

## ECOSUSTAINIBILITY AND MENTAL HEALTH: FEMALE ASPECTS

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### SUMMARY

*The relationship with the environment is one of determinants of the health status of the human population. Many aspects of today's society negatively affect the environment and, consequently, human health. In particular there seems to be a prevalence of diseases, linked to environmental pollution, which affects the female gender, almost to assume a role of gender pathogenicity.*

*But the female gender is also the promoter of changes; in fact, women are more sensitive to environmental health and adopt more appropriate behavior to prevent environmental damage.*

*It is precisely in the balance between these two aspects that we can see a factor promoting behaviors to combat the effects of environmental pollution on the mental health of Man.*

**Key words:** *environmental pollution - mental illness of gender - prevention of damage to health from pollution*

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### INTRODUCTION

The relationship with the environment is one of the fundamental determinants of the health status of the human population. From the polluted city to the pristine forest, the relationship between the individual and different environmental factors can result in different stages of well-being or illness. Understanding which elements to take into consideration, from an epidemiological point of view, to assess the impact of various factors on the state of health is a very complex task.

It is only through the intersection of environmental, territorial and urban, epidemiological, mortality data as well as other health, demographic, cultural and social indicators that a series of possible scenarios can be traced for a given population. Useful to regulate and foresee, when necessary, health policy actions that improve the health of the population and limit the damages deriving from specific environmental components.

Many enemies of health can easily be prevented by promoting healthy lifestyles, through the implementation of a policy and an effective strategy that can also act on socio-environmental conditions to considerably reduce the burden of diseases and disabilities that weigh on society (Chief Medical Officer 1999).

But it is not enough to urge people to adopt healthy lifestyles because the environment can have an indirect or direct impact on health; in fact it promote the circulation of pathogens and other biological factors, such as pollens and other allergens, which affect, when present, the susceptible population.

However, it can also act through non-biological factors, such as the presence of chemical and physical contaminants: in this case, it is more difficult to determine a cause-effect relationship and epidemiological studies try to describe and quantify the exposure damages, both acute and chronic, to different substances. Finally, the environment can be the source of accidents and disability when, at work or on the road, adequate safety and protection measures are not observed.

In general, the prevention of diseases of environmental origin requires a complex effort of action both on behaviors and lifestyles, and on the norms and institutional measures that allow to guarantee the safety of the population exposed to environmental risks.

Attention must be paid to environmental health issues with reference to all those conditions in which the determinants of illness and disability are chemical, physical, economic and structural conditions, organizational and preventive deficiencies, behaviors and environments at risk.

So we can briefly list the environmental problems that affect health in general and on the mental one in particular:

#### **Waste and Health**

The problem of waste, Incinerators and health, Mortality, malformations, tumors.

#### **Electromagnetic fields**

Electromagnetic fields made by Electrical, industrial and domestic instruments, mobile telephony, TV ecc: tumors, schizophrenia, increase in aggression.

Some scientific studies have suggested that exposure to electromagnetic fields generated by these devices may have harmful effects on health (cancer, impaired fertility, loss of memory and negative changes in children's behavior and development, increase of schizophrenia and aggression).

#### **Pesticides**

Pesticides, although they are still widely used in intensive farming, are for the most part substances that are very toxic and harmful to human health and the whole eco-system (environment), causing damage to spontaneous vegetations or to insects useful. The dangers of pesticides are also due to some of their chemical characteristics: they are persistent molecules, so once they are spread into the environment they bind to the soil, spread in the water where they can contaminate and bind to the tissues of fish and other animals (defined

mechanism of bio-accumulation), which entering the food chain, end up in our tables, thus constituting an additional source of exposure, in addition to plant products that are treated directly.

There is a close relationship between direct or indirect exposure to these substances, and some serious diseases: obesity, diabetes, Parkinson's disease, chronic diseases (allergies especially in workers), disorders of the reproductive system, autism and tumors. Particularly sensitive to the damage of pesticides, in addition to children, are women, precisely because of their physical structure, so much so that we can speak of "gender difference" especially with regard to some types of pesticides that are classified as "endocrine disruptors" or "endocrine disrupters", endocrine active substances able to interact or interfere with the normal hormonal action, causing pathologies of the female reproductive system, including endometriosis.

### ***Environmental pollution***

According to the European Environment Agency in Italy, 84,400 premature deaths are recorded each year due to air pollution, which increases the risk of tumors, compromises the development of the fetus and increases the possibility that the child is born with mental retardation. The scientific evidence amply demonstrates that the toxic substances present in the air, in food, in the water generate an increased risk not only of cancer or cardiovascular pathologies, but also of numerous other pediatric and non-pediatric diseases, among which are dramatically increasing diabetes, infertility, endocrinopathies, neurological, cognitive and behavioral disorders and premature aging of the woman as the increase in finer dust increases the atrophy of the white matter of the brain, accelerated aging of two years for women between 71 and 89 years.

## **WHAT TO DO?**

Living in the green is good not only for physical health but also for mental health. A UNEP dossier, the UN agency for the environment, and the WHO, the World Health Organization, have dealt with the relationship between environment and mental health. The document, entitled "Healthy environment, healthy people", was presented to the United Nations Assembly on the Environment in Nairobi (Rapporto UNEP-Agenzia ONU per l'ambiente-OMS 2003).

The report emphasizes that the presence of more green spaces in the city, in addition to increasing physical activity outside the home, and therefore reducing the incidence of obesity, also reduces stress levels and is beneficial for mental health. Several researches in the past have analyzed the correlation between environment and depression, a condition that in the world affects, according to the WHO, 350 million people.

Is it possible to promote better mental health by intervening directly on urban furniture? Who has administrative responsibilities should not underestimate these

aspects and should try to organize cities also on the basis of criteria that take into account the green per capita or accessibility to green spaces or live healthier environments.

City dwellers often face crime, pollution, social isolation and other environmental stress factors that are higher than those of people living in rural areas. For years, studies have constantly linked the risk of developing schizophrenia with urban environments, but only now researchers begin to understand why this association exists.

The first time the researchers hypothesized that urban life could increase the risk of schizophrenia was in the thirties of the last century.

Convergent evidence indicates that growing in the city doubles the risk of developing psychosis later in life. These studies have also begun to suggest that urban environments may increase the risk of incurring other mental health problems, such as depression and anxiety.

Environmental contamination is now a national emergency that compromises not only reproductive health but also the overall health of the population and of future generations. If we do not intervene promptly on the causes of diseases such as cancer, hormonal diseases, spontaneous abortion, infertility, autism, diabetes, obesity, psychosis etc. - improving air quality, of water and food and reducing exposure to poisons such as heavy metals, dioxins, PCBs, ultrafine particulates, is likely to condemn all public health policy to the ineffectiveness.

While on the one hand the attention of the population and of the local communities grows - starting from those impacted - on the environmental determinants of health, the government policies go in a completely different direction and reclamation and environmental protection are lagging behind in the list of priorities of government - denounces Laura Greco, President of the A South Association ([www.fbi.gov](http://www.fbi.gov)).

The Land of Fires has shown that environmental contamination causes serious diseases, infertility and cancer diseases that increasingly affect children. In Campania, the region with the youngest population in Italy, the health cuts are enormous. Not only primary prevention is essential, but also the possibility of treatment. And Campania is only the tip of the iceberg of the environmental emergency spread throughout the country.

## **ENVIRONMENTAL SUSTAINABILITY IS A WOMAN - THE FUTURE IS A WOMAN**

The adult female population is on average more informed, aware and attentive to the environmental and social sustainability of the male counterpart, already orientating consumption and lifestyles of Italian families.

Women, especially in the age group between 18 and 34, with a higher educational qualification and employment as a student, clerk or teacher, are shown to be more informed on average.

**Table 1.** Frequency of disorders in Italy, lifetime differences between males and females

	Prevalence at 12 months% (IC 95%)			Prevalence of lifetime% (IC 95%)		
	Males	Females	Total	Males	Females	Total
Every mental disorder	3.9 (2.6-5.3)	10.4 (8.2-12.6)	7.3 (6.0-8.6)	11.6 (9.7-14.0)	24.4 (21.0-28.0)	18.3 (16.0-20.0)
Every affective disorder	2.0 (1.3-2.6)	4.8 (3.9-5.8)	3.5 (2.9-4.0)	7.2 (6.0-8.4)	14.9 (13.0-17.0)	11.2 (9.8-13.0)
Every anxiety disorder	2.2 (1.0-3.4)	7.8 (6.1-9.6)	5.1 (4.0-6.3)	5.5 (4.0-7.1)	16.2 (13.0-19.0)	11.1 (9.3-13.0)
Every alcohol disorder	0.2 (0.0-0.5)	0.1 (0.0-0.2)	0.1 (0.0-0.3)	2.0 (1.1-3.0)	0.1 (0.0-0.3)	1.0 (0.6-1.5)
Major depression	1.7 (1.1-2.2)	4.2 (3.4-5.0)	3.0 (2.6-3.4)	6.5 (5.5-7.5)	13.4 (11.0-15.0)	10.1 (9.0-11.0)
Dystimia	0.7 (0.3-1.1)	1.3 (0.8-1.9)	1.0 (0.7-1.4)	2.3 (1.6-3.0)	4.4 (3.2-5.5)	3.4 (2.7-4.1)
Generalized anxiety	0.1 (0.0-0.2)	0.9 (0.4-1.4)	0.5 (0.3-0.8)	0.8 (0.4-1.2)	3.0 (2.0-4.0)	1.9 (1.3-2.5)
Social phobia	0.6 (0.2-1.1)	1.4 (0.7-2.1)	1.0 (0.6-1.3)	1.6 (0.8-2.3)	2.6 (1.6-3.6)	2.1 (1.4-2.8)
Specific phobia	0.5 (0.2-0.9)	4.6 (2.9-6.4)	2.7 (1.7-3.6)	2.5 (1.4-3.6)	8.8 (6.2-11.0)	5.7 (4.3-7.0)
PTSD	0.7 (0.0-1.7)	0.9 (0.2-1.5)	0.8 (0.2-1.4)	1.1 (0.1-2.1)	3.3 (1.7-4.9)	2.3 (1.2-3.3)
Agoraphobia	0.1 (0.0-0.2)	0.7 (0.3-1.1)	0.4 (0.1-0.6)	0.6 (0.1-1.1)	1.7 (0.9-2.5)	1.2 (0.6-1.7)
Panic disorder	0.3 (0.1-0.5)	0.9 (0.5-1.3)	0.6 (0.4-0.8)	0.9 (0.5-1.3)	2.2 (1.6-2.8)	1.6 (1.2-1.9)
Alcohol abuser	0.2 (0.0-0.5)	0.0	0.1 (0.0-0.2)	1.6 (0.7-2.4)	0.1 (0.0-0.1)	0.8 (0.4-1.2)
Alcohol addiction	0.0	0.1 (0.0-0.2)	0.0 (0.0-0.1)	0.4 (0.1-0.8)	0.1 (0.0-0.3)	0.3 (0.1-0.5)

PTSD: post-traumatic stress disorder

The increase in sales of loose products is to be attributed to women (thus reducing the environmental impact of packaging, making cities more liveable).

Ultimately, if sustainability is becoming a style of sight increasingly felt and practiced in our country, this is also thanks to the daily, generous and often obscure commitment of women. On issues such as the fight against environmental pollution, climate change and the waste of natural resources, we women have a sensitivity and depth of view that derive from the protection of life and that today are becoming a common heritage of Italian society (www.iss.it).

A correct environmental education must lead to respect for natural cycles, must be based on scientific knowledge of the effects of environmental deterioration, on the assessment of the different aspects of the ecological problem that require integration of approaches: from biological, to economic, industrial, legal and ethical. The development of an ecological awareness at a personal and community level must be accompanied by appropriate policy interventions to ensure the conditions for sustainable development by controlling the management of the environment.

## WOMAN AND MENTAL HEALTH: SOME DATA

In 2005 in Italy the results obtained from the first epidemiological study on the prevalence of mental disorders were presented in a representative sample of the general adult population: this survey is part of a wider European project called ESEMed (European study on the Epidemiology of mental disorders) at the initiative of the World Health Organization and Harvard University; in Italy the study was promoted and coordinated by the Istituto Superiore di Sanità (ISS) (www.iss.it) (Table 1).

Results of the study (www.iss.it): Italian women are much more at risk than men of suffering from psychological or psychiatric discomfort during their life, in particular women are more vulnerable to mood disorders (Lifetime prevalence of Major Depression: 14.9% among women, 7.2% among men), anxiety disorders (Lifetime prevalence: 16.2% among women, 5.5% among men), phobias (Lifetime prevalence: 8.6% among women, 2.5% among men), panic attacks (Lifetime prevalence: 2.2% among women, 0.9% among men).

More recent data released by WHO show that about 25% of the work days lost by the female population in the world is attributable to depressed mood.

## ENVIRONMENTAL POLLUTION AND WOMEN'S HEALTH

*"Guardians of the Earth-Women's Health is the Future of the Planet"* (www.greenstyle.it).

It is important to bear in mind that primary prevention, ie the elimination of the causes of diseases, is a problem of a political nature and of health planning.

Environmental causes have a huge impact on women's health and the scientific literature on this subject is vast and consolidated:

### *Possible damages during pregnancy (even at low levels)*

An American survey recently revealed that even minimal levels of exposure to pollution imply neurological damage to the fetus as well as a greater incidence of respiratory diseases due to premature birth: pre-term birth can be induced by intrauterine inflammation due to the pollutants present in the air and that the future mothers have breathed, accumulated in the placenta and transmitted to the newborn.

### **Premature aging of the woman**

A 2015 study in Los Angeles found that air pollution accelerates the physiological aging process of our brain; the survey was conducted on a sample of over 1400 healthy women, aged between 71 and 89 years, without ongoing dementia processes, residing in areas with high levels of pollution.

### **Results**

With increasing exposure to the finer powders (which penetrate more easily into the respiratory tract) there is a diffuse atrophy of the white matter of the brain, made up of fibers that deeply connect very distant areas: to be reduced in these women is particular the white matter of the temporal lobe, of the frontal lobe and of the corpus callosum, thus accelerating aging for a good two years.

## **WOMEN'S CONTRIBUTION TO ENVIRONMENTAL PROTECTION FOR BETTER MENTAL HEALTH**

The Ristorative effect and the attention of women: natural environments produce a regenerating effect on our psychophysical state under stress conditions. How does all this happen?

Often women feel tired not so much or not only physically but especially under the psychological profile ("I should just pull the plug!"): Mental fatigue derives from a condition of attention focused on a particular task that requires a considerable expenditure of energy (a child? work? a parent with health problems?), a condition that - if protracted over time - leads to a decline in cognitive performance; the environment helps us because through ecological initiatives such as:

- -Practicing the cd. zero-cost tourism (a responsible journey in natural areas that preserves the environment and improves the well-being of local populations);
- Stroll along the promenade or on the park road for at least 30 minutes;
- Exit by bike and not in the car when possible - there is a positive impact on women in terms of anxiety reduction, anti-age effects, stress reduction but above all the recovery of the indispensable attentional capacities in planning our days (Costa 2015).

## **THE WOMAN AND THE SEA**

British and German researchers have verified that the noise of the sea waves and the noise of the petrol engines are perceived as very similar by the brain by the women living in the apartment; they did listen to a group of volunteers this noise (similar to both the waves and the engine) presenting at the same time to some of them (Group 1) the image of a street with buildings, and others that of a pristine beach (Group 2) Magnetic Resonance has shown how - with the same perceived sound - the brain of Group 1 gave signals of stress while in the Group 2 volunteers new connections were created with a growing sense of harmony and well-being;

otherwise, the distance from the sea combined with the poverty of green spaces increases the levels of anxiety and stress in women.

## **WOMAN AND SPORT**

Choosing to practice physical activity not inside a gym but in an open place (when the weather allows it) turns out to be a strategic action for women in many ways because:

- Activate your metabolism more by allowing you to burn more fat;
- Allows better oxygenation and strengthening of muscles;
- Boosts immune defenses;
- Reduces free radicals by slowing down aging;
- Stimulates the production of endorphins helping to reduce anxiety and stress;
- Improves mood;
- By means of adequate sun exposure, it is possible to store and absorb vitamin D for the benefit of the skeleton;
- The tendency towards socialization increases;
- Does not require an economic investment in terms of subscriptions, membership cards, etc...

## **WOMAN AND BEAUTY: ORGANIC COSMETICS**

Carefully and consistently taking care of both their appearance and the natural environment through the choice of organic cosmetics has positive effects on mood and on the overall level of well-being experienced by women: this is demonstrated by neuro-cosmetic studies, that sector of biology skin that studies the relationship between skin and the nervous system; a simple gesture such as applying a biological cream on the face causes the brain to send nerve impulses which:

- make the most beautiful skin appear;
- they counteract skin aging and brain decay.

Shiseido, a famous Japanese company and world leader in the production of cosmetics and beauty products, has announced some data according to which the use of organic creams and make-up has positive effects, as well as on the environment, on the cognitive functions of women over 65 (hence on memory, attention, reasoning) since it increases the oxygenation of the left prefrontal cortex, implicated:

- in the planning of complex cognitive behaviors (planning, decision making);
- in the expression of personality;
- in the manifestation of positive and negative emotions;

The woman who chooses to adopt virtuous behaviors of environmental protection acquires more awareness both of the positive consequences of her actions and of personal responsibility in determining positive effects on other people; in this way the levels of: - Self-efficacy perceived, the subjective perception of the

qualities possessed with respect to a task to be carried out - Self-esteem - Creativity and imagination; that are all mediators of a greater psychological well-being of the person (Bandura 2000).

## WOMAN AND SECURITY

How safe do you feel in your living environment (the house, the condominium, the neighborhood)? And why?

The need for security is an anthropological need, primary, that the State has for years considered able to satisfy by repressing the illicit and neutralizing those who delinque, taking for granted the resulting sense of well-being of citizens.

### ***But is it really like that?***

In August 2017, the Minister of the Interior presented the latest data on crime in Italy ([www.interno.gov.it](http://www.interno.gov.it)) from which it emerges that crimes are decreasing, in particular this applies to murder and theft; despite these reassuring data, our perception of criminality remains among the highest in Europe, so the level of criminality and perceived safety of the environment do not coincide (as one decreases, it does not correspond to an increase in the other).

The environment is scary (Gennaro 2010) for a constant increase in the difference of the people who often become passive spectators, and this in reference to 2 theories.

### ***The theory of the broken window (Gennaro 2010)***

The criminologists J. Wilson and G. Kelling already detected in 1982 how it is necessary to deal not only with crime itself but also with all those deviant and transgressive actions that we often experience in our places of life; the idea is born from the image of a broken window: if someone breaks a window of a building and is not adjusted, who sees it spreads the idea that that building is abandoned or "no man's land", are so attracted others thugs who break other windows or real criminals who will carry out illicit activities such as drug dealing or prostitution, in a spiral of urban decay and violence.

### ***The theory of the viewer effect***

The episode of Kitty Genovese, when the environment turns to the other side: Catherine "Kitty" Genovese was a 29-year-old girl who lived on the outskirts of New York where she was killed in 1964, attacked in the street by a man who stabbed her for half an hour: the killer, seeing several people behind the windows watching the scene, sometimes interrupted himself fearing the arrival of the police, but then resumed his aggression because none of the many witnesses intervened or called for help. Why do you think? The spectator effect: taking

responsibility for intervening in the environment is not always easy, this effect indicates a situation in which individuals do not offer help to the victim in the presence of other people, creating an inversely proportional relationship between the number of witnesses and the possibility of rescue, the greater the number of spectators, the less likely it is that someone will act.

The environment that protects: the role of women and the Neighborhood Watch (Terraciano 2009): in the United States, at the end of the Sixties, the phenomenon of neighborhood surveillance originated, at the time with preventive initiatives of a community nature based on the collaboration between police and citizens; in the eighties the United Kingdom also adopted this initiative in which the role of women emerged both as promoters and as beneficiaries of: An increase in the sense of community and an improvement in the quality of life.

In Italy, in 2013, the ACDV Neighborhood Control Association was established, consisting of a territorial network of volunteers and specialists -women and men- who provide support both to municipalities and to private citizens wishing to develop participatory security programs in their neighborhood.

It is true that more repression of crime no longer implies perceived security; otherwise, by strengthening neighborhood networks and community relations (in the neighborhood, in the condominium, with local shopkeepers) and by reserving an active role for women, we obtain an increase in psychological well-being for them as well as for all citizens.

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