

# Influence of the hormonal status on somatic, psychopathological and mood symptoms in climacteric women

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## Summary

**Objective:** To evaluate the influence of hormonal status on somatic, psychopathological and mood symptoms in climacteric women.

**Method:** 122 postmenopausal women have been evaluated by the PISA-system and P.O.M.S. (Profile of Mood States) to evaluate somatic, psychopathological and mood symptoms in a 3-intervention trial (perimenopausal women, postmenopausal women on replacement therapy, and postmenopausal women without any therapy).

**Result:** We found no statistically significant difference among the three groups. A clear trend has however resulted: sex hormones seem to decrease the depressive mood, aggressiveness/anger and sexual dissatisfaction.

**Conclusion:** Our results are inconclusive but they suggest that hormones influence some psychological and mood symptoms during the climacterium.

**Key words:** Menopause; Hormones; Psychopathology; Mood symptoms.

## Introduction

Menopause is a physiologic state during the life of women characterized by hormonal changes that may cause some symptoms: hot flashes, sweating and vaginal dryness are the most directly correlated to hormonal menopausal state [1, 2]. Hormonal replacement therapy (HRT) is efficacious in resolving menopausal symptoms even if with non univocal results. The main benefits prevalently look at the improvement of life [3] and promotion of psychological well-being [4, 5]. Such benefits are obtained by the prevention, attenuation and the disappearance of symptoms; HRT, for example, by improving vaginal dryness positively influences sexual function, thus improving the quality of life [6, 7] even if sexual function is not dependent only on hormonal levels [8]. The effects of HRT are more efficacious on hot flushes, vaginal dryness, cardiovascular disease and osteoporosis, than on others such as anxiety and a fall in the mood tone [9-13]. A tie between cognitive function and estrogens has been supposed, and estrogens could have a fundamental part in preventing Alzheimer's disease [14, 15]. Positive effects on anxiety and depressive moods have been achieved more by antidepressive drugs than by the exclusive use of HRT [16-18]. Thus, improvements seen in anxiety and mood tone with HRT could be due to the positive effect caused by the improvement of other menopausal symptoms and disturbances (domino effect). The efficacy of sexual hormones on psychopathological, sexual and mood symptomatology correlated to menopause is various. Positive effects of estradiol and progesterone on hostility and depression have been found [19]. The efficacy of estrogens on sleeping interruptions in perimenopause has been pointed out and a correlation

between mood changes and sleep interruptions in the same period compared to premenopause have been found [20] but nocturnal awakenings could be caused by frequent hot flashes, and these could be a somatic manifestation of the anxiety [21]. We must not forget, moreover, that sleep disorders could be present in depressive pictures (together with a reduction of sexual desire, difficulties in concentration, etc.) and that, therefore, a clinical multispecialistic intervention, to clarify the origin of symptoms and disturbances seems necessary. Adding androgens to estrogen therapy can increase libido and have a positive effect on sexual function and behavior [22-24].

Some authors [25, 26] think that the predisposition of personality or the presence of pre-existent psychological discomfort could play a significant role in the genesis of psychopathological pictures (anxious, depressive, dysphoric, phobic-obsessive, psychotic etc.) that manifest during the climacterium. Other authors [27-31] think that the stressing vital events, significant changes, problems of psycho-social context have a great influence in determining psychological discomfort or psychopathology. Therefore a global approach to menopause which considers the integration of various aspects of a bio-psycho-social kind is needed.

In fact, the psychophysical well-being of postmenopausal women perhaps does not depend only on hormonal changes, but also the structural conditions of personality, quality of psycho-social-cultural status, health and life style have to be considered. Symbolic dimension, quality and quantity of emotional investments affected can supply the key to the variability of the subjective real life. The aim of this study was therefore to clarify the influence of hormonal status on psychological, mood and sexual disturbances that often characterize women in climacterium.

## Materials and Methods

A sample of 122 women, aged 37-60, who voluntarily came to the Menopausal Center of the Department of Obstetrics and Gynecology at the University of Bari has been examined. To avoid the influence of neurovegetative symptoms on psychopathological and mood states, only women showing light symptomatology at the preliminary interview were considered. An incidence of hot flashes from 0 to 2 in a survey range of the PISA-system from 0 to 6 has been considered as light symptomatology.

*Inclusion criteria* were:

1. Women in perimenopause so considered if aged >35 and with menstrual flow or with amenorrhea <6 months;
2. Women in spontaneous menopause so considered if with amenorrhea  $\geq 1$  year;
3. Women with bilateral ovariectomy;
4. Women in HRT for six months or more (for the women in the therapy group).

*Exclusion criteria* were:

1. Current assumption (or assumption stopped less than 3 months before) of antianxiety agents and/or antidepressive agents;
2. Serious psychologic or organic diseases;
3. Current assumption (or assumption stopped less than 3 months before) of hormonal agents for women in perimenopause and in postmenopause not in the hormonal treatment group;
4. Serious menopausal neurovegetative symptomatology.

The sample was divided into three groups:

A) women in perimenopause not in hormonal treatment (n=32);

B) women in postmenopause (spontaneous or surgical) not in hormonal treatment (n=44);

C) women in postmenopause (spontaneous or surgical) in hormonal treatment (n=46).

During the following clinical check the PISA-system was used to collect anamnestic data, psychopathological and somatic symptoms, and the P.O.M.S. (Profile of Mood States) to evaluate emotions and mood states. The two tailed t-test and the Fischer's exact test were used for the statistical analysis of the data. For analysis of the data the following information collected by the PISA-system was considered: *psychopathological symptoms*: depressive mood, anxiety, decrease in libido, sexual dissatisfaction; *somatic symptoms*: difficulty falling asleep, nocturnal awakenings, early morning awakenings, hot flashes) and tension/anxiety, and mood aggressiveness/anger for the P.O.M.S. The main socio-cultural variables (education, civil status, profession) were also analyzed.

## Results

We did not find any statistically significant difference among all variables examined as regards hormonal status. A clear trend is however evident.

The three groups were sufficiently homogeneous in education and civil status; regarding profession we had a greater incidence of employees in the HRT group. In

Table 1. — *Characteristics of the women included in the study.*

	Perimenopause Total no. 32		Postmenopause Total no. 44			In HRT Total no. 46			
	%		%		p*	%		p°	p§
Age	48.4		52.6			51.4			
Education (years of study)	7.1		7.2			7.1			
With partner	28	87.5	37	84.09	0.21	39	84.7		0.55
Without partner	4	12.5	7	15.9		7	15.2		
Housewife	28	87.5	27	61.3		25	54.3	0.12	0.44
Employee	2	6.25	7	15.9		14	31.8	0.02	0.14
Manual labour	1	3.12	5	11.3		2	4.3		0.22
Self-employed	0		1	2.2		3	6.5		0.34
Unemployed	0		0	9.09		1	2.17		0.51
Pensioner	1	3.12	4			1	2.17		0.18

Legend: \*Related to differences between group A and group B. °Related to differences between group A and group C. §Related to differences between group B and group C.

Table 2. — *Study groups and their outcomes.*

PISA-system	Perimenopause without HRT	Postmenopause without HRT	Postmenopause with HRT
		P*	P§
Depressive mood	0.72	0.79	0.71
Anxiety	0.86	0.86	0.93
Decrease of libido	0.79	0.9	0.91
Sexual dissatisfaction	0.41	0.53	0.47
Hot flashes	1.03	1.04	0.93
Difficulty in falling asleep	0.41	0.44	0.45
Nocturnal awakenings	0.79	0.72	0.76
Early morning awakenings	0.48	0.41	0.5
P.O.M.S.			
Tension/anxiety	50.6	52.8	52.3
Aggressiveness/anger	54.2	56.3	54.5

Legend: \*Related to differences between group A and group B. §Related to differences between group B and group C.

postmenopausal women with HRT anxiety was pointed out by the PISA system and POMS showed increased depressive moods and aggressiveness/anger with postmenopausal status and a return to premenopausal values with HRT. Hormonal status seems to influence sexual dissatisfaction. In fact it increases in postmenopause and decreases with HRT; the decrease of libido is higher in postmenopause but does not improve with HRT. We did not find significant fluctuations in the disorders of sleep waking rhythms.

## Discussion

Mood disorders are more frequent in women during times of relatively low levels of steroids, such as in the premenstrual period, postpartum and menopausal status. Ovarian hormones act on specific areas of the brain and they seem to be one of the essential substances for the maintenance of the limbic system and forebrain function which regulate anxiety, mood, memory and cognitive function [32].

During the climacteric period anxiety, depression, forgetfulness and sleeplessness are more frequent, and HRT may improve these symptoms [33, 34], even if psychosocial factors, such as stressful life-events, pre-existing psychological difficulties, psychiatric disorders, personality predisposition, expectations and attitudes towards menopause are more likely causes of emotional distress.

Regarding the psychological benefits of HRT and the improvement of symptoms, the conclusions of different studies and research are not univocal, so the questions still remain controversial. Sexuality is a very important part of physical, emotional health and psychological well-being. Sexual function is assumed to be closely related to the hormonal milieu of the body, and estrogen replacement therapy has been reported to enhance sexuality in a significant percent of women [35]. Estrogen improves sexuality indirectly acting on complaints such as dyspareunia and also affects body image, thus improving the quality of the relationship with ones partner which affects sexual behaviour. Our data, in fact, show that sexual satisfaction improves in postmenopausal women using HRT.

Regarding the decrease in libido, menopause seems to have a negative influence, but HRT cannot return the decrease to pre/perimenopausal values; this datum gives less importance to the influence of HRT on libido and gives indirect value to the important role played by the addition of androgens as promoters of libido. A lot of bio-psycho-social aspects affect sexual function: hormonal changes, body image, self esteem, health status, expectations, beliefs, relationship changes, stressful events, quality of the relationship with ones partner, etc. A woman's sexual life and psychological well-being cannot be reduced to only hormonal status because HRT is an important factor but not the only one which determines sexual behavior. The increase in anxiety in postmenopausal women using HRT shows HRT is unable to decrease it, probably because the same HRT may cause

the anxiety. This could be due to side-effects or fear, above all of cancer, or to other psycho-socio-cultural variables. Depressive moods and aggressiveness/anger increase during the menopausal status, but HRT helps, even if not significantly, probably also because it represents a "restitution" if the menopause is considered symbolically as a loss. Disorders of the sleeping/waking rhythm seem to increase with HRT, as is also the case for anxiety. It is well known how much anxiety can interfere with sleep. Depressive mood improves with HRT, but this obviously does not enable us to assert that HRT has antidepressive properties or increases mood tones, but suggests the need for deeper studies to draw conclusions. In our study we did not find any statistically significant difference regarding psycho-mood-sexual disorders that accompany women into menopause with regard to the condition of the lack of postmenopausal hormones and to the presence of endogenous and exogenous hormones, perhaps because of scant numerosity of the sample; but the noted trend is clear and in accordance with current data, and can be a premise to further discussion. It is likely then, that the presence of hormones can influence in many ways psychological postmenopausal disorders.

We conclude that hormonal status is not determinant but can weigh on some moods and symptoms such as depressive mood, aggressiveness/anger and sexual dissatisfaction, even if it does not appear to have a significant effect, and this has to be considered in women intending to assume HRT.

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