

## Review Article

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## Post menopausal quality of life and associated factors- A Review

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### Abstract

Assessment of quality of life has become a crucial constituent of clinical practice, so that clinicians can obtain a comprehensive picture of women's subjective perception of menopause. During menopause variety of clinical characteristics of women like social lifestyle, smoking, drinking habit and psychological status may influence the eventual timing of the menopause transition and post menopausal quality of life of women as well. The main aim of writing this article is to assemble the literature on menopause with special emphasis on the factors which influence the health related quality of life of menopausal women by both ways either positive or negative consequence. A number of studies show the significant association of these factors and health related quality of life of menopausal women like regular physical activity, balanced BMI, sexual satisfaction, education and awareness status improve the quality of life among post-menopausal women. Some dietary habit like smoke and alcohol consumption may influence positively and negatively the quality of life because of the complex interaction of smoke and alcohol with female reproductive hormones. Smoke may cause early onset of menopause and high incidence of osteoporosis but also have lower risk menopausal endometrial cancer. Similarly the use of alcohol has a potential benefit on cardiovascular risk and also has a high incidence of breast cancer and ovarian cancer risk. During menopausal transition majority of women experience various psychological changes like depression, anxiety, irritation and other mood disorder due to frequent alteration in the estrogens level, which ultimately affect the quality of life of menopausal women.

**Keywords:** Post menopause, Quality of life, Factors

### Introduction

The menopausal experience involves a multifaceted interaction between psychological, sociocultural, and environmental factors, as well as the biological changes relating to altered ovarian hormone status or deficiency.<sup>1, 2</sup> According to the North American menopause society, Natural menopause is the permanent cessation of menstruation resulting from the loss of ovarian follicular activity which is recognized to have occurred after 12 consecutive months of amenorrhoea, for which there is no obvious pathological or psychological cause.<sup>3</sup> During menopausal transition, women may experience vasomotor, Urogenital and psychological symptoms as well as sexual dysfunction. These problems are often attributed to hormonal changes during midlife and are projected as health risk.<sup>4</sup> Over the past decade, health related quality of life (QOL) has emerged as an important outcome in the medical field. The concept of general QOL, however, has a longer history in the social sciences literature growing out of social indicators research.

Social indicators research has often used measures of psychological well-being, subjective well-being and life satisfaction. It is generally viewed as the broadest and is composed of both subjective and objective well-being.<sup>5</sup> World Health Organization defines Quality of life (QOL) as an individual's perception of their position in life in the context of culture and values system in which they live and in relation to their goal expectations, standards and concerns.<sup>6</sup> Many studies have found that various factors are responsible for deteriorating quality of life in the menopausal women<sup>7</sup> though most studies of menopause have viewed QOL rather narrowly by focusing largely on negative symptoms of menopause.<sup>8</sup> The main aim of writing this article is to assemble the literature on menopause with special emphasis on social lifestyle and psychological factors influence the age at menopause and quality of life of menopausal women.

Identifying factors associated with the early and late menopause are important because age and other factors at menopause has been associated with risk of onset of several chronic diseases such as cardiovascular diseases, breast and endometrial cancers and osteoporosis.<sup>9</sup>

### **Social Life Style**

**Physical activity:** physical activity is defined as any bodily movement by skeletal muscle that requires energy expenditure. It is the fundamental means of improving people's health. Regular physical activity improves health, reduces stress, risk of coronary heart disease, hypertension, obesity<sup>10</sup> uncomfortable symptoms of menopause, reduce the number of physical, psychological and social problems.<sup>11, 12</sup> Physical activity has been shown also to enhance quality of life among menopausal women<sup>13</sup> and some studies suggest that physical activity is associated with decrease of hot flashes in menopausal women.<sup>14</sup> The effect of physical activity in decreasing hot flashes has been explained by b-endorphin theory. It is known that increase of hypothalamic b-endorphin production may stabilize thermoregulation known to be disturbed during menopausal hot flashes.<sup>15</sup> Women who gained weight were more likely to report deterioration in quality of life. This is consistent with other studies.<sup>16</sup> One of the study suggested that importance of physical activity increase during menopausal transition and also supports the hypothesis that menopause may be a window of opportunity, since it may induce lifestyle modification.<sup>17</sup> Another study suggested that a high total physical activity level is associated with less menopausal symptoms. A low physical activity level in each domain, at work, during transportation, during

household, gardening and during leisure time, may have an influence on increased climacteric symptoms.<sup>18</sup> One findings of the study support the position that physical activity effects on quality of life are in part mediated by intermediate psychological outcomes and that physical activity can have long-term benefits for women undergoing the menopausal transition.<sup>19</sup> Another study concluded that Personality characteristics partially explain symptom reports during menopause however improvements in physical parameters such as fitness may reduce reported symptomatology.<sup>20</sup>

**Social Status:** Studies show that some of demographic characteristics in post-menopausal women such as marital status, educational level, social and economical level, and the number of children who live with the family are among other factors affecting the post-menopausal life.<sup>21</sup> Several studies showed that there is a relation between psychological health in menopause and race, marriage satisfaction, and family relationships.<sup>22</sup> Marital status and the marriage satisfaction are significantly related to the post-menopausal women's quality of life.<sup>23</sup> In a few study relationship between early menopause and marital status and business life have been investigated and study also suggested that divorced marital status is significantly related to early onset of menopause.<sup>24</sup> Several studies have reported an independent association between early age at natural menopause and low adult socioeconomic position, as compared with women reporting no economic distress as measured by educational achievement, income, and occupation.<sup>25</sup> However other studies have shown no independent effect of adult socioeconomic measures on either age at menopause. Only two of these studies have investigated the childhood or cumulative lifetime socioeconomic position on risk of early ovarian decline.<sup>26</sup> Lower education was found worldwide to be correlated with increases in many areas of health risk including cardiac dysfunction, preterm birth, mortality, and others diseases. Furthermore, these effects of education disparity on greater disease prevalence and lower life expectancy may be growing. When treating patients with lower education levels, physicians spend less time discussing health related issues which may lead to gaps in health awareness including the use of preventive services.<sup>27</sup> Study suggested that an increase educational status and appropriate training can improve the awareness level, quality of life and may promote satisfactory health to the menopausal women.<sup>28</sup> Mechanisms by which lifetime socioeconomic position could influence early decline in ovarian function are through exposures that affect either the initial number of oocytes in utero or the rate at which

oocytes are depleted over the life-course.<sup>29</sup> As couples are now breaking the traditional norms and constraints and live separately from their extended families – as is increasingly the case for the professional, urban, upper middle classes- the earlier restrictions on sexual activity beyond certain age can no longer be monitored and enforced. For these sections of Indian society, the post-reproductive years are no longer considered a time of rest and gradual retirement. Rather, demanding working careers, a busy social life and aspirations towards improving the overall quality of life have led to a new conception of the female body and female sexuality.<sup>30</sup> The most important aid offering by clinicians of these women is education and awareness on perimenopausal change and available therapeutic options.<sup>31</sup>

**BMI:** The effect of the menopause transition on body fat distribution is unclear, but some studies suggest that the menopause transition is associated with an accumulation of central fat and, in particular, intra-abdominal fat which is associated with metabolic syndrome. In a cross sectional study of women aged between 45 and 71 years, BMI was the single most important predictor of physical function and impaired ability to work, as well as the second most important predictor of vitality.<sup>32</sup> One longitudinal study reports those women who are obese at the age of 18 year experience later menopause than their counterparts<sup>33</sup> and other 2 year follow-up study of premenopausal women also shows that obese women experience later menopause.<sup>34</sup> According to one major study estrone is a major endogenous estrogen in postmenopausal women which is produced by peripheral aromatization of plasma androstenedione secreted from adrenal glands. Adipose tissue is one of the loci of this conversation and the transfer constant of conversion of plasma androstenedione to estrone is positively related to body weight. This peripheral mechanism is also active in premenopausal women with normal ovulatory cycles. The affinity of estrogen for the receptor is one-half to one-third that of estradiol plasma estrone may supplement the effect of estradiol which starts to decrease in the mid thirties. Therefore the increased peripheral production of estrone in obese women may contribute patho-physiologically to the delay in age at menopause resulting from obesity.<sup>35</sup> Another study suggests that estradiol and body mass index is associated with vaginal cell maturation and atrophy in postmenopausal women. Vaginal cell atrophy does not depend on the time since menopause.<sup>36</sup> Heavier weight negatively affects physical health related quality of life in postmenopausal women across diverse racial ethnic backgrounds.<sup>37</sup> The data of another study suggest a

positive association between somatic and psychological dimensions of health-related quality of life and participation in regular exercise. Women with BMI scores in the normal range reported lower vasomotor symptom scores and better health-related quality of life scores than heavier women.<sup>38</sup> Overweight and high BMI are reported to protect against osteoporosis and related fracture. The BMI at young adult age predicts BMI at older age and, in accordance, women who have always been obese are less often osteoporotic and have a much lower fracture risk.<sup>39</sup>

**Smoking/ Tobacco:** Several studies have shown that women who smoke cigarettes reach the menopause sooner than those who do not, irrespective of potential confounding factors including marital state, parity, and body weight.<sup>40</sup> The reason for this is unknown, but it may be due to the destruction of irreplaceable primary oocytes by benzo(a)pyrene and other toxic substances in cigarette smoke<sup>41</sup> because exposure to toxic agents in tobacco smoke may also occur from passive smoking including transplacental exposure and inhalation of ambient tobacco smoke.<sup>42</sup> Epidemiological studies show in comparison with non-smokers, women who smoke have lower risk of post-menopausal endometrial cancer, an earlier menopause and a higher incidence of osteoporosis and it has been suggested that all these associations are consequences of an anti-oestrogenic effect of cigarette smoking.<sup>43</sup> Cigarette smoking during pregnancy has been associated with decreased maternal levels of estradiol, estriol, and human chorionic Gonadotropin.<sup>44</sup> It has also been associated with increased levels of alpha fetoprotein, believed to have anti-estrogenic properties. If in utero ovarian follicle formation is hormone dependent, women prenatally exposed to maternal cigarette smoke, compared with women who did not incur such exposure, may also have a different average age at menopause.<sup>45</sup> The findings of another study indicate that quitting smoking during the menopausal years has a positive effect on cardiovascular risk factors, despite relatively greater weight gain. The relatively beneficial effects of smoking cessation on lipoprotein levels are of the greatest significance. Cross-sectional analyses confirmed that smokers are generally at higher risk for coronary heart disease as a result of lower HDL cholesterol levels and higher total serum cholesterol and LDL cholesterol levels than non-smokers. Continuous smokers and those who quit after baseline did not differ on any baseline measure other than cigarette consumption, those who did not quit having significantly higher consumption levels than those who quit.<sup>46</sup> In contrast to smoking, the use of unopposed HRT increases cancer risk in post menopausal women. Although an interaction

between smoking and HRT seems biologically plausible.<sup>47</sup> A population-based cross-sectional study found an inverse association between smoking and percentage mammographic density among postmenopausal women, after adjustment for potential confounders. Also show an inverse dose– response relationship among current smokers between both the numbers of cigarettes and pack-years smoked and the percentage mammographic density. Women who had stopped smoking less than 24 years ago had a significantly lower mean percentage mammographic density compared with never smokers These associations were similar when absolute mammographic density was used as the outcome variable.<sup>48</sup> Three recent meta-analyses examined the risk of hip fracture associated with smoking and found reported increases in risk ranging from 31% to 84% among predominantly female study samples. The relative risk of hip fracture in smokers, compared with non-smokers, appears to be strongly associated with age. There is also evidence of an association between smoking and risk of fractures at other sites, but the highest observed risk is for fractures of the hip.<sup>49</sup> Perimenopausal smoking is apparently more important than smoking history in explaining an earlier age of onset of menopause among women who smoke.<sup>50</sup> Risk of a number of other conditions is higher among women who smoke than among non-smokers. While not necessarily life-threatening, these conditions can have considerable impact on the quality of women’s lives.<sup>51</sup>

**Alcoholism:** For a woman the relationship between alcohol consumption and outcomes, both positive and negative, is influenced by patterns of drinking, as well as by cultural attitudes to alcohol consumption.<sup>52</sup> In general, alcohol affects women at lower doses than it does men. This is partly due to the fact that women are generally smaller and that their bodies contain less water and more fat, allowing the concentration of ethanol to rise more

quickly. There are also differences between men and women in the enzymatic processes that break down ethanol and eliminate it from the body. As a result, it generally takes less alcohol to cause physical harm in women than it does in .<sup>53</sup>men Alcohol has been theorized to promote carcinogenesis by its potential to increase circulating levels of estrogen and other hormones; through its oxidation by-product, acetaldehyde, which may act as a co-carcinogen by induction of cytochrome P450 enzyme which are involve in the activation of liver carcinogens and by depletion of folate.<sup>54</sup> Several epidemiological studies have examined the association between alcohol consumption and ovarian cancer risk.<sup>55</sup> Another epidemiological research on alcohol consumption consistently shows a positive association between alcohol, even low to moderate intake, and breast cancer risk in post- menopausal women. Recommendations regarding the use or avoidance of moderate alcohol, must take into consideration both its potential benefit on cardiovascular disease, as well as its potential risk for breast cancer.<sup>56</sup> A woman’s risk of cardiovascular disease increases after menopause, whether the menopause is natural or artificially induced early. For example, the incidence of coronary artery disease in women increases after bilateral oophorectomy<sup>57</sup> or early natural menopause.<sup>58</sup> Findings of the research show that consumption of 15–30 g alcohol/day by postmenopausal women apparently decreases cardiovascular disease risk by improving lipid profiles. Plasma LDL-cholesterol and triacylglycerol concentrations improve after 15 g alcohol/day; plasma HDL cholesterol improves only after 30 g alcohol/day.<sup>59</sup>

**Soy food Intake:** Phytoestrogens are plant substances functionally similar to 17β-estradiol or that produce estrogenic effects.<sup>60</sup> They have a structure similar to estrogen.

**Table no 1:** Classification and Food Sources of Phytoestrogens<sup>61</sup>

Isoflavones		Lignans		Coumestans
Soybean products	Legumes	Whole grains	Fruits, Veggies, Seeds	Bean sprouts
Tofu	Soybean	Wheat	Apple	Alfalfa
Soy meal	Lentils	Wheat germ	Pear	Soybean
Soy grits	Beans	Barley	Cherry	Clovers
Soy flour	Chickpea	Hops	Carrot	
Soy milk		Rye	Fennel	
		Rice	Onion	
		Brans	Garlic	
		Oats	Sunflower seed	

			Flax	
			Vegetable oils (including flax, olive)	

Soya food is an important contributor of the isoflavones which play beneficial role in prevention of perimenopausal symptom.<sup>62</sup> After menopause the level of total cholesterol, low density lipoproteins, triglycerides and reduction in high density lipoproteins are gradually fluctuate and these are the important markers of cardiovascular diseases.<sup>63</sup> Soya foods improve menopausal symptoms and have positive health effects on plasma lipid concentrations and may reduce heart disease. Soya foods are also often used for treating the climacteric syndrome.<sup>64</sup> In a randomized, controlled, crossover trial in postmenopausal women suggests that, ingestion of soy nuts containing 25 g soy protein and 101 mg aglycone isoflavones was associated with a decrease in hot flashes and menopausal symptoms in postmenopausal women compared with the therapeutic lifestyle change diet without soy.<sup>65</sup> In another randomized, double-blind, crossover study, a statistically significant decrease in hot flashes occurred in 51 menopausal women consuming 20 g soy protein (containing 34 mg isoflavones) in single or split dosages compared to placebo (20 g complex carbohydrates).<sup>66</sup> After six weeks, a significant improvement was observed for the perceived severity of vasomotor symptoms in both soy groups compared with placebo, although in the “twice daily” group the effect was greater. This suggests having consistent circulating levels of phytoestrogens may be more efficacious than a single higher dose.<sup>66</sup> Another meta-analysis showed that soy food intake might be associated with better survival, especially for estrogen receptor negative, estrogens receptor positive/ Progesterone receptor positive breast cancer, and postmenopausal patients.<sup>67</sup>

**Sexuality:** There is increased interest in the study of postmenopausal sexuality owing to rise in sexual dysfunction in the menopausal transition, the ageing of the population and the predominance of women. The approach to sexuality, which is complex at any stage, becomes more difficult after the menopause because of anatomical, physiological and psychological modification and negative culture influence. Estrogen deficiency causes the appearance of dyspareunia and vaginal dryness. A growing body of evidence shows that sex hormones have a specific effect on the sensory organs that are the window for sexual stimuli in the environment.<sup>68</sup> Testosterone is an important

component of female sexuality<sup>69</sup> and according to cross-sectional studies; its levels are reduced in the post-menopause.<sup>70</sup> A study reported that numerous factors play roles in the sexual dysfunction encountered after menopausal transition, including the absence of a partner, nervousness and depression. A low dehydroepiandrosteronesulfate (DHEAS) level was reported to correlate well with sexual dysfunction.<sup>71</sup> From a psychiatric perspective, affected women are susceptible to decreased libido, depression, low back pain, and memory loss compared with their healthy counterparts, and they subsequently experience deteriorating health and a poor quality of life.<sup>72</sup> Findings of the study suggest that hypoactive sexual desire disorder (HSDD) which is defined as the persistent lack of sexual desire causing “marked stress or interpersonal difficulties”<sup>73</sup> has substantial impairment in health related quality of life.<sup>74</sup> Some populations of menopausal women, however, can derive sexual benefit from hormone therapy (HT). For example, women complaining of vaginal discomfort or atrophy resulting from hysterectomy or significant changes in hormonal levels may find HT quite helpful. Similarly, women on selective serotonin reuptake inhibitors may report delayed or inhibited orgasm and diminished sexual desire.<sup>75</sup> Because many menopausal women are taking antidepressant medications, it is important to assess whether their sexual complaints may be partly attributable to their medications as well as to changes in hormonal function. Though not fully understood, sexually active women are less likely to experience vaginal atrophy.<sup>76</sup> In addition, women who do not enjoy premenopausal sex and activity often use menopause as an excuse to “sexually retire”.<sup>77</sup> Well-designed, placebo-controlled studies and clinical trials are needed to determine the effectiveness of new medical rehabilitation, such as herbal remedies, not only on sexual function but on menopausal symptoms in general.<sup>78</sup>

**Psychological changes:**

Mood disturbances, such as anxiety, depression and mental distress and other psychological problems are common among women. According to the US national co-morbidity survey replication, estimates of the lifetime prevalence of mood disorders and anxiety are 28.8%, respectively, with an estimated 50-60% higher lifetime risk among then

man.<sup>79</sup> A variety of assumptions have been suggested that why so numerous menopause women experience mood disorders. These assumptions include the stress of menopausal symptoms and fluctuating levels of hormones in the body. As hormones drop, especially estrogen, leading to a reduction of key neurotransmitters such as serotonin, dopamine and endorphins, as well as environmental factors, across the menopause; late cognitive and motor symptoms express the long-term effect the estrogen losses, and other biological damaging factors, have on neuronal survival. Indeed, these symptoms appear when the majority of cholinergic and dopaminergic neurones, respectively, have been destroyed. Women can experience episode of sadness and despondency. Some women experience a severe fall in mood, resulting in depression. Depression is a medical illness that can lead to a variety of emotional and physical problems also called major depression.<sup>80</sup> A number of aetiological factors can be responsible for depression among menopausal women which includes: previous depressive episodes such as premenstrual syndrome and/or postpartum depression; comorbidity with major menopausal symptoms, especially hot flashes, night sweating, sleep disturbance; menopause not treated with HT; major existential stress; elevated body mass index; ethnicity and low socioeconomic level. Postmenopausal depression is more severe, has a more insidious course, is highly resistant to conventional antidepressants in comparison with premenopausal women and has better outcomes when antidepressants are combined with HT.<sup>81</sup> A research which was conducted on the sample of peri and post menopausal women shows that, the positive consequences of menopause were mentioned 63 times, whereas the negative were evidenced 93 times. This demonstrates that in this sample there are a higher number of perceived negative consequences regarding menopause, compared with the positive consequences.<sup>82</sup> Multiple correlation analysis (MCA) of a study suggests that the representation of menopause can be explained by three factors. The first factor is represented by negative experience, negative physical consequences, and aging; therefore, age progression can be viewed as a negative experience. The second factor, which supports the representations of the menopause model, is composed of three independent aspects: the termination of menses, a depreciation (or minimization) of the menopause of the participant, and the menopause as a positive experience. The third factor evidences menopause's representation as a phase of life cycle; this means that menopause is seen as a normal or expected transition that is clearly distinct from negative and positive representations. In conclusion,

women might represent menopause as being a negative or positive experience or as a life cycle transition.<sup>83</sup> A study suggests that physical activity such as walking and yoga interventions appears to enhance mood and menopause-related QOL during menopause; however, other aspects of mental health may be affected only as a result of reduction in menopausal symptoms. Increasing cardio-respiratory fitness could be one way to reduce menopausal symptoms.<sup>84</sup>

**Conclusion:** Findings of the various studies suggests that post-menopausal quality of life is affected by various potential confounders such as physical activity, social demographics, some dietary habit like smoking, tobacco use, alcohol consumption, altered BMI and various psychological changes. But all the factors influence the quality of life by two ways either positive/ negative or both. For example those women who smoke have lower risk of post-menopausal endometrial cancer, an earlier menopause and a higher incidence of osteoporosis and it has been suggested that all these associations are consequences of an anti-oestrogenic effect of cigarette smoking.<sup>43</sup> Same with the use of alcohol as several epidemiological studies show the association between alcohol consumption and ovarian cancer risk and breast cancer risk in post- menopausal women.<sup>55</sup> But various studies suggest the potential benefit on cardiovascular disease. A woman's risk of cardiovascular disease increases after menopause, whether the menopause is natural or artificially induced early. Regular physical activity and balanced BMI are suggested to enhance quality of life. Psychological changes like depression, mood change, irritability and positive and negative thoughts may also alter the post-menopausal quality of life. More elaborated studies are required to consider the risk versus benefit ratio in the regards of these potential factors.

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