

# PUBLIC MENTAL HEALTH PROMOTION, EPIGENETICS AND NACUHEAL—ACTIVITIES

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## Укрепление общественного психического здоровья, эпигенетика и мероприятия «Природа—культура—здоровье»

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Укрепление общественного психического здоровья в свете новых эпигенетических исследований, окружающей среды и образа жизни может оказать влияние на наши гены как сегодня, так и в будущем. Последние эпигенетические исследования показывают, что наши гены могут включаться и выключаться как следствие нашего «стиля жизни». Поэтому укрепление здоровья и салютогенез могут оказывать положительное влияние на генетический аппарат человека. «Природа—культура—здоровье» — мероприятия (NaCuHeal) — методы и средства, которые могут быть полезны для предотвращения как психических, так и соматических проблем со здоровьем в будущем. В этой работе посредством данных научных исследований и практических примеров объясняется, как и почему оздоровительные природные и культурные мероприятия могут улучшить психическое и физическое здоровье населения.

*Ключевые слова: общественное психическое здоровье, политика, исследования, природа, культура, здоровье, NaturCultureHealth, NaCuHeal, укрепление здоровья.*

Public Mental Health Promotion in the Light of new Epigenetic Research, Environment and Lifestyle may have impact on our genes both today and in the future. Recent epigenetic researches indicate that our genes may turn on and off as consequence of the way we are living. Health Promotion and salutogenesis therefore may have a positive impact on our genes. Nature—Culture—Health — activities (NaCuHeal) are methods that may be useful to prevent both mental and somatic health problems in the future. This paper explains through research and practical examples how and why health promoting nature and culture activities can improve the mental and physical health of the general public.

*Keywords: Public mental health, policy, research, nature, NaCuHeal, culture, health, health promotion.*

### Introduction

**Public mental health promotion and its link to epigenetics and NaCuHeal-activities.** Current public mental health challenges ought to focus on interdisciplinary networks in collaboration with voluntary organizations in order to enhance health promoting settings at work, in hospitals, in schools and in local communities [49]. To this end, the World Health Organization (WHO) requires partnerships for health and social development between the different sectors at all levels of the community [60]. To provide mutual assistance within and between countries and facilitate exchange of information on which strategies are effective in which settings, there is also a call for closer cooperative networks [60]. To use resources and capacities in communities by strengthening empowerment of the individuals that suffer from non-communicable diseases, mostly depression and loneliness, would underline the importance of giving priority to the

topic Public Mental Health Promotion in the light of new epigenetic research.

**The Epigenetics Revolution.** Public Mental Health Promotion in the Light of new Epigenetic Research, Environment and lifestyle may have impact on our genes both today and in the future, and recent epigenetic research indicate that our genes may be turned on and off as consequence of the way we are living [15]. After the Human Genome Project (HUGO 2001) there were huge optimism among many experts and pharmaceutical companies about the potential identification of disease determining genes. These would be used to develop new drug treatments for any disease with a genetic origin. Later it has become evident that this is an unrealistic and simplified optimism. It turns out that most genetic risk factors for common diseases have a very low penetration, often less than 10 %. This implies that for most of the diseases dominating the global burden of diseases, including psychiatric disorders have other reasons than heritable or

acquired genetic traits drive and are decisive the pathological processes. Newer evidence (Encode 2012; Human Microbiome project) indicate that the relationship between our environment and the regulation of our genes have crucial impact on our metabolism both in health and disease [47]. The environmental impact on the regulation of our genes through so-called epigenetic mechanisms are mediated by physical, chemical, microbial, behavioral and social factors impacting the regulation of our gene expression. This implies two important paradigm shifts in our understanding of health and disease.

The first is that complex environmental factors and influences directly affect our metabolism, and the patho-physiological processes for a majority of complex public health diseases and challenges. That implies that generic public health preventive strategies for such diseases, directed towards environment, behavior and social conditions can be equally or more effective and efficient than individual prevention and cure.

Secondly, it turns out that epigenetic regulation of genes, both pathogenic and salutogenic, can be inherited over a few generations before being «Washed out» of the germ-line. This implies that the same mechanisms that can reregulate epigenetic factors towards salutogenic effects, possibly can have impact over several generations [15, 31].

In sum, this indicates the importance of public health strategies focusing on improving behavior, natural and built environments and culture. Public mental health promotion therefore should be among our prime strategies to enhance the general health of the public towards greater well-being for all.

#### **Why give priority to health promotion?**

Maintaining self and cultivating strategies of self-care in everyday life are vital ingredients in the improvement of public health in a salutogenic perspective. The experience of chronic and life-threatening illness is often accompanied by circumstances that lead to the loss of self [16]. The focus in salutogenesis [2] is to facilitate entering into a good circle, a positive feedback loop [2, 35]. Health-related cultural capital might be regarded as including cultural resources, knowledge and practical skills, which are important to people for the maintenance of prolonging good health. The medicalization of unpleasant or stressful aspects of daily life may only add to an already large amount of over-treatment and to the growth of health-care costs. Health, as a sociological conceptualization, is not a pre-given or immutable state, but socially and actively produced, performed, or negotiated as a feature of ordinary people in their everyday lives [58].

Health promotion is carried out by and with people in the sense that it improves both the ability of individuals to take action, and the capacity of groups, organizations or communities to influence the determinants of health (WHO 1997). A greater emphasis on infrastructure, settings and contexts to promote health signifies a venue, and a recognizable and familiar organizational base in the local communities as a meeting place for new

and diverse networks. To facilitate exchange of information concerning which strategies within and between countries are effective in which settings, such networks ought to provide mutual assistance as ways to exchange knowledge and solutions to public mental health issues.

**Can nature- and culture activities promote public mental health?** In recent years, some researchers have investigated the potential of nature and cultural activities in terms of their health promoting properties [1, 4-9, 11, 17, 21, 22, 29, 50, 52, 54]. This research has opened up a range of new and important questions that warrant empirical investigation.

The aim of the Centre for Nature-Culture-Health (NaCuHeal) in Asker, a suburb west of Oslo was to create a common arena and forum for salutogenic thinking and creativity [51, 54]. Since 1994 there have been several practices and initiatives at the Centre where individuals from the community with various illnesses and diseases have been assisted and stimulated to increase their self-efficacy, sense of coherence and empowerment. The Centres' focus on identity and ontological security [27] to achieve a strong sense of Self through participating in different nature-culture activities, indicates ways to use, establish or re-establish their own talents and capacities for work. It is thus vital to maintain function and inclination to work in order to improve environment, quality of life and health among people in the local communities [49]. The NaCuHeal-centre in Asker, Norway is one of the official partners of public health at the national level as well as municipality level. Criteria for success would be to develop a strong trust and valid cooperation and collaboration with public agencies, voluntary organizations, private businesses and pioneers to establish health-promoting settings [9].

The NaCuHeal activities can strengthen the social capital [24, 40] and functional ability of the participants or population included [4]. As such, these activities are useful 'bridge-building methods' for communication and exchange of information, ideas and practical help [26] and according to this author, health promoters need to be involved in helping to «repair the social fabric of society by building social capital» [26]. Social capital refers to social cohesion and the cumulative experience of relationships with both those known to us and those who are strangers, including relationships characterized by mutual trust, acceptance, approval and respect. People are social beings and the quality of social interaction is vital to both personal and communal well-being. Although the empowerment techniques that are involved in strengthening individuals are an essential part of the empowering process, people will not find themselves in control of their lives and health as long as barriers remain and the environment in which people live and work does not actually contribute to making a healthy choice the easy choice [55].

The purposes of the Nature-Culture-Health activities are:

- To increase participant's empowerment and strengthen their own health and quality of life.
  - Establishing solid social networks that are encouraging, motivating and stimulating
  - Exploring ways of coping in day-to-day activities by motivating work ability and function
  - Promoting social equity in health among people

**Potential practical effects of NaCuHeal-activities and theory.**

Recent research shows potential for improving public mental health and well-being by employing health-promoting nature and cultural activities [54]. The different NaCuHeal activities to be experienced by the individuals at the NaCuHeal Centre are physical activity, art, nature walks, dance, music, hiking, gardening or contact with pets. Figure 1 illustrate how Nature-Culture-Health — activities (NaCuHeal) may promote health in local, regional, national and global settings. In the local community the activities may take place at work, in schools, families and leisure time.

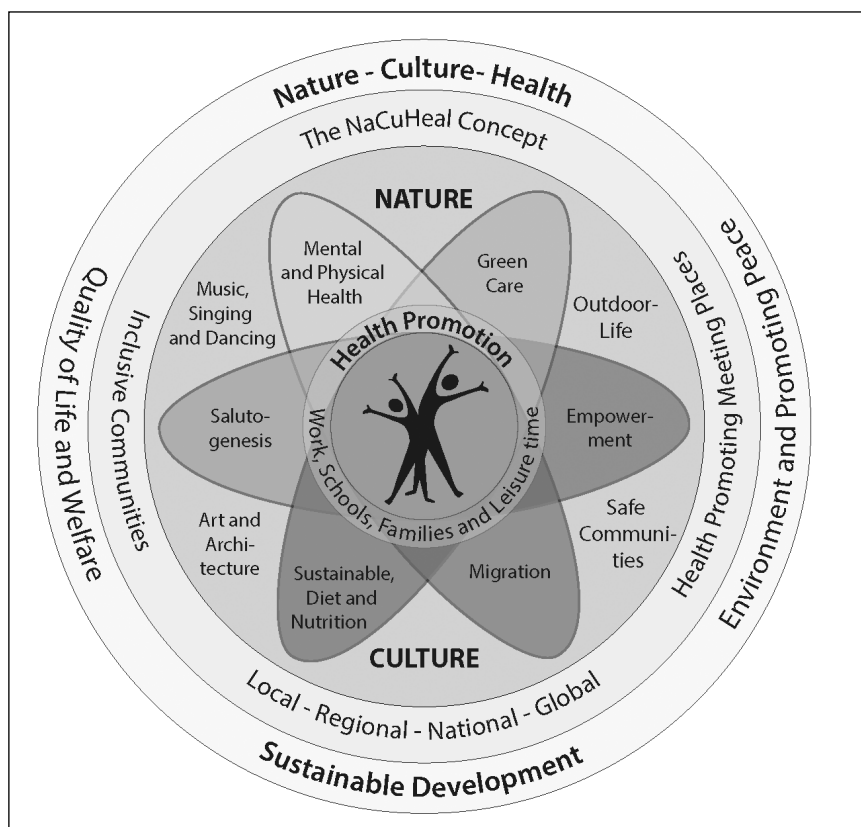
Through such creative activities one may give each individual a sense of coherence [3, 35] and agency [22] and for many persons long-term certified sick, this has been a method for return-to-work and rehabilitation [5–7]. Quite often, it may be necessary to practice and participate in NaCuHeal-activities for later to achieve a more successful, useful and active everyday life. Participation in nature-culture activities like local music making, walking in nature or hiking is also significant «routes» to sociability as it draws people back into the wider community according to Cohen [19], which is especially important for people with long-term sickness absence to gradually expand their sociability to prepare themselves to go back to their workplace. Music, (as well as song and dance) is socially significant in ways to act as a medium that allow people to connect with others, which allows bridge building and creates friendships, establishes and/or re-establishes social networks and local communities [10].

**International studies related to NatureCultureHealth Interplay**

**Music, Art and Public Health.** There is a growing body of scientific evidence in support of the value of the arts for health [1, 5, 6, 17, 19]. Music and health is a broader field where the use of music experiences to promote health and wellbeing in everyday life is studied and promoted [5]. Music

and public health is a new, interdisciplinary field for health professionals seeking to provide a knowledge base for the focused application of music experiences and activities in a public health perspective [11]. Music provides affordances and is appropriated in numerous ways, also to maintain or improve health. However, there is only sparse documentation and evidence based indications of how this knowledge can be interpreted, transformed and implemented in a public health perspective [11, 48]. There is a well-developed base of knowledge on how singing may promote health for clinical and non-clinical groups [17]. A Finnish study suggests that choir singing may improve longevity and disability-free life expectancy, and that this may be related to choir singing as a way of creating coherence in the community [34]. The results of several projects in Norway may guide the network in developing new multi-site projects to address these important issues. Previous population studies and a human-intervention study have shown that religious, social and cultural activities predict increased survival rate [21].

The debates have also considered stress [38] and the links between social isolation and mental health [40]. R. D. Putnam has addressed these issues through his discussion of 'social capital' [40]. He has called for arts and cultural activities to build capital through participation, not simply consumption or 'appreciation'. Moreover, «social capital is often a valuable by-product of cultural activities whose main purpose is purely artistic» [40] and



**Figure 1. NatureCultureHealth — activites (NaCuHeal) may promote health in local, regional, national and global settings (Tellnes 2017).**

may be achieved through musical participation, which carries opportunities for aesthetic self-realization and self-experience. Social capital, a vital factor contributing to health, has to do with how well we are socially connected and integrated in the community [24].

Data drawn out from the HUNT Study suggests gender-dependent associations between cultural participation and perceived health, anxiety, depression and satisfaction with life. The study supports the impact of cultural activities in health promotion and healthcare [21]. The Young-HUNT Study described how cultural activity participation may be positively associated with self-perceived health, life-satisfaction, self-esteem and mental health and stated how the extent of participation seemed to matter. In this study, those who had frequent participation in cultural activities reported better health outcomes compared to inactive adolescents [29]. There is a lack of studies evaluating the effect of interventional methods to using culture activities as health promotion, prevention and rehabilitation to reduce the prevalence, disability, costs and burden of these mental and somatic health problems. It seems to be of importance to understand the impact of sociocultural processes on biological ones, which according to [39] has been largely neglected and should become a main focus of research.

**Contact with nature and the impact of human health.** Feelings for nature are deeply rooted, evolutionary feelings and seemingly mixed with various cultural aspects, including our love for nature. A thorough isolation from nature for many modern, urban people in current societies and a strong sense of incoherence and feelings that something is absent from our daily lives, is currently documented by several researchers [45, 56, 57]. Since human health is related to nature through an evolutionary or cultural origin, the initiatives for preserving and allowing access to nature and wilderness is of great importance [13, 20]. Since most basic cultural attributes have been modified and developed from evolutionary responses, a clear separation between natural and cultural affinities for nature is not increasing our health and well-being. Research has shown that nature has a healing effect that is even more necessary today than previously, especially the increasing urbanization and the human stress [57]. Nature balances out the negative consequences of a rushed and stressful soul [42]. For example, people with mental health problems who participated in organized tour groups in green areas and wilderness experienced a positive impact on their psychological well-being. Physical activity in nature feels good, improves mood, enhanced self-esteem and attention and experiences in nature strengthens mental health and well-being [30].

Much research has been done on the importance of nature for health and quality of life, and our experience of various natural areas is dependent on our relationship with it [32]. This means that people have different relationships to a natural area, such as woods, depending on previous experiences and culture. The woods can be a

place that provides peace and stress-busting for many, but it can also be anxiety-provoking in some people. Such factors are important to consider in relation to health effects of various natural areas. It is important that people get out into nature, see beautiful countryside and experience nature with its diversity. However, our experiences of nature and the natural environment must be pleasurable in order to be salutogenic [3, 46].

Nature's restorative benefits may be useful to distinguish between affective and cognitive benefits of nature. Stress reduction theory (SRT) assume that nature made environment has an invigorating advantage and reduces stress rather than artificial environments because of our innate connection to the natural world [56]. The Attention Restoration Theory (ART) [32] highlights that urban environments requires people's ability to filter relevant stimuli from irrelevant stimuli, particularly where urban environments seem to deplete our cognitive resources. Biophilia hypothesis (Wilson, 1984) argues that people have a biologically based need to attach to and feel connected to the wider natural world. Recent studies from Denmark shows the importance of health promoting outdoor environments and the associations between green space, and health, health-related quality of life and stress [45]. Finally, it is important to emphasize that access to nature and green environment in the community is important to promote good health for all. Access to green spaces may lead to less loneliness and social isolation, which is a major challenge in today's society. Going forward, one might say that access to nature is a determinant of health, and lack of this absence of this will be a contributing factor to increased social inequality in health and welfare (Hartig et al.2014).

**Lay appraisals of nature — culture health care activity.** Recently, lay appraisals of health care activity provide a holistic view on health that includes feelings of mood and vitality [2]. There are 'common-sense' or 'lay' concepts of health or folk-healing practices which are passed through generations as 'folk' knowledge or skills which are part of a common cultural heritage; thus everyone acquires knowledge of them through their socialization into society [43, 58]. The emphasis on lay skill and knowledge [5] is close to how the concept of empowerment is used to describe people's power to change their 'social reality'. This notion underpins a recognition and acknowledgement of strategies to enable and develop each person's ability and potential decisions of their own which might lead to a healthier life or the ability to control adverse environmental factors. Patients seem to recover when they re-experience or re-establish themselves as a «whole» person [2, 16]. Individuals may become less reliant on medication for curing and preventing illness or as a response to problems of ill health if they (re-)discover to 're-appropriate' their faith in nature and culture as a power to facilitate health and healing -- part of 'lay re-skilling' and 'empowerment' [38].

The increasing number of self-help groups also claim to be taken seriously, often viewing themselves as lay-experts, fostering a new social awareness of the problems of living with disability and illness [4, 7]. The emergence of alternative or complementary therapies reflects the growing number of people who have conditions that cannot be successfully treated by medicine. Due to the emphasis on the relationship between mind and body [32], there is evidence of an increasing use of alternative therapies [59]. In the Nordic countries mental health problems combined with somatic diseases are public health challenges along with an increase in non-communicable diseases. In terms of health research it seems to be relevant to explore the relationship between individuals, crisis and sickness, for example by focusing on «concepts such as stress, 'sense of coherence', insecurity and lack of control» [12]. There are many examples in the literature of studies of chronic illness experience, that attempt to reveal the situation of the sick or those who must try to live as normally as possible [14, 58]. According to Radley [41], the strategies people use to deal with illness and disease are «all important features to be examined.»

The relations between social structure, health and ontological insecurity [25] assume that the population is not primarily divided by access to wealth, but by relative vulnerability to risk. Thus, there is a need for more detailed qualitative and ethnographic research within the area of chronic illness that seeks to untie the complex, subtle and sophisticated processes involved in the lay experience [59]. P.Hanlon et al. [28] has described the «fifth wave» in public health as a phase that seeks to engage public health with the full complexity of the subjective, lived experience. At the WHO Regional Office for Europe, this shift is embodied in the publication of the European health policy framework, Health 2020, which aims to «significantly improve the health and wellbeing of populations» [25].

New developments in medicine and nursing recognize the importance of social factors in the causation of health and disease, and the necessity of treating the whole person. In everyday life the body has been said to be tacit [18], and through research on chronic illnesses diseases and specific disorders, one might begin systematically to develop sociological and even musical conceptions of the illness experience [39]. The processes of differentiation and fragmentation in current post-modern societies are met with a process of integration and a search for wholeness, and music and art is taken into marketing as well as medicine [17, 43].

## Two studies from Norway related to NatureCultureHealth Interplay

**1. Health promoting nature-culture activities — a qualitative evaluation study.** In this section, we present two studies, which illustrate participants' experiences, attitudes beliefs and opinions from partaking in

various nature and culture activities. Grounded theory was chosen for both studies as the qualitative methodological approach, since the research questions attempted to explore and describe social processes of illness and health as they emerged from the ethnographic data. This method involves a process of coding, categorization, and comparison of the interview data [16].

The first qualitative evaluation study [5] describes the subjective experiences of 30 men and 16 women aged 30–79 years old partaking in Nature-Culture-Health activities at the National Centre for Nature-Culture-Health (NaCuHeal) in Asker, a municipality west of Oslo. The physicians, psychiatrists, or health professionals often refer people long-term certified as sick to the Centre, though participation is fully voluntary. Some people take their own initiative or are recommended by friends to contact the Centre.

### *Evaluation methodology*

All informants were analysed according to group attendance, duration, regularity, and social background, subjective opinions, and beliefs. Patterns, tendencies, and main characteristics were explored, and the main results were presented through typical quotations from the informants, along with the quantification of general background variables. The most typical diagnoses were muscular diseases, closely followed by psychosocial problems, i.e. anxiety, depression, chronic fatigue, or stress-symptoms from a severe burn-out.

### *Results*

We found three main categories depending on different coping strategies, background and resources. In sum, the majority of the informants reported to have improved their health status, self-efficacy, self-esteem and quality of life,

- Category 1. The role-models: A resourceful person who has knowledge about specific factors contributing to health.
- Category 2. Lacking coping strategies: Through participation in group activities their self-efficacy and sense of coherence did increase considerably and sometimes to such an extent that willingness and motivation to go back to work is imminent.
- Category 3. People in a process of recovery — moving from pessimism to optimism.

### *Comments*

The NaCuHeal centre seems to be a unique arena and functions as a substitute for the participant's lack of closely knit networks that can support a positive mental health behaviour. There seemed to be three main factors contributing to this;

- The NaCuHeal centre is an inclusive place where everybody can develop their personalities, coping strategies, rethink and reassess their life situation at their own pace and rhythm.

There is pluralism in group activities suitable for most people which contributes to developing relationships and meaning.



- There is also pluralism in the participants' educational background, age, life situation and coping strategies.

It is important to stimulate the local public health services, voluntary organisations and work-sites to collaborate in building up social networks that support Mental Health Promoting Nature and Culture activities in the Local community.

## 2. The benefits of a holistic and salutogenic approach to rehabilitation and recreation.

The second qualitative, longitudinal evaluation study presents results from a study at a Rehabilitation Centre<sup>1</sup> in Norway in 2009 and included 38 participants and their subjective opinions, beliefs, and life experiences of being at The Rehabilitation Centre during their four week stay [7]. Part two included an in-depth interview with 19 participants, exploring their subjective experiences and outcomes of being a part of the follow-up week two months later. The Rehabilitation Centre takes a salutogenic and holistic view on health that emphasizes physical activity, psychological methods, and nature experiences as pathways to treatment and rehabilitation. The main objective was to help people to return to work and regain strength, vitality and energy. During a four-week long stay at The Rehabilitation Centre, the participants were offered two sessions of physical activity and nature experiences daily, combined with sessions and tutorials on lifestyle changes, both individually and in groups.

### *Evaluation methodology*

Each participant was interviewed twice: once each during the first and last week.

These participants were randomly chosen to have the opportunity to participate in the follow-up week. Both parts of the study were conducted using a semi-structured interview guide. Age groups for all participants were 23–60. The participants were suffering from long-term illness, e.g. muscular disease, burn-out, or mental problems and had a low socio-economic background.

### *Results*

The majority of the participants felt that the Rehabilitation Centre had given them a new platform, a renewed way of thinking and reasoning, a repertoire of new skills, and a different way of handling their own actions and behaviour. Three main factors seemed to contribute to participants' perceived recovery and wellbeing:

#### (1) Physical activities and nature experience

It seems that outdoor physical activity, like walking in the forest or in the mountains or sitting calmly and looking at the countryside after a brisk walk, and an active lifestyle have a substantial positive effect on wellbeing. Being physically active had a positive effect on self-esteem and self-perceptions. The participants' had increased their self-awareness and consciousness about the importance of being in nature

(2) The social environment, nature and sense of coherence'

An important factor, which contributed to participants' sense of being in the process of recovery might have been how the social environment served as a type of significant other, supporting a sense of coherence and predictability. Additionally, this awareness contributed to feelings of wellbeing and vitality.

#### 3) Learning to adopt a new lifestyle

Through learning new techniques, the participants' energy was channelled into action and lifestyle changes, which helped to maintain good health habits. Through re-learning and repeating new techniques, the participants' adopted a new lifestyle which became a coping strategy and a way of performing physical and mental healing and maintaining good health habits.

### *Discussion of the two evaluations studies*

These two studies employ a holistic approach to health, sickness absence, rehabilitation, and recovery, and includes a salutogenic perspective [3, 38, 46, 53]. This perspective focuses on how one may reach new and better constructions of meaning and belonging to attain ontological security [25], moreover, how active participation in cultural, physical, and recreational activities promotes health. One may suggest that such activities increases longevity [33, 34, 43] possibly gained through a mobilization of new resources and meaningful relationships [14]. By using a holistic approach one may increase participants' self-knowledge and self-awareness, giving them new tools, techniques and a technology of self [22] to help and guide them in their process of recovery.

Social problems in private life may influence our health situation, and the social situation in our work place may improve or worsen the situation [7]. As W.Sewell [44] argues, part of what it means to conceive of human beings as agents is to conceive of them as empowered by access to resources of one kind or another. In this respect, The Rehabilitation Centre and the NaCuHeal Centre seem to support, guide and help individuals to regain strength, capabilities and capacities for coping in everyday life, thus improving health. A person has to believe that when starting a task, one has to complete it with success. There is no other way apart from saying: 'I am capable of doing this'.

Through participation in Nature-Culture-Health activities, participants have increased their self-efficacy and self-esteem which seem to strengthen the salutogenetic factors. [3]. In other words, by focusing on promoting health factors, one might actually promote health in the process [37, 55]. From this perspective, a holistic Nature- Culture-Health approach would consider the whole life situation of a person in order to understand the complexities involved in sickness absence [52]. Engaging in daily nature and culture activities may have had a direct physiological and psycho-

<sup>1</sup> In this paper the rehabilitation centre is called «The Rehabilitation centre».

logical impact on their health status [46], possibly in coping with stressors in everyday life or through the rehabilitation process [27], increasing sense of coherence, mental health and wellbeing [23, 36]. From this point of view, a salutogenic approach in health promotion [38, 46], may counteract situations and events leading to sickness absence and possibly combat challenges regarding non-communicable diseases.

## Final comments and recommendations

There is little research tapping into the subjective experiences of cultural participation among younger and older people with health problems. Further research need to document, explore and investigate to a greater extent the 'how's' and 'why's' of the fact that a certain type of nature-culture activities 'works' or 'does it'; and how this 'working' may be linked to health, recovery and rehabilitation. Health Promotion and salutogenesis therefore may have a positive impact on our genes. NatureCultureHealth — activities (NaCuHeal) are methods that may be useful to prevent both mental and

somatic health problems in the future, and would be worth implementing more widely than they are today [4, 7, 53, 54]. Synthetic research methods may probably have to be applied in order to evaluate community approaches to public mental health. According to K.Cuyppers et al. [21] longitudinal designs and tracking studies of short-, medium- and long term health effects are needed to assess the sustainability of culture effects and across the life-span. Future policy of public mental health should give priority to health promoting nature and culture activities in the local community

The reason for this is, as suggested:

- Environment and lifestyle may have impact on our genes both today and in the future
- Recent epigenetic research indicates that our genes may be turned on and off as consequence of the way we are living.

It is our hope that WHO, EUPHA, EU and similar organizations will emphasize salutogenic nature and culture activities as a method of public mental health promotion and intervention in the local community as well as other settings.

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