SSQS	.27 .30	.05 .88	.49 .03	5.60*** .34	

Note; * indicates significance at p<.05, ** indicates significance at p< or = to .01, *** indicates significance at p<.or = to 001.