Psychiatria Danubina, 2021; Vol. 33, Suppl. 9, pp 102-107 *Conference paper*

MOURNING FROM COVID-19 AND POST TRAUMATIC STRESS DISORDER

New therapeutic tools in the treatment of pathological bereavement

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SUMMARY

Deaths caused by the virus Covid-19 expose survivors to a high risk of developing a mourning pathology, a state of suffering that presents traumatic aspects similar to Post Traumatic Stress Disorder (PTSD). The characteristics with which the death process took place, during the period following the Coronavirus infection, are configured as important risk factors due to the inability to give the last farewell to the deceased during the period of the lockdown, to see and accompany their loved ones in the last moments of their life. The absence of the deceased body to cry for, the lack of a funeral and any other type of social and personal ritual, are to be considered as obstacles and aggravation factors with respect to the usual elaborative dynamics of mourning. The functional role of some brain areas such as the amygdala in mediating both the responses to stress and the learning of emotions implicitly identifies its importance in the pathophysiology of major trauma such as in pathological bereavement and in PTSD. Behavioral and environmental psychology studies have highlighted the therapeutic value of open contexts, in particular green areas, such as in forest bathing, in the processing of traumas, in which the narration can take place in a way that is independent from traditional therapy, with encouraging results, as demonstrated from the clinical case of Sofia.

Key words: *COVID-19 - PTSD - farewell rites - limbic system - forest bathing*

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INTRODUCTION

Bereavement and loss are acutely painful experiences, they are often difficult to accept and overcome; the social farewell rites are an important stage with respect to the process of mourning in providing an important contribution at the beginning of the path of acceptance of what has taken place (Spurio 2020c). For human civilization, the ritual of the funeral as well as the traditions and cultures related to death, such as the dressing of the body and the vigil, allows, in many cases with a lot of suffering, to start the process of mourning, because people who are involved in pain from the loss of their loved ones, begin to understand, by attending the social farewell of the deceased person.

The recent emergency from COVID-19 has determined new conditions deriving from the social change of customs and traditions. No goodbye, no social farewell, no time. Some patients report feeling “frozen or feeling inside a bubble”, as if the deceased person had not passed away, because it was not possible to say goodbye (Spurio 2020b). The state of severe emotional suffering and the consequences that all this entails, tends to converge towards a real pathology of bereavement, very similar to Post Traumatic Stress Disorder (PTSD), and requires help and specialized psychotherapist interventions, to be taken immediately and to be continued in the future.

MOURNING FROM COVID-19 AND POST TRAUMATIC DISORDER

PTSD story dates back to the First World War when it was called "war neurosis”; it is a condition of complex mental distress resulting from multiple factors, both personal and environmental, generically defined as "the acute stress condition that occurs following exposure to a traumatic event." (Sherin & Nemeroff 2011). Among the factors that certainly contribute to the development of different levels of PTSD, there are specific characteristics of the event that generates PTSD and the mode and degree of exposure of the victim and one’s characteristics, in terms of the medical, family history and psychological as well as the modalities of intervention in the post-trauma period (Heim & Nemeroff 2009).

The simple passage of time is not sufficient enough to effectively process the loss, because time is not a simple container in which the process occurs: in fact, in order to recover, it is recommended to resort to a psychotherapy that accompanies the person towards a new balance. The therapist must keep in mind that the process of mourning and the overcoming of trauma are configured as a process of personal and individual adaptation, often accompanied by an extreme emotional state when the patient allows oneself to be pervaded or, on the contrary, from trying to defend oneself (Spurio 2020a). One should pay particular attention to the presence of important symptoms such as episodes of intrusion, for example when a memory suddenly manifests itself in a very vivid way, and is accompanied by the pain of 'reliving' the tragedy. In some circumstances the experience is so painful that it seems, for the person involved, the traumatic event is repeating once again (Paul et al. 2006). Avoidance is also a symptom and part of the lack of mourning process, in this case the person tries to avoid contact with anyone and anything that

brings one back to the trauma. Initially, the person experiences an emotional state of disinterest and detachment, reducing ones capacity for emotional interaction and being able to conduct only simple and routine activities. The lack of emotional processing causes an accumulation of anxiety and tension that can become chronic, leading to real depressive states.

The diagnostic frame is often characterized by hypersensitivity and hypervigilance reactions, in this case people behave as if they are constantly threatened by trauma. They react violently and suddenly, cannot concentrate, have memory problems, and constantly feel in danger. Sometimes, to relieve a state of intense pain and suffering, a change in the habits of the person may occur with an increase in alcohol consumption, abuse in the use of psychotropic drugs and use of drugs (Sadeh et al. 2015). The similarities in the clinical picture of people suffering from a pathological mourning process and patients suffering from PTSD tend to overlap to the point that one can say that it is a dysfunctional evolution of the usual management of mourning in pathology. This is a situation that we must pay particular attention to, also for its future evolutions that, unfortunately, do not end in the framework we are going to outline but, in certain situations, this can lead to a total loss of control over the life path of the patient, who can compromise the very existence of the person with the establishment of suicidal behaviors. It is therefore particularly important and urgent for professionals working in this sector to possess a preparation that takes into account the functioning of the functional areas of the brain relative to the cerebral areas responsible for the processing and integration of traumatic memories and emotions.

THE ROLE OF CORTICAL AND SUBCORTICAL CONNECTIONS IN PATHOLOGICAL MOURNING

Traumatic events have important consequences on the psychic and psychophysiological functioning of a person. From the nineties onwards, with the possibility of carrying out a new type of studies and research thanks to neuroimaging instruments with magnetic resonance, it has been possible to detect the anatomical seat of emotions and cerebral functioning of the areas of the brain involved in the approach to trauma. These studies made it possible to detect the alterations of the brain structures following the different stimuli (Anastasi 2007).

The alterations of the cerebral circuits, both structurally and functionally, have been identified in the altered brain regions of people with PTSD and include the hippocampus, the amygdala, the right hemispheric lateralization, and the frontal cortex. The Hippocampus has the role of encoding the memory of lived experience in a space-time dimension and its functioning is necessary for both explicit and declarative memory (Squire & Zola-Morgan 1991). Recent studies also show that hippocampal volumes that are constitutionally reduced, in comparison with the average, could be a pre-existing vulnerability factor for the development of PTSD. Studies using functional neuroimaging have shown that patients with PTSD have a hippocampal activation deficit during verbal declarative memory and a reduced ability to formulate adequate stress responses, as well as a deficit in discriminating between safe and unsafe environmental settings (Heim & Nemeroff 2009).

The amygdala plays a pivotal role in evaluating the emotional significance of afferent stimuli (Le Doux 1986). It is a limbic structure involved in the processing of emotions and it is essential for the acquisition of the ability to respond to fear (Shin & Liberzon 2010). Functional imaging studies revealed hyper-reactivity only in the right hemisphere, in the right visual cortex, and in areas most intimately associated with the amygdala in people with PTSD during the presentation of stressful stimuli such as the recall of traumatic events (Rauch et al. 1996), but also during emotional stimuli such as showing the face of a significant deceased person, or even people who express emotions of sadness and pain.

The activation of these structures were accompanied by an increase of the activity in the right visual cortex, which reflected the visual re-experience of the trauma reported by the patients. One of the most significant aspects of these studies is represented by the discovery that Broca's area, that is the brain area of the left hemisphere responsible for translating experiences into communicable words, was completely silent, "off", devoid of detectable signals activation. This discovery, according to van der Kolk (1996), could correlate with what is defined "dumb terror", and with the tendency of affected individuals to experience emotions in the form of physical states, rather than verbally encoded experiences.

In psychotherapy, the stimulation of limbic zones through inductive words and the consequent recourse to narration or self-narration plays a decisive role in shaping the awakening of the involved brain circuits through verbalization (Spurio 2015a). For this reason it has been hypothesized that the difficulty of patients with PTSD and major trauma in translating their sensations into words could be linked to structural and functional changes in the activity of the regions of the brain responsible for memory of emotions and language (Goodglass & Geschwind 1976, Spurio 2015b).

These statements take support from LeDoux's (1992) hypothesis, according to his statements, emotional memories can be established without a conscious and verbal evaluation of the information. Specifically, the sensory information, which has entered the central nervous system through the sense organs, passes to the thalamus which, in turn, sends this raw sensory information to the

amygdala and to the prefrontal cortex for further evaluation. The amygdala interprets the emotional value of the incoming information, and gives an emotional meaning to it, passing it to the brain areas that control the behavioral, autonomic and neurohormonal response systems. In other words, the amygdala transforms sensory stimuli into emotional and hormonal signals, initiating and controlling emotional responses. This fact explains the difficulty of verbalizing both the disabling and pervasive emotions, experienced by the patient as uncontrollable and unmanageable emotional avalanches. Since the input from the thalamus arrives to the amygdala before the information from the neocortex, LeDoux suggests that this first input from the thalamus "prepares" the amygdala to process information that arrives later from the cortex, so that the emotional evaluation of sensory input precedes conscious experience. Therefore, individuals can activate themselves physiologically and hormonally, before they are able to consciously evaluate what situation they are reacting to. The activation intensity of the hippocampus depends on the intensity of the input coming from the amygdala: the greater the valence assigned by the amygdala, the more intensely the input will be recorded and the memory will be firmly preserved.

On the other hand, while moderate or high activation of the amygdala favors the long-term enhancement of explicit memory mediated by the hippocampus, excessive stimulation damages the functioning of the latter. When this happens the sensory impressions of the experience are stored in memory, but since the hippocampus is unable to perform its integrative function and support the space-time contextualization of information, these impressions are not organized into a unitary whole: the experience is deposited and, later recovered, as affective states, sensorimotor modalities, physical sensations and visual images, perceived as extraneous and separated from other life experiences. All this ensures that traumatic memories are not attributed to “Time” and are perceived as unrelated to the subjective perception of patients with PTSD and pathological bereavement trauma. Traumatic experiences could be registered by our brain as sensations or sensory states that are not collected and translated into a subjective narrative, whereby the memories of trauma present themselves as emotional and sensory states (van der Kolk 1996). The work that is done in the therapeutic path of self-narration through verbalization and unattained awareness has the aim of reconstructing the broken thread from overexposure to trauma and the impairment of the integrative function and contextualization of the hippocampus, necessary prerequisite for the treatment of the process delegated to give knowledge of the events of life. All of these neuroanatomical, functional and metabolic findings lead us to think that traumatic experiences are linked to alterations in the physiological hemispheric lateralization of experiences. Returning to talking about the considerations on the appropriate verbal and sensory solicitations in the therapeutic field, it is fundamentally important to evoke emotions associated with them in order to process them in a therapeutic setting not necessarily the traditional one of a study, useful in processing the evoked experiences, but also in different realities, such as the open spaces of forest bathing, where the open and natural scenery favors a wellness experience with the aim of stimulating the mind in a creative, intuitive and decision-making level and reducing the feeling of fatigue (Spurio 2016).

NARRATIVE TECHNIQUES IN THE ELABORATION OF MOURNING AND FOREST BATHING

Roger Ulrich, professor of behavioral and environmental psychology at Texas A&M University, was one of the first researchers to discover the link between man and landscape and to speak of green spaces as powerful allies of the patient. In a study published in 1984 in The Science Journal, he uses scientific criteria to identify and measure the positive and beneficial effects of nature on our health. This has been demonstrated through the control of certain parameters, such as muscle tension, blood pressure, heart rate and even the electrical activity of the brain**.** The stimulation carried out through narration, in particular associated with the beneficial influence of living this experience in the open air, at the same time also strengthens the mental dynamics and neural processes that are activated to process the information until that moment remained frozen and blocked. Bathing or "bath in the forest" in Japanese Shinrin-yoku, is a practice that plays a role in preventive medicine in many countries of the Far East. It has always been understood the health value of walking in the woods for the possibility of oxygenating the lungs thanks to clean air.

According to more recent studies, beech forests in particular, are the most suitable type of wood for forest bathing, since, in summer, the leaf masses of beech trees emit large quantities of monoterpenes, volatile aromatic substances which, together with the essential oils of wood, have a psycho-physical effect of great value. Strengthening the immune system and reducing blood pressure in hypertensive patients is another example of a feeling of well-being offered by walking in the beech woods. Other benefits found are improvements in some physiological parameters such as lowering cortisol levels, the stress hormone, decreasing heart rate and blood sugar levels. Since physical and psychological well-being are closely related, some researchers found also an improvement in depressive and anxious states. If accompanied by a therapist, forest bathing can become the ideal place where the

benefits of a therapeutic intervention are amplified by the conditions described above, as can be understood from the clinical case reported below.

THE SOFIA CLINICAL CASE

In September 2015 Sofia* (* some situations and names have been changed), thirty years old, seems to be a person apparently in good physical and psychological health. Despite these appearances, however, she has been undergoing medical examinations for years because she complains of symptoms of chronic fatigue syndrome. CFS or myalgic encephalomyelitis, is a complex disorder, characterized by a sense of persistent fatigue, inexplicable and not mitigated in any way. The persistence of the state of suffering prevents the woman from leading a normal life with Daniel * her husband, for two years. The situation of the couple, who lives in Rome, takes a turning point when in September 2015, Sofia realizes that she is expecting a baby. Pregnancy radically changes the situation, her disorders and chronic fatigue suddenly disappear. The new situation reinforces the belief in the validity of the only diagnosis that emerged in previous medical visits, where the sense of persistent prostration not related to health problems or particularly intense physical activities, raise the question exclusively in depressive and psychological terms. In June 2016, with the birth of Leonardo * their child, the disabling clinical picture inexorably recurs again as in the past.

As a consequence, for about two years, the couple is forced to face problems and discussions related to the disabling impact covering the state of the woman's health in normal daily activities. Daniele accuses Sofia of exaggerating her physical state of asthenia only for reasons of laziness, on her side she does not feel supported or understood and cannot cope with the family situation further aggravated by the extra duties towards the child. These state of affairs persists until May 2018, when the family situation is again changed by the news of the arrival of a second child. The situation of the first pregnancy arises again. Chronic fatigue disorders disappear and start another period of peaceful life and newfound harmony. Unfortunately, once again in February 2018, the birth of Davide * the last born, puts an end to the period of normality. Sofia's clinical picture, aggravated by the commitment required by having to take care of two small children, rises again. The couple's arguments, as well as the atmosphere in the house, become unbearable. The feeling of chronic prostration, insomnia, myalgia and joint pain become disabling to the point that Sofia is almost unable to take care of herself. Nobody believes her, everyone, including her family of origin, think she is exaggerating. The situation is further aggravated when, in April 2020, Daniele falls ill.

Unlike Sofia, however, in his case the diagnosis is immediately clear: he has caught the Coronavirus infection, followed by hospitalization with the worsening of the clinical picture and the transfer of Daniele to the intensive care unit, on June 3, 2020, the story ends tragically with his death. As we can easily understand, Sofia's situation becomes even more critical, the woman slips into a state of deep depression and begins to doubt herself, feels lost and to a point of self-harming and having suicidal behaviors. The family intervenes by taking full care of the children, while the mother is entrusted to the care of a psychotherapist.

The therapy begins in July 2020. During the meetings, deep states of pain and guilt emerge due to the particular situation experienced by the couple in the years preceding the death of her husband, when all attention was focused on the state of health of the woman while it was Daniele who did not have sufficient attention and care and was seriously ill as a consequence. In the woman's reasoning, the burdensome commitments he had undergone to make up for his wife's shortcomings had made him more vulnerable to covid-19 infection. Sofia also feels unworthy for not being able to take care of her family, at the same time moments of anger at being left alone to face a dangerous and hostile world and two small children to raise overwhelm her. The mourning process is further hindered by the situation determined by the rules of social distancing to not having the last farewell for Covid-19 infections.

The wife feels guilty for not being able to meet her husband again after hospitalization. Intrusive episodes of sudden memories manifest themselves very vividly, accompanied by the pain of 'reliving' the tragedy. In some circumstances the painful experience makes it seem to the woman that the traumatic event is repeating itself, especially because when calls from her husband arrived, distressing she wasn't present. At this point of the therapeutic path, the psychotherapist proposes to Sofia to take with her a series of about four walks in the beech woods of the Simbruini mountains on the border between Lazio and Abruzzo, about an hour away from the capital. Forest bathing turns out to be a pleasant surprise for her and a new routine that changes the dysfunctional balance of her daily life. Sofia's worries of not being able to walk due to her chronic fatigue are also dispelled.

In forest bathing, the times are respected and her physical needs are met. Sofia and her psychotherapist, very often, stop and sit at the foot of the trees. Sofia catches herself talking to the therapist, with a new awareness. The therapist listens to her without haste, every now and then intervenes with questions alternating with information about the woods, plants and trees in a calm voice almost hypnotic. For the first time the woman feels understood and without realizing the rational reason a sudden sense of relaxation and

optimism pervade her. Just like when she sees a light at the end of a tunnel for the first time, the woman feels she is close to a solution. One night, on returning home from forest bathing, Sofia dreams of being in the same forest where she had walked that day.

She is lying among the trees, a great calm and serenity pervade her, she feels completely integrated into the environment. The boundaries of her body are indefinite and blurred. But one thing is very clear and evident, as if looking from the outside she sees her well-defined heart beating. As soon as she wakes up in the morning, it is immediately evident to her that the state of tranquility experienced in forest bathing is elaborated and relived in the dream experience where not only its integration with the beech forest is proposed, but also the connection between her mind and her body (Spurio 2017).

Therefore she decides to follow up on the dream intuition, and makes an appointment with a cardiologist. During the visit Sofia, sure of her awareness, decides not to go into the details of her medical history and asks for in-depth cardiological examinations. The result of the clinical investigations highlights a hereditary suffering, the mitral valve syndrome, a disease that is still incurable today, but of which about one and a half million people are affected in the USA alone. The symptomatology, exactly the one described by Sofia, is caused by the reduced blood supply due to the malfunction of the mitral valve, which causes tiredness and acute muscle pain. The clinical picture of SVM is interrupted only during pregnancy thanks to the hormonal activity that intervenes in the restoration of cellular oxygenation. Even if it is an incurable disease, having it diagnosed now allows the woman to take advantage of a drug treatment that keeps great physical discomfort under control and allows her to live a physically normal life with her children. After these episodes, psychotherapy also proceeds more rapidly.

The discovery of the real physical conditions give the woman reason and explanation of the state of suffering that characterized her marriage and her life. Feelings of guilt and unworthiness gradually give way to greater serenity. In July 2020 psychotherapy is said to be concluded, the elaboration of grief complicated by the circumstances described proved to be particularly difficult, but alongside the normal therapeutic activity in the studio, an important help came from the support of less traditional therapies such as forest bathing. The relaxed climate of the forest, the contact with the large heaps of beech leaves which in summer release volatile aromatic substances, together with the phytoncidal essential oils present in the wood make the setting less aseptic, predispose to an emotional state that favors the connection with the mental areas such as the limbic one, where irrational fears and sufferings can be traced back to the cortical areas responsible for planning and control reasoning so as to be processed.

CONCLUSION

Mourning, a trauma that has acquired a completely new peculiarity due to the situation generated by the COVID 19 pandemic, can be carried out with surprising results, as it has been demonstrated by the clinical case of Sofia, in less traditional contexts than the study of the therapist. Within this framework, the narrative, the importance of which is undisputed as the studies of neurofunctional imaging have shown, acquires new strength, proposing itself as a tool for overcoming traumas, because through the narration, the knowledge of what happened is understood and given by reconnecting that precious thread which allows the individual to explain the events of one‘s existence.

This is an irreplaceable mental process whenever the mental equilibrium may be in danger, giving the feeling that something has irremediably broken. We are facing a new kind of suffering. As to the trauma of detachment is added the impossibility of being able to make use of rites, customs and traditions, which accompany the social farewell of the deceased person, the experience of loss, already painful in itself, becomes dehumanizing.

All this aggravates and further compromises the chances of grieving immediately. The remorse for lacking in the supreme moment of detachment, when the last words or requests are formulated and the sense of guilt, for the possibility of having been a hypothetical vehicle of contagion, prevails experiences of impotence, anger, loss and abandonment. The pain that normally accompanies the loss of a loved one is intensified by the feeling of not being able to bring comfort, embrace, hold the hand of one's loved one in the final stages of his/her existence.

In the writer’s opinion, all this represents an awareness and at the same time a responsibility that the scientific community must take upon itself, not only today, in the immediate future, but certainly also in the distant future, since we are not yet able to fully evaluate the effects in medium and long-term relapses regarding the psychophysical well-being of adults and children.

Acknowledgements: None.

Conflict of interest: None to declare.

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