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Images on the first page represent: Inaugural board of "Socola" Hospital of Psychiatry Iaşi
The cover of the first number of "Bulletins et Mémoires de la Société de Neurologie, Psychiatrie et Psychologie de Iassy"
The image on the first cover represents the main building of "Socola" Institute of Psychiatry Iaşi

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The Bulletin of Integrative Psychiatry tries to continue the tradition initiated at "Socola" Hospital in 1919, when a group of intellectuals, medical doctors and personalities from other professions founded the Society of Neurology, Psychiatry and Psychology in Iași. Even from its beginnings, the Society edited a journal entitled "Bulletins et Mémoires de la Société de Neurologie, Psychiatrie et Psychologie de Iassy", the first publication of the kind in Romania, which was unique also by its vision and opening towards biology, psychology, sociology and philosophy and by its prestigious board of editors: C. I. Parhon, Gh. Preda, Constantin Fedeleș, Arnold Stocker, P. Andrei, Corneliu Popa-Radu, I. A. Scriban, well known personalities, some of them being physicians of great culture and scientific qualification.

Starting from 1920, the Association and its Bulletin, born and edited at "Socola", due to their remarkable scientific activity have contributed to the organization of 18 congresses, which are mentioned in the description of "Socola" Hospital activities.

In 1947, the last number of "The Bulletin of the Society", edited in French, was banned as a result of the interdictions imposed by extremist tendencies. From its first number in 1919 and until 1947, "The Bulletin of the Society" published 2,412 articles.

The journal or "The Bulletin of the Society" has appeared under several titles: "Bulletin et Mémoires de la Société de Neurologie, Psychiatrie et Psychologie de Iassy" (between 1919 and 1922), then "Bulletin de l'Association des Psychiatres Roumains" and from 1923 it has changed its title several times.

After the year 1947, all publications at "Socola" Hospital were included in the "Medico-Surgical Journal of the Society of Physicians and Naturalists in Iași", another prestigious scientific journal which has been published without interruption since 1886.

Starting from 1994, Professor Dr. Tadeusz Pirozynski, Professor dr. Petru Boișteanu, Professor dr. Vasile Chiriță, Conf. dr. Radu Andrei and Dr. M. E. Berlescu have revived the tradition of publications at "Socola" Hospital, editing the new "Bulletin of Integrative Psychiatry".

At the end of 2014, "Socola" Hospital became the "Socola" Institute of Psychiatry, which has increased its responsibilities regarding medical assistance, scientific research, didactic activity, professional training and also the development of editorial activity.

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Summary

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Buletin de Psihiatrie Integrativă

Editorial

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Alcohol consumption during the isolation period generated by SARS-CoV2

Diana Bulgaru Iliescu, Anton Knieling

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In the first eight months of the COVID-19 pandemic, there were over 27 million confirmed and suspected cases of COVID-19 infection globally. Attempts to reduce the spread of the virus have included localized approaches (contact tracing, quarantine) and large-scale population directives (social distancing). Given the socio-economic and health impact of the pandemic, the increased incidence of psychological and psychiatric suffering such as depression and anxiety is one of the anticipated consequences of the COVID-19 pandemic.

There is currently a growing concern about the quarantine and social isolation measures associated with the pandemic, as they have led to or will lead to an increase in alcohol consumption and alcohol abuse. It has been suggested that the stress and social isolation experienced by the pandemic could serve as a trigger for alcohol consumption, which in turn could lead to an increase in the prevalence of alcohol dependence and alcohol-related complications.

In recent years, alcohol has been shown to increase the risk of infectious diseases, especially HIV infection, tuberculosis, treatment-resistant pneumonia which is difficult to eradicate. The explanation lies, on the one hand, in the effect of alcohol to reduce immunity: consumption of more than 40 g of alcohol/day increases the rate of diseases through infections in consumers compared to non-consumers, under the conditions of the same exposure to infection. In addition, there are social factors associated with excessive alcohol consumption: low income or lack of income, reduced access to care, lack of care.

Chronic ethanol abuse almost doubles the risk of acute respiratory distress syndrome.

Another important factor is malnutrition secondary to excessive alcohol consumption. The harmful effect on the lining of the digestive tract is a decrease in the absorption and metabolism of certain nutrients, including vitamin B (B1, B6, and B9 or folic acid), leading to a slowdown in the proliferation and differentiation of leukocytes. The defense

mechanisms of the immune system through the mucous membranes are also affected, resulting in a dysfunction of IgA and IgG immunoglobulins, which are responsible for local protection against infectious agents.

Pandemic-specific restrictive measures can lead to a decline in alcohol consumption, and people who reduce their alcohol consumption during this period may be at risk of developing severe withdrawal symptoms. Added to all this is the difficult access to medical services.

The literature deals extensively with the interaction between SARS-CoV-2 and alcohol addiction, and this suggests that patients with alcoholic liver disease have a higher risk of having a severe course of the disease caused by SARS-CoV-2 infection. It is recommended that these patients completely discontinue alcohol consumption during the COVID-19 pandemic. They will likely resort to alcohol for their mental "self-healing", a behavior that is harmful to health. The situation is even more dangerous, as several pre-pandemic studies have shown bilateral associations between depressive symptoms and suicidal tendencies, including alcohol consumption.

Those with suicidal ideation need to be closely monitored, not just in the context of alcohol abuse. The current period has led to significant increases in the number of suicides, as documented in studies (an increase of 60% during the pandemic).

Young adults also require more of our attention because of the particularly strong relationship between a poor mental status with depression and managing current alcohol problems.

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Articles

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The influence of valproic acid on aggressiveness and locomotor activity in a zebrafish model of Autistic Spectrum Disorder

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ABSTRACT

The paper aims to analyse the effect induced by valproic acid (VPA) in relation to the typical behavior of autism spectrum disorder (ASD). The VPA administered in both prenatal and postnatal periods triggers the autistic symptoms. The deficiencies induced by VPA could be morphological and physiological with direct results that are reflected externally by typical ASD behavior: impaired musculoskeletal activity, hyperactivity, stereotyped behavior, communication and social aggressiveness. The behavioral conditions observed are swim performance and aggressiveness induced by the administration of 200 µm of VPA. These behavioral patterns can be tracked in the vertebrate model by analysing the swim performance using an open space test reproduced in the T- maze. During the test, the maze was adapted to study the state of aggressiveness induced by exposure to valproic acid. The uptake of the test was achieved by introducing a visual stimulus (provided by mirror reflection prop) into the left arm of the maze. The stimulus is intended to show the behavior of the aquatic model in relation to the reflection, which is meant to geenrate the reaction to image props and the reaction to a *conspecific.*

KEYWORDS:

Autistic spectrum disease, zebra fish, valproic acid, agressiveness, locomotor activity.

INTRODUCTION

We decided to analyse here the effect induced by valproic acid (VPA) in relation to the typical behavior of autism spectrum disorder (ASD). The VPA administered in both prenatal and postnatal periods triggers the autistic symptoms (1, 2, 3). The deficiencies

induced by VPA could be morphological and physiological with direct results that are reflected externally by typical ASD behavior: impaired musculoskeletal activity, hyperactivity, stereotyped behavior, communication and social aggressiveness (4). The behavioral conditions observed are swim performance and aggressiveness induced by the administration of 200 µm of VPA. These behavioral patterns can be tracked in the vertebrate model by analysing the swim performance using an open space test reproduced in the T- maze (5). During the test, the maze was adapted to study the state of aggressiveness induced by exposure to valproic acid. The uptake of the test was achieved by introducing a visual stimulus (provided by mirror reflection prop) into the left arm of the maze. The stimulus is intended to show the behavior of the aquatic model in relation to the reflection, which is meant to geenrate the reaction to image props and the reaction to a conspecific (6, 7).

ASD is a complex neurodevelopmental condition with multi-factorial causes. The main areas affected at the level of ASD are criteria that build on communication, social interaction, and repetition of actions. (DSM V).

The disease's prevalence has been worring over the past years. In 2016, the diagnostic rate was 1: 36 (8). Thus, 1% of the global population is diagnosed with a ASD form. The percentage increases up to 2% (1,7% registered in 2014) of the global population (9,10,11). Multi-factorial nature is shaped by the risk factors of both the genetic environment (12, 13) and the environmental factors: family history (14), infections (viral, bacterial) (8, 15), teratogenic chemical compounds (2, 16).

Autism biology includes changes on both anatomical and functional level. ASD causes originate in the central nervous system involving multiple lesions on the brain lobes: frontal, temporal, but also in the cerebellum (17). Purkinje cells are an increasingly discussed topic, due to their location and atypical parameters (18). The physiological component is marked by changes in the synapses and their role in the neuronal communication. Lesions at this level diverge the links they perform, including the feed-back response to be transmitted at the body level (19).

The *Danio rerio* animal model is appreciated and used in ASD as experimental subject because of its biological and economical advantages. The first category includes stages of development (embryonic, transparent larvae, juvenile, adult), similarity of the central nervous system to mammals (telencefal, tonsil, cerebellum, hypocampus, habenula), hypothalamus-pituitary-adrenal axis, neuroendocrine systems and GABA neurons) as well as the presence of neurons, oligodendrocytes and astrocytes (16, 20, 21, 22).

Economically, zebra fishes are easy to take care of, they do not need preferential conditions and are easy to manipulate from the perspective of neurobiological processes (23).

Locomotor activity

Poor locomotor activity in ASD is observed among patients by disorganized, unbalanced and non-determined walking. Locomotor movements are spontaneous and repetitive (DSM V). Teratogenic factors cause changes in the cerebellum component that coordinates the voluntary movement (1, 24). At the same time, proliferation and apoptosis processes are

observed in brain areas that disturb the balance (25).

Unusual locomotor changes can also be caused by anxiety. This together with stress can induce fear, and exploratory behavior is abandoned to the detriment of retreat to small areas. In the case of zebra fish, the natural posture adopted out of fear is that of "freezing out", still, with the fins oriented downwards (26, 27). This avoiding behavior can be accompanied by spontaneous movements, sudden responses to tactile stimuli, and hyperactivity at night (25).

The musculoskeletal activity in the valproic acid exposure of the subject is quantified by means of behavioral tests involving exploration activity. For both vertebrate models: rat and zebra fish the locomotor parameters are analysed using „The aquarium behavior test", and The labyrinth exploration test in the form of letters 'Y' and 'T' "(28) (5). The behavioral pattern and path of the subject can also be tracked using „The open field test" (5).

Aggressiveness

Aggressive behavior is common in ASD patients, thus studies have shown that: 56% of them are aggressive with their carers, 32% with people in close circles, 49% with people in the community, and 68% of the participants have aggressive history (29).

In the animal world, this is a primary behavior that underpins the pyramid of needs for: territory, food and reproduction. *Danio* species are aggressive, instinctual, with a hierarchy based on domino-losing status, with aggressive episodes including active prosecutions and biting. Fins have different positions in the fight, swimming in a narrow circle with the fixed target in the extremities: the head and tail (26, 30, 31, 32).

Aggressive behavior can be studied in the mirror test. The reflection is intended to quantify the subjects' reaction. Aggressive behavior, social tendency and courage toward the aggressor are observed. The important parameters in the test are: time spent in the mirror, frequency of contact with it or withdrawal from reflection. These posts are accompanied by faster or slower swimming depending on the anxiety felt. The numeric frequency shows the level of aggressiveness induced to the subject (6).

Valproic acid

Valproic acid (2-propylpentanoic acid) is a fatty acid, with teratogenic potential, synthesized from the *Valeriana officinalis* extract. The acid designation is divided between the beneficial (antiseptic drug) and the teratogenic effect, factor inducing phenotypic variations in the development process (33, 34). Testing of valproic acid influence in ASD was reformulated from an epigenetic perspective (2), genetic (in mice, rats and zebra fish) (35) (22) and behavioral pattern following chemical exposure to acid. Chemical exposure can be performed in three ways: in water (aquatic models), oral administration or injection (27). Dose rates differ from model to model, thus doses of 400, 600 and 800 mg/kg are frequently used, and for zebra fish: 0,5 μm, 12,5 μm, 50 μm (larvae); 48, 50 μm (juvenile and adult) (36, 37, 38, 25, 39, 40). Behavioral symptoms found in both vertebrate models are: decrease in swimming performance, social interaction, social preferences, and increase of aggressiveness, hyperactivity, repetitive behavior, attacks, travel/swim speed, anxiety (25, 39) (40,4 1). In addition, the aggressiveness is also increased other types of chemical compounds are administered to zebra fishes. These include: methyl mercury chloride, ethanol, alcohol (42, 43, 44, 45).

MATERIALS AND METHODS

The test's purpose was to estimate the concentration of the test substance. 20 zebra fish individuals were purchased from a local fishing store.

They were accommodated in the ecotoxicology laboratory of the Faculty of Biology at the University of "Alexandru Ioan Cuza" in Iasi. The accommodation has been carried out by respecting the regulatory requirements of the European Union Commission recommendations (46) and the European Parliament Directive of the 22nd September 2010 Council (Directives 63, 2010). At the same time, this experiment was approved by the Ethics Commission of the Faculty of Biology at the University of "Alexandru Ioan Cuza" in Iasi (full No. 25.05.2021/09). The accommodation was carried out at the university's laboratory for 3 weeks. The living conditions in the aquarium were: the temperature in the housing aquarium (27˚ ± 1 °C) and in the test aquarium (27 °C), the water pH of 7,5 and the dissolved oxygen index of 7,20 mg/L. Circadian rhythm: 14:10 hours (light and dark). Lighting was provided by a white LED strip. The conditions of the experimental aquarium were similar to those of the dwelling aquarium. The water was changed daily, avoiding toxic residues in the environment. The fishes were fed with special TetraMin flakes.

Valproic acid was bought from the German company Sigma Aldrich (P4543-100g). The solution was prepared on a daily basis from the pre-prepared stock solution by dissolving the VPA in the system's water. The administration was performed by dissolving the solution in the living environment. The chemical administration was performed daily to track the dose of interest. The concentration chosen after analysing the literature was of 200 µm. The reference article for the chemical preparation was 'Embryological exposure to valproic acid induces social interaction deficit in zebrafish (*Danio rerio*): A developmental behavior analysis' by Zimmermann and colab, 2015.

Experimental design

The selection of individuals was done randomly, in two experimental batches (n=10), resulting in group 1 (control) and group 2 (VPA). The period of accommodation in the experimental aquarium was two days. After this period of time, in the pre-treatment phase, the fishes were analyzed by means of a mirror test to quantify aggressive behavior The toxicity of chemical compounds has been analyzed for 4 days according to the experimental procedure mentioned above. The time between administration and testing was 24 hours, testing from 8:00 a.m. At the end of the period of administration the fishes were sacrificied by immersion in iced water according to the European Union Commission (46) and European Parliament Directive of the 22nd September 2010 Council recommendations (Directives 63, 2010).

Aggressiveness test

The effect of valproic acid was analyzed by means of an aggressiveness test. To perform the measurement of this type of behavior, the T- maze test has been used. The T-maze is made of transparent plexiglas and has 3 arms, two short and a long one. Experimental parameters have been recorded with a camera placed above the labyrinth and connected to the computer. It is one of the most commonly used tests because of its adaptability in studying different behavioral patterns.

The aggressiveness test was performed by adapting it with a mirror inserted in the left arm. The mirror was positioned vertically on

the wall dividing the left arm and placed in the labyrinth before testing the fishes. At this point, the mirror inserted can become a stress factor.

To begin the test, the fishes was placed at the start point in the center arm. The time for accommodating the subjects to the test space is 30 seconds. The behavior of the fishes has been analysed within 4 minutes, especially the time spent in the left arm around the mirror and the existence or absence of reactions to the reflection.

The software used was EthoVision XT Software (version 11.5.2016, Noldus, Netherlands).

Statistical analysis

Results observed from the testing of locomotor activity and aggressiveness in the pre-design ASD justify its presence in the behavior of the experimental group. The parameters studied were: left arm, right arm, center point, total distance traveled, speed, active swim, rest, maximum acceleration, and decision point. The sorting of the zebra fish test data from the two groups: control and VPA (autist) was done at the software level: Excel from the Microsoft Office professional Plus 2016 (Microsoft Corporation, United States) package. The materiality threshold was $\alpha = 0,05$. This test compared the initial behavior with the behavior induced by the administration of the test chemical. All results were presented as mean ± SE (standard error). The results are plotted using Excel spreadsheets.

RESULTS

Data was collected from the swim performance and aggressiveness testing in the pre-ASD model, fact that justifies the initiating behavior in the experimental group. The studied parameters were: total distance traveled, speed, active swim, rest, maximum acceleration (for the locomotor activity) and left arm, right arm, decision point and control point (for the presence of antagonist behavior).

The parameter 'total distance traveled' obtained in the aggressiveness test led to significant results observed between the two groups (Fig. 1). The following results were found in the two experimental groups:

Group 1 (control): pre-treatment= 775,2 ± 93,2 cm, day 1= 749,8 ± 126,8 cm, day 2= 749,8 ± 88,04 cm, day 3= 902,4 ± 88,04 cm, day 4= 1019,5 ± 104,5 cm.
Group 2 (group that received VPA): pre-treatment= 1061,6 ± 88,9 cm, day 1= 677,1 ± 96,7 cm, day 2= 820,6 ± 175,7 cm ($p^* < 0.05$), day 3= 1038,8 ± 160,1 cm, day 4= 1013,7 ± 138,5 cm.

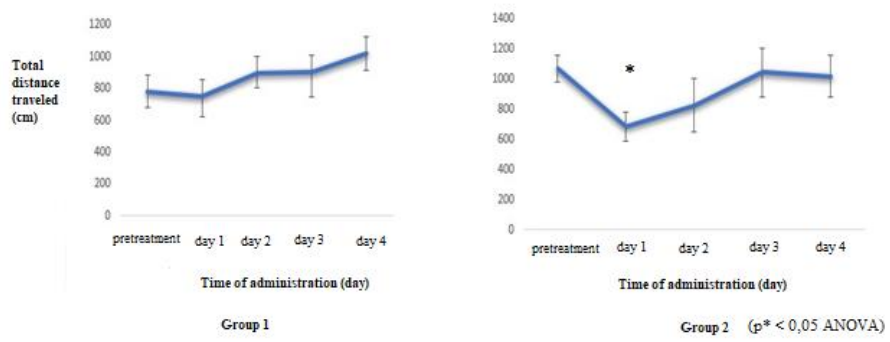

Fig. 1. Total distance traveled (cm) in the two test groups

The parameter 'speed' in the aggressiveness test showed that the two test groups had significant results from the recorded values (Fig. 2):

Group 1 (control): pre-treatment= 3,2 ± 0,3 cm/s, day 1= 3,2 ± 0,4 cm/s, day 2= 3,7 ± 0,3 cm/s, day 3= 3,7 ± 0,6 cm/s, day 4= 4,2 ± 0,4 cm/s.

Group 2 (group receiving VPA): pre-treatment= 4,4 ± 0,3 cm/s, day 1= 2,8 ± 0,4 cm/s, day 2= 3,4 ± 0,7 cm/s, day 3= 4,3 ± 0,6 cm/s, day 4= 4,2 ± 0,5 cm/s.

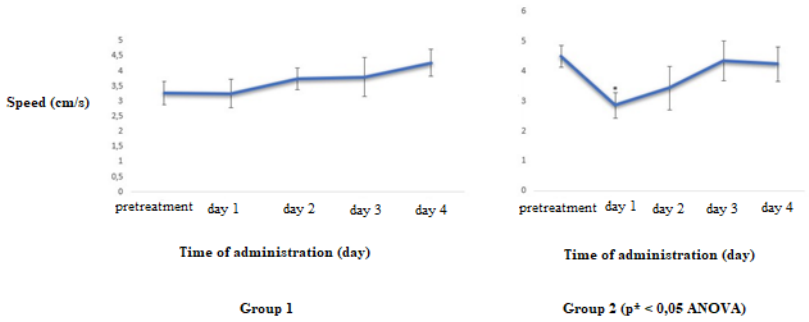

Fig. 2. The speed (cm/s) in the test groups

The 'active swim' parameter of the aggressiveness test demonstrated that significant results were obtained between the two groups (Fig. 3). The values recorded for the two groups were:

Group 1 (control): pre-treatment= 193,6 ± 13,02 s, day 1= 197,5 ± 20,05 s, day 2= 221,6 ± 4,5 s, day 3= 210,8 ± 14,8 s, day 4= 218,1 ± 9,1 s.

Group 2 (group that received VPA): pre-treatment= 194,9 ± 11,5 s, day 1= 187,7 ± 12,9 s, day 2= 158,5 ± 26,3 s, day 3= 189,9 ± 17,5 s, day 4= 212,8 ± 15,8 s.

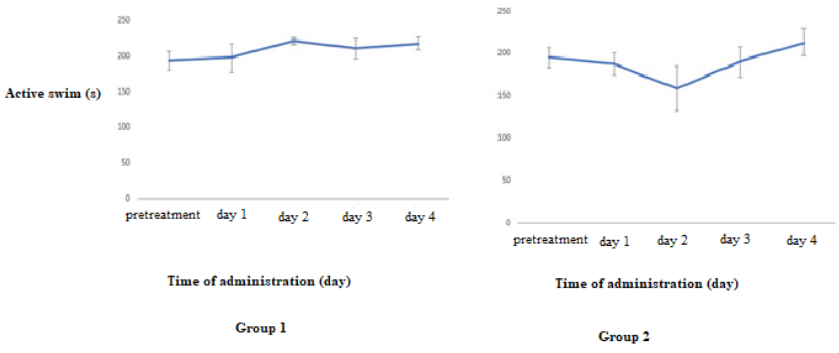

Fig. 3. The active swim period (s) recorded in the test groups

The study of the parameter 'rest' in the aggressiveness test led to no significant results between the two groups (Fig. 4). The values recorded for the two test groups were:

Group 1 (control): pre-treatment= 44,1 ± 12 s, day 1= 29,07 ± 8,5 s, day 2= 18,3 ± 4,5 s, day 3= 27,5 ± 14,7 s, day 4= 21,7 ± 9,09 s.

Group 2 (group that received VPA): pre-treatment= 43,9 ± 11,2 s, day 1= 51,6 ± 13,09 s, day 2= 74,1 ± 21,8 s, day 3= 50,01 ± 17,5 s, day 4= 27,1 ± 15,8 s.

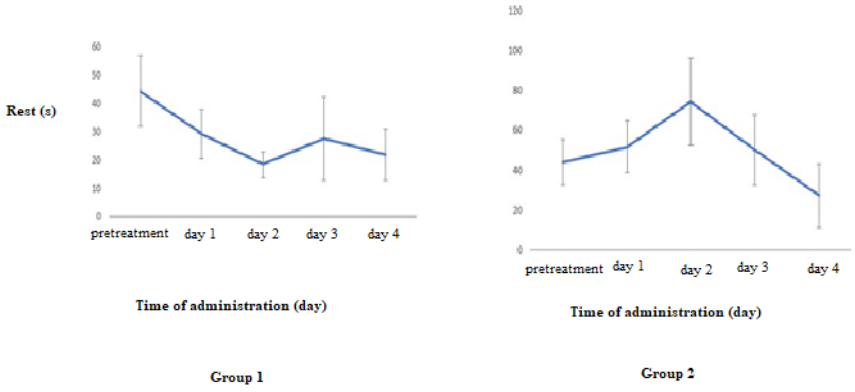

Fig. 4. Time recorded during the period of inactivity (s) of the test groups

The study of the parameter 'maximum acceleration' between the two groups has not produced significant results (Fig. 5). The values recorded for the two groups were:

Group 1 (control): pre-treatment= 199,7 ± 8,1 cm^2/s, day 1= 205,2 ± 3,4 cm^2/s, day 2= 194,7 ± 7,1 cm^2/s, day 3= 206,1 ± 3,2 cm^2/s, day 4= 210,9 ± 2,7 cm^2/s.

Group 2 (group that received VPA): pre-treatment= 245,8 ± 15,5 cm^2/s, day 1= 205,06 ± 2,4 cm^2/s, day 2= 210,02 ± 11,07 cm^2/s, day 3= 212,7 ± 3,01 cm^2/s, day 4= 217,6 ± 7,09 cm^2/s.

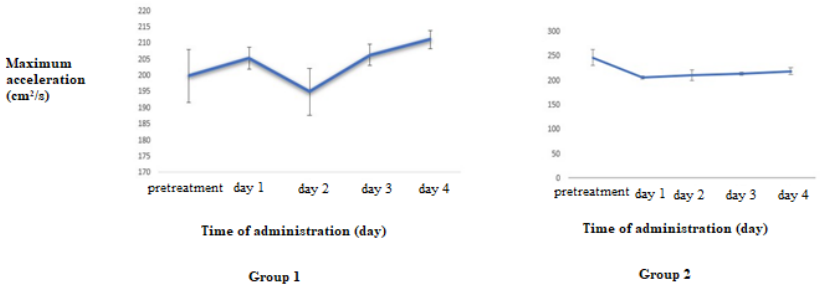

Fig. 5. The maximum acceleration (cm^2/s) recorded in the experimental groups

Studying the 'decision point' parameter has shown that between the two groups there no significant difference (fig. 6). The values recorded for the two groups were:

Group 1 (control): pre-treatment= 6,5 ± 1,2 s, day 1= 2,8 ± 0,9 s, day 2= 4,2 ± 0,9 s, day 3= 7,5 ± 2,1 s, day 4= 4,8 ± 1,3 s.

Group 2 (group that received VPA): pre-treatment= 4,3 ± 1,4 s, day 1= 1,9 ± 0,9 s, day 2= 2,9 ± 1,3 s, day 3= 3,06 ± 1,2 s, day 4= 2,4 ± 1,5 s.

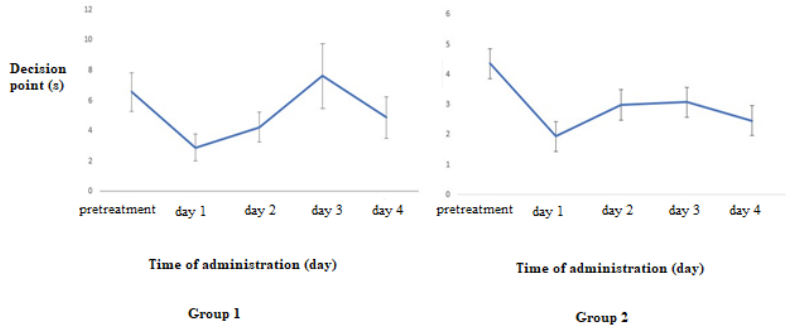

Fig. 6. Time spent at the decision point (s) in the test groups

The study of the parameter 'left arm' in the aggressiveness test led to significant results between the two groups (Fig. 7). The values recorded for the two groups were:

Group 1 (control): pre-treatment= 39,9 ± 5,9 s, day 1= 18,1 ± 5,7 s, day 2= 26,4 ± 4,1 s, day 3= 35,9 ± 5,9 s, day 4= 30,3 ± 9,5 s.

Group 2 (group that received VPA): pre-treatment= 47,03 ± 6,5 s, day 1= 12,2 ± 4,9 s, day 2 = 23,6 ± 9,4 s, day 3= 38,1 ± 9,3 s, day 4= 30,07 ± 9,2 s ($p < 0,05$ ANOVA).

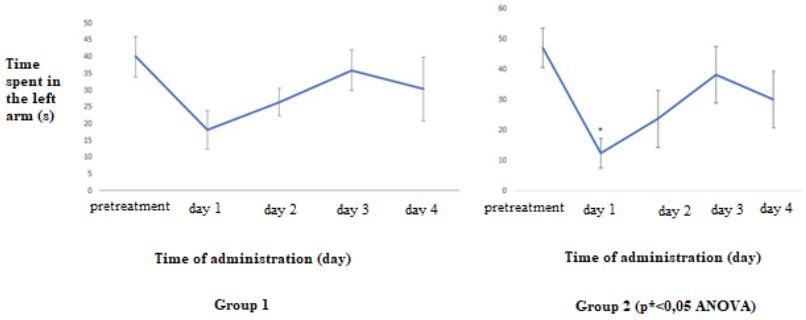

Fig. 7. Time spent in the left arm (s) in the experimental groups

The 'right arm' parameter analysed in the aggressiveness test at the level of the two groups showed significant results (Fig. 8). The values recorded for the two groups are:

Group 1 (control): pre-treatment= 20,4 ± 5,7 s, day 1= 11,6 ± 4,4 s, day 2= 7,3 ± 2,4 s, day 3= 14,3 ± 3,2 s, day 4= 30,2 ± 8,7 s.

Group 2 (group that received VPA): pre-treatment= 10,8 ± 3,02 s, day 1= 4,4 ± 1,5 s, day 2= 32,7 ± 9,3 s, day 3= 12,2 ± 4,8 s, day 4= 12,3 ± 4,4 s.

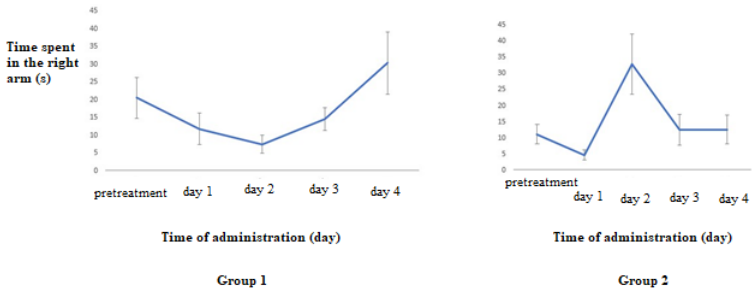

Fig. 8. Time spent in the right arm (s) within the experimental groups

Concerning the 'focal point' of the aggressiveness test, there were no significant results between the two groups (Fig. 9).

The values recorded for the two groups were: Group 1 (control): pre-treatment= 31,9 ± 6,9 s, day 1= 60,9 ± 9,1 s, day 2= 61,9 ± 6,1 s, day 3= 41,6 ± 8,08 s, day 4= 34,5 ± 9,7 s.

Group 2 (group that received VPA): pre-treatment= 36,6 ± 6,9 s, day 1= 80,4 ± 7,3 s, day 2= 37,4 ± 13,7 s vs. day 3= 46,5 ± 12,3 s, day 4= 55,09 ± 10,7 s.

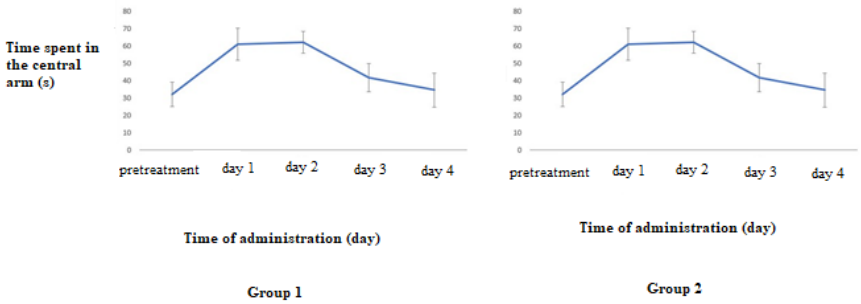

Fig. 9. Time spent in the central arm (s) in the experimental groups

DISCUSSION

The effect of teratogenic valproic acid on the behavior of zebra fishes is observed in the study conducted. The objectives were achieved in the preliminary ASD model by exposure to 200 μm of VPA and shown by the results obtained from the study of parameters that justify the effects of VPA against swim performance and aggressive behavior.

The influence of the test chemical on the locomotor apparatus is proved by the way the individuals swim. This activity has been recorded and interpreted using the values of the parameters: total distance traveled, speed, active swim, rest, maximum acceleration, the decision point.

During the total distance traveled analysis, it is observed that there is a linear increase during the 4 days of the experiment. This shows that the fishes have adapted to the conditions of the maze, starting to explore the environment. Comparing these results with the VPA group, it is clear that the substance had an impact on the locomotor activity by lowering the value of the recorded parameter. The impact was major on day 1 ($p^* < 0,05$ ANOVA), subsequently representing a plateau phase and the exploratory behavior reverting to day 4.

Within the study control group, adaptability inside the maze can be observed. On the other hand, the group that received VPA shows fluctuations in swimming speed. The most significant value was obtained on day 1, where the test substance has a great impact on the organism. An increase in anxiety may also be indicated. The speed has restored during the other treatment days. As regards the active swim period, it is noted that no statistically significant results were achieved within the VPA group, but there can be an increase in anxiety and fluctuations during activity. These fluctuations indicate the impact of the VPA in the living environment. In addition, comparing the two study groups, there is a significant difference between day 2 of the control group and day 2 of the VPA group.

The rest period recorded in the two groups shows no significant changes. When comparing the two groups, it is visible that the group that received the VPA shows an increased state of anxiety. This is more obvious on the second day.

The maximum acceleration recorded analysis showed no statistical significance between the test groups, but a plateau condition is observed in the activity of the VPA group during the treatment period. This indicates the decrease of the typical behavior when there is exposure to the stimulus. The short time spent at the intersection between the two arms (decision point) recorded within the two groups shows that the exploratory behavior is maintained.

Aggressive behavior is demonstrated by the time spent around the mirror. Comparing the results obtained, there are no major differences between the two groups in terms of aggressiveness. There is a primary effect of valproic acid ($p = 0,025$; $p^* < 0,05$; ANOVA) on behavior within the VPA group, comparing to the control group ($p > 0,05$; ANOVA). The behavior recorded on the left arm of the VPA group captures fluctuations between the values recorded on the days of the experiment. The decrease in aggressiveness during day 1 compared to the pre-treatment period is interpreted as a fear of the subject against his or her reflection in the mirror. It is withdrawn in the available alternatives. At the same time, this withdrawal response intersects with the trend of social isolation arising from the decline in sociability.

The time spent in the right arm ($p < 0,05$; ANOVA) shows a significant difference between the two groups, considerably decreasing in the VPA group. Also, the time spent in the central arm ($p < 0,05$; ANOVA) of the two groups shows small differences, marking the result of the VPA action on the behavior.

The models frequently used in the behavioral study of the VPA for various reasons are rats and zebra fishes developing a typical ASD behavior. The rat experimental model used was first proposed by Schneider and colab. in 2006, when there was suggested the injection of 600 mg/kg of valproic acid into the peritonal area of the pregnant female in the middle of the 12th day from the time of conception. This period indicates the day when the neural tube is formed and the teratogenic factor changes the development process of the nervous component at the level of: neurones, cranial nerves, and Purkinje cells in the cerebellum. The test chemical is administered by adding it in the culture medium. The dose used induced locomotor difficulties by: increasing repetitive behavior, hyperactivity and decreasing exploration behavior at both stages (1). In experiments with VPA administration, the maximum dose is 900 mg/kg. The locomotion was affected at both the lowest doses (200-250 mg/kg), while the aggressive behavior was recorded at the doses between 400 mg/kg and 800 mg/kg. Norton and collegues observed in their study (where 400 mg/kg VPA was administered postnatally, during the 14th postnatal day) an increase of aggressiveness of males at the juvenile stage (3).

During the swimming performance and aggressiveness tests performed on the aquatic model- *Danio rerio*, locomotor deficiencies and aggressiveness conditions were observed in the mirror test. In correlation with the results described in the literature, adult sensitivity to exposure to VPA is observed. The usage of substance has an impact on the locomotor activity, which is shown by changing parameters. In line with the results of the literature, the state of aggressiveness of zebra fishes has increased during certain periods of the experiment, and during the remaining days this is decreased.

Analysing the stage of exposure to the teratogenic factor, the similarity of reactions obtained in different studies and stages (embryonic, larval, juvenile, and adult) is observed. The musculoskeletal activity is affected by the induction of the VPA in the living environment from early stages, while the state of aggressiveness is rarely achieved.

In the study carried out by Zimmermann and colab., (40) exposure to the taratogenic factor was achieved in the embryonic period, the chosen concentration being 48 μm for a period of 48 hours post-fertilization. The effects of exposure were analyzed by means of an aquarium test at the embryonic and larval stage, for the next periods of time: 24 hours, 48 hours, 72 hours, 70 days, and 120 days. The indicators of locomotor activity are total distance traveled and speed. Their value, linked to hyperactivity, often found in ASD, is fluctuating. The distance increased on the 6th day, while the speed decreased. They do not show significant differences between the control group and the VPA group during the 30-day period and adult (70-120-day) respectively. Also, the state of aggressiveness was assessed at the study level by means of the mirror test during the adult period. No results were obtained to describe this behavioral component.

Chen and colab. analysed the prenatal exposure to VPA (25) and they observed phenotypes specific to ASD at the larval

stage. The period of study began within 8 hours post-fertilization and ended within 4 and a half days. The concentrations chosen were: 0,5 μm, 50 μm, and 500 μm VPA. Swimming activity showed changes in embryonic and larval stage by making spontaneous movements induced by concentrations of 5 and 50 μm within the first 24 hours. The parameter speed recorded an increased value on the 5th day for the three concentrations in the study. Both the low and highest concentration increased the speed of the VPA group. Aggressiveness has been tested in the larval (12-13 days) mirror test, with low values recorded in this type of behavior.

The study conducted by Robea and colab. (41) showed the effects of the teratogen during the embryonic development period. The concentration administered was 48 μm of valproic acid and its effect were analysed within three different time intervals: 24 hours, 48 hours, and 72 hours post-fertilization. The effects of swimming activity have been observed from the first few hours of exposure through differences in parameters: distance, speed and active swim showing an increase in values within the VPA group, as opposed to the control group. These values were interpreted as hyperactivity markers. In fact, the aggressiveness in the study was observed at the juvenile stage of the group exposed to VPA for 72 hours.

CONCLUSIONS

Autism spectrum disorder is one of the most common neurodevelopment pathologies that exhibit multiple behavioral symptoms. One of the multiple causes of ASD is the teratogenic action of valproic acid on the body, whose results are reflexed in behavior. Thus, the teratogenic action of 200 μm of VPA on the behavior of zebra fishes is pursued in the study, and the following conclusions are obtained:

Regarding the locomotor activity, statistically significant data have been recorded within the VPA group as follows: the total distance traveled has increased; the active swim period does not change between the two test groups; the rest period and swimming speed have decreased; the maximum acceleration recorded did not show any significant changes. Also, aggressive behavior has been recorded, especially on day 4 of treatment. On the same way, the time spent in the right arm has decreased within the VPA group while the time spent in the central arm does not show any significant changes.

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The authors declare that they have no potential conflicts of interest to disclosure.

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Mucosal involvement in dermatology and quality of life

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ABSTRACT

Quality of life is a multifactorial concept, shaped by the health of an individual and by non-medical variables such as personality, ambition, socioeconomic status, marital status, religious beliefs. Understanding this concept is essential in order to improve patient care. Numerous quality of life assessment tools have been developed, some generic and some specific. DLQI (Dermatology Life Quality Index) is the most common tool of its kind in dermatology and it's

easy to implement. We performed a study including 147 patients diagnosed with various skin disorders accompanied by mucosal involvement, admitted in „St. Spiridon" Emergency Clinical Hospital's Dermatovenereology Clinic during 01.01.2019-31.12.2020, aiming to measure the quality of life by applying the DLQI questionnaire and calculating its score (initial DLQI and DLQI in follow-up). As a result, the DLQI score showed a statistically significant improvement in follow-up (p <0.001). The proportion of patients with low scores (DLQI <10) increased from 31.3% to 51.7% and those with scores >20 (severe impairment of quality of life) decreased from 27.2% to 15%, with an ascending trend in male gender. Of these patients, 69.4% were diagnosed in the Dermatology Clinic. Regarding the diseases that influenced the evolution of the DLQI score, pemphigus (p=0.005), psoriasis (p=0.010) and syphilis (p=0.042) generated statistically significant improvements. The development of tools for quantifying and assessing the quality of life facilitates the identification of the level of physical and mental impairment of patients, allowing the establishment of a personalized therapy and facilitating the doctor-patient communication.

KEYWORDS:
Quality of life, dermatoses, questionnaire, doctor-patient communication.

INTRODUCTION

Understanding the polymorphic spectrum of the concept of quality of life is essential for improving health care, relieving symptoms and rehabilitating patients. This concept can also be a powerful predictor of long-term survival. (1, 2)

In dermatological pathology, the clinical features of the mucous membranes are one of the most important factors in the correct and complete assessment of health. In addition, it has an impact on the quality of life of each individual, being shaped by non-medical variables such as personality, ambition, socioeconomic status, marital status, religious beliefs. The concept of quality of life has been defined as a person's perception of their position in life, regarding cultural and value systems in which they live and in relation to their goals, expectations and standards. (1)

In recent years, the interdependence of the two multifactorial concepts has been identified: quality of life and long-term survival. Therefore, it is essential to quantify all the contributory and predisposing pathogenetic mechanisms. That being the case, it is necessary to adapt the diagnostic and therapeutic systems and protocols to the psycho-socio-cultural standards of the population. Thus, specific and sensitive tools for monitoring disease severity and prognosis can be drafted and developed. (3)

Over the years, the usefulness of psychometric techniques that assess the quality of life was recognized. These techniques include skin-specific and disease-specific ones. For example, the 12-item questionnaire (GHQ-12) allows the assessment of general health by identifying and quantifying the most common non-psychotic mental symptoms that are part of the spectrum of depression or anxiety. This questionnaire has a documented reliability and validity, including in patients with dermatological conditions. Another specific tool for correlating the quality of life with maintaining the health of the oral mucosa is the 14-item Oral Health Impact Profile (OHIP-14). (4, 5)

The impact of skin disorders on quality of life is assessed and quantified using the Dermatology Life Quality Index (DLQI), DLQI-R, Dermatology Quality of Life Scales, Skindex-17, Skindex-29. (6)

Developed in 1994, DLQI is the most commonly used score in clinical practice. It is easy to apply and interpret, with 10 items that

give the clinician or medical expert the possibility to capture both the clinical evolution of the pathology and the response to treatment. At the same time, it facilitates the quantification of the patient's perception of symptoms and social implications of organic dysfunction. In this way, the mental impact of the clinical evolution and prognosis from the week preceding the application of the questionnaire is registered. Each item can be evaluated on a scale from 0 to 3 (0- not at all / irrelevant, 1- little, 2- much, 3- very much) and reflects the importance of dermatological pathology in the integral psychosocial context of the patient. Thus, a maximum score of 30 can be obtained if the quality of life is not affected by organic dysfunction. (7)

It is known that the mucous membranes are mirrors that reflect, locally, the health of an individual. A peculiarity of their involvement in dermatological diseases is that of symptomatic paucity, imprinted by the chronic inflammatory context specific to those locations. Therefore, addressability may be delayed after chronic non-specific polymorphic lesions such as erosion, ulceration, lichenification and / or vegetation.

All this particular clinical context, specific to mucosal damage, induces the appearance of severe complications on the quality of life, by contributing to the installation of the whole symptomatic procession associated with anxiety. The latter will act dual on therapeutic compliance. For this reason, the current study aims to assess the impact of mucosal damage on quality of life, using the application of the DLQI score in the context of the most common and aggressive dermatological pathologies.

MATERIALS AND METHOD

In order to achieve the proposed objectives, we performed a retrospective study, analyzing a group of 147 patients admitted in „St. Spiridon" Emergency Clinical Hospital's Dermatovenereology Clinic during 01.01.2019-31.12.2020. The inclusion criteria were as follows: gender, age, life environment, main diagnosis, onset of the pathology, DLQI severity score and comorbidities. The impact on quality of life was quantified using the DLQI (Dermatology Life Quality Index) questionnaire, by calculating an initial DLQI score and another one 6-9 months later. It was divided into 3 categories: <10, 10-20 and >20, meaning mild, moderate and severe impairment. All patients included in the study signed the informed consent for the processing of personal data for research purposes. All variables were statistically processed using Chi² or Fisher tests (for 2x2 comparisons). In the case of comparisons for the distribution of DLQI scores based on binary variables, we used the Chi² test for trends, also known as Cochran-Armitage. To compare DLQI scores on the first and second exams, statistically adjusting for the rest of the variables, we used the Cochran-Mantel-Haenszel test. All p-values were considered significant at values <0.05. Statistical analyzes were performed in R v.4.1.1.

RESULTS

The 147 patients included in the study were divided into approximately equal groups, according to gender and life environment. The distribution by age groups highlighted a predominance for the 36-60 age group. Compared to the type of diagnosis, the most common were candidal dermatoses and pemphigus vulgaris (17.7% each), followed by lichen planus (14.3%) and psoriasis (10.2%) (Fig.1). The most frequently involved mucosa in the identified dermatological pathology were the oral and genital mucosa.

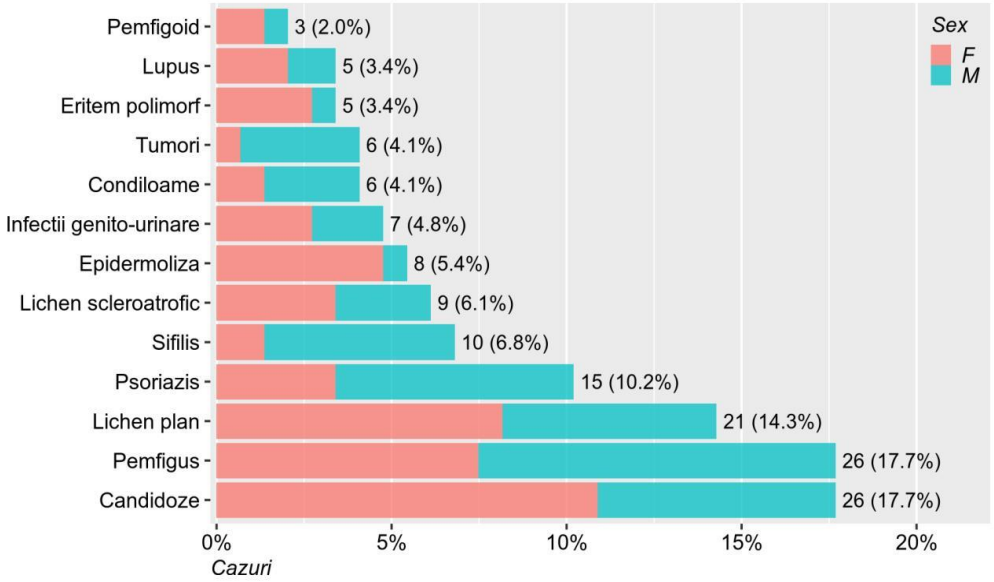

Fig. 1. Patient distribution according to gender and disease

When they were first included in the study, the patients were diagnosed with chronic pathologies for more than 1 year (46.3%). In 69.4% of cases, the diagnosis was established in the Dermatovenereology Clinic. In 55.1% of patients, the lesions were located exclusively on the oral mucosa and in 32.7% of patients, the lesions were located exclusively on the genital mucosa. More than half of them (57.1%) had lesions with malignant potential.

Overall, there were significant improvements in the DLQI score ($p < 0.001$). The severity of the score was improved with ~ 20 percent (from 31.3% to 51.7%). In addition, the proportion of those who obtained a score higher than 20 decreased from 27.2% to 15% (Fig.2).

	DLQI 1	DLQI 2
<10	46 (31.3%)	76 (51.7%)
10-20	61 (41.5%)	49 (33.3%)
>20	40 (27.2%)	22 (15.0%)
Total	147	

Chi² = 14 with 2 degrees of freedom, p-value = 0.001, which is statistically significant.

Fig.2. Overall evolution of the DLQI score at re-examination

In patients with lesions at risk of malignancy (57.1%), the distribution of the DLQI score did not improve much, but in those without such lesions, the proportion of patients with mild impairment of quality of life increased from 21.4% to 76.2%, and in those with severe impairment decreased from 33.3% to only 3.2%. Thus, the improvement of the DLQI score in follow-up was statistically significant ($p < 0.001$).

The damage to the mucous membranes influenced the evolution of the DLQI score (p

= 0.037). Patients with double impairment had the highest scores on both examinations and moderate improvement. Patients with exclusively genital impairment had the lowest scores on both examinations and the most notable improvement, with an increase in the percentage of patients with a low score from 27.1% to 66.7% and a decrease in those with high scores from 24.7% to 8.3%.

The DLQI score was also influenced by the chronicity of the disease, patients with longer illness showing the slightest improvement (p = 0.045), but there were no significant differences in the DLQI score at hospitalization compared to follow-up.

Of the conditions that influenced the evolution of the DLQI score, only pemphigus (p = 0.005), psoriasis (p=0.010) and syphilis (p=0.042) generated statistically significant improvements. Candidiasis was the most common diagnosis (17.7%), with a minimal effect on quality of life, most (69.2% and 80.8% in follow-up) with scores <10. In patients diagnosed with pemphigus (17.7%), the proportion of those with mild impairment increased from 3.8% to 23.1%, and of those with severe impairment decreased from 57.7% to 34.6%. In patients diagnosed with psoriasis (10.2%), the proportion of low DLQI increased from 33.3% to 80%, and of DLQI >20 decreased from 26.7% to 6.7%. Regarding patients diagnosed with syphilis (6.8%), the proportion of low scores increased from 20% to 60%, and the proportion of high scores decreased from 30% to 0%. In patients with less frequent genito-urinary tract infections (4.8%), the improvement in the DLQI score was visible, from 42.9% to 85.7% for scores <10 and from 14.3% to 0 for scores >20, but without crossing the threshold of statistical significance. The other rarer diagnoses performed the same in tests.

DISCUSSIONS

Assessment of quality of life in the context of health has been addressed in numerous medical studies, with particular emphasis on improving care. Certain dermatological conditions involving the mucous membranes can have a significant impact on quality of life, which is why several quantification tools have been developed. Frequent dermatoses involving mucosal damage can be classified into: infectious dermatoses (oral candidiasis, genital candidiasis, HIV infection, Stevens-Johnson syndrome), autoimmune dermatoses (systemic lupus erythematosus, lichen sclerosus et atrophicus, lichen planus) pemphigus group, bullous pemphigoid, inherited epidermolysis bullosa), erythematous-squamous dermatoses (psoriasis), oncologic pathology (oral / anogenital squamous cell carcinomas, malignant melanomas of the mucous membranes, etc.), venereal pathology (syphilis, HPV infection). (8, 9)

In the present study, we analyzed the quality of life in patients diagnosed with these dermatoses and compared the data reports with those existing in the literature. Oral candidiasis is a common condition in clinical practice. However, some forms of oral candidiasis can present a major diagnostic challenge, and may be an indication of unidentified concomitant systemic disease. Multiple studies in the literature have shown that this condition can cause oral discomfort, even leading to nutritional deficiencies. However, under the right therapy, most forms evolve favorably, with a positive response on quality of life, as observed in our study, where lower scores were obtained on the DLQI follow-up questionnaire, with statistical significance. A study by Blostein et al., which included 620 women diagnosed with recurrent vulvo-vaginal candidiasis from 6 different countries, showed that 53% of them reported anxiety / depression, physical discomfort and fear of social interaction. (10, 11)

Regarding lichen planus (inflammatory manifestation produced by immune mechanisms), a study by Suliman et al. highlighted that oral health in patients with symptomatic lichen planus is associated with reduced quality of life compared to asymptomatic forms. Another similar result was obtained in the study of McGrath et al., which showed that patients with ulcers, erosions and other oral symptoms had lower levels of quality of life compared to

asymptomatic patients. They used a questionnaire specific to oral lesions - OHIP-14. (5) The results can be compared with those obtained in the present study, where no significant improvement of DLQI scores was observed between examinations.

Systemic lupus erythematosus, an autoimmune condition that can involve the mucous membranes, also has an impact on quality of life in varying proportions, with mucosal ulcers being more severe in men, according to Krasselt et al. These epithelial lesions have the potential for malignant transformation, especially to non-Hodgkin's malignant lymphoma, leukemia or vulvar, lung, thyroid, liver and, to a lesser extent, breast, endometrial or ovarian cancer. (12)

In the case of lichen sclerosus et atrophicus, a study by Van Cranenburgh et al. showed that women have a moderately to severely affected quality of life, even after topical treatment, (13) being comparable to the results of our study, where further DLQI scores> 20 were obtained, indicating an increased severity of the disease. Also, in the study of Van de Nieuwenhoff et al. (14), patients obtained an average DLQI score of 11.92, which shows a significant impairment of quality of life, especially sexual function, the most important symptom being dyspareunia (caused by the easy rupture of the sensitized vaginal mucosa, but also by the stenosis of the vaginal introitus).

Bullous epidermolysis is a rare condition characterized by fragility of the skin and mucous membranes. Minimal mechanical trauma causes blisters and erosions. A systematic review of the literature, which included 12 observational studies and 745 patients with epidermolysis bullosa, of various ages and gender, showed that more than half of them had a marked impairment of quality of life. Three studies describe a lower quality of life in female patients compared to men, an observation also confirmed in our study. (15) The quality of life does not seem to improve with age, the spectrum of extra-cutaneous manifestations being severe. A dreaded complication is squamous cell carcinoma, with a mortality risk of approximately 67.8% after the age of 35. (16) Psoriasis with genital impairment is a condition that significantly diminishes the psychosocial and sexual health of patients. A study by Meeuwis et al. in 2018 concluded that more than half of patients with genital psoriasis had not talked to their doctor about their condition, as they faced deficiencies in physical activity, personal relationships, work, school and emotion management. Unfortunately, genital psoriasis remains untreated in the vast majority of patients. Only a quarter of patients with genital psoriasis believe that their doctors have paid enough attention to possible sexual problems, despite evidence that all types of psoriasis affect sexual intercourse and sexual function. (17, 18, 19) However, in our study, patients showed an increase in DLQI scores <10 and a decrease in those >20, correlating with an overall improvement in quality of life following the treatment. Patients treated with multiple PUVA sessions are also at increased risk of developing skin cancers, especially squamous cell carcinoma. (20)

As for tumors in the mucous membranes, they are most often represented by squamous cell carcinoma. A study by Kessler et al. followed the quality of life of patients with squamous cell carcinoma of the oral mucosa, pre-surgery and one year after tumor resection. There is a low quality of life in the first 3 months post-surgery due to difficulties related to the consequences of the intervention (pain, inability to eat) with a gradual improvement in quality of life in one postoperative year. (21) Similarly, our results showed DLQI scores ranging from 33.3% to 66.7% for scores <10 and from 16.7% to 0 for scores >20.

Human papilloma virus (HPV) infection is the most widespread sexually transmitted infection in the world, with an overall prevalence of 9-13%. Multiple studies evaluating the quality of life in patients with genital lesions caused by HPV have shown that they have both a negative physical and psychological impact. Their most common associations are with depression, anxiety,

feelings of anger and shame. (22, 23, 24, 25) Moreover, a study of 842 patients in the UK showed that patients with genital lesions had a significantly impaired quality of life, caused by the consequences of diagnosis and treatment. (26)

Syphilis continues to be a major public health problem, with a serious impact on the whole body through the long-term development of complications or even death. Few current studies have addressed the quality of life in men and women with syphilis, analyzing social, psychological or economic contexts. A study performed by Andreyev et al. on 250 patients showed that syphilis has a heterogeneous influence on quality of life, depending on the stage of the disease, so in the case of patients with primary syphilis the effect was mainly on physical health, while in patients with latent syphilis and secondary syphilis predominated the psychological component. Currently, due to the increased number of reported cases of syphilis infection and reinfection, urban centers around the world agree that syphilis has a limited impact on quality of life as long as it is detected and treated. (27) This was also highlighted in our study, where a statistically significant difference was observed between the DLQI scores initially obtained, where moderate and severe impairment of quality of life predominated, and those calculated at follow-up, where there was only mild and moderate impairment.

Pemphigus is a rare autoimmune bullous disorder caused by the production of autoantibodies against desmosomes. According to studies, 48%-68.6% of patients diagnosed with pemphigus vulgaris have mucosal damage, with a mean DLQI of 11.8 ± 7.5. In patients with pemphigus and mucosal damage, the average duration of onset of lesions is about 21 months, and the secondary presentation to the doctor is after about 5.4 months. The results are comparable to those in our study, with 17 (65, 38%) of the 26 patients with pemphigus showing an onset of the disease over 12 months. (28) According to recent data, feminine gender and a severe type of disease were associated with higher DLQI scores on first presentation compared to male gender. An analysis of the literature using the Pubmed database also showed in 11 studies an association between pemphigus, anxiety and depression, ranging from 28-77%, especially in women. (29)

CONCLUSIONS

For patients with dermatological conditions, as well as for most people, the appearance of the skin plays an essential role, because the skin is an organ with which a first interpersonal contact is established. Moreover, when the dermatological damage goes beyond the skin, affecting the mucous membranes and internal organs, the patients' quality of life decreases drastically and they associate important psychosocial dysfunctions.

The development of tools for quantifying and assessing the quality of life facilitates the identification of the level of physical and mental impairment of patients. All these algorithms allow the establishment of a personalized therapeutic approach, with a significant improvement of the medical act. In this way, the continuous monitoring of the quality of life facilitates the doctor-patient communication and improves the addressability and compliance of the patients to the assigned therapeutic scheme.

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Alcohol consumption – antisocial effects and legislative proposals

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ABSTRACT

Since ancient times, alcohol has been present at both happy and unhappy events in the human's life. Consumed in excess, it has come to be an enemy of society, being associated with most of the current serious problems – antisocial deeds (crimes, suicides, domestic violence and abuse), but also an enemy of the physical and mental well-being, given the many negative effects it has on human health. Through this work we aim to bring in the foreground the main clinical, paraclinical and social manifestations that the consumption in large quantities and repetitively of alcohol involves.

KEYWORDS:

Alcoholism, tolerance, addiction, alcoholic intoxication, psychosis and alcoholic dementia, antisocial effects.

HISTORY

In the Ancient East - very fine metal powder, -*"koh'l"* - which served as blush for eyelids and eyebrows. The Arabs added the Arabic word "al", turning it into *"al-koh'l"* - extremely fine powder, slightly volatile, like alcohol. Its Latin equivalent "*spiritus"*- essence that disappears through volatization, therefore not noticeable. In the seventeenth century, the term also acquired the meaning of spirits fluid. "Alcoholism" – was first used in 1852 by Doctor Magnus Huss who draws attention to its negative social consequences and the aggravation of some diseases.

PROPERTIES OF ETHYL ALCOHOL

Ethanol is a colorless liquid that boils at 78.32^0 C and solidifies to -114.1^0 C. It is much lighter than water, with a density of 0.79 g/cm^3 (d=0.79).

Toxicokinetics. After ingestion, ethanol is rapidly absorbed and distributed throughout

all organs and tissues. It is eliminated by exhalation (3-7%) and urine (2-4%), the rest being metabolized in the liver, successively to *acetaldehyde, acetate,* and finally CO_2 and *water.* Oxidation to acetaldehyde occurs under the action of DHA in the liver; at higher amounts of ethanol the microsomial oxidation system (MEOS) and catalase (CAT) intervene. 5% of alcohol is absorbed through the wall of the stomach. The rest is absorbed by the small intestine. It accumulates in the blood because absorption is faster than oxidation and elimination. Food in the stomach slows down the absorption of alcohol, for this reason it is recommended to consume *food simultaneously with the ingestion of alcohol* or before it. Thus, the alcohol level will increase harder than if the stomach was empty.

ABSORPTION

The carbon dioxide in fizzy wines and champagnes increases the absorption of alcohol. In general, the amount of alcohol is absorbed in 20-30 minutes, consumed at once. Alcohol absorbed into the blood through the stomach and small intestine, passes through the liver where it is partially metabolized, and the rest is diffused through blood to the organs. *The receptivity of the organs to alcohol depends according to their water content and their blood*flow.

The use of bone marrow to establish the level of ethanol in the blood. The bone marrow is strongly vascularized and well protected by the bones of the body. In massive tissue destruction, the bone marrow can remain intact. Studies have shown that the level of ethanol in the blood can be estimated most correctly based on the level of bone marrow ethanol.

Other areas from which collections can be made to establish the level of *blood alcohol:* brain, liver, bile, urine, vitreous humor. The brain and the vitreous humor are most often used, but they do not always show a perfect concordance with blood alcohol levels.

Through numerous research on volunteers, the following were mainly highlighted:

- under equal conditions of absorption of alcoholic beverages, the "peak" of blood alcohol concentration (BAC) is higher in more concentrated drinks;
- by prolonging the time of ingestion of alcoholic beverages, the value of the "peak" of BAC also decreases. The decrease of the "peak" of BAC is consequent to the metabolic processes that take place simultaneously with the absorption and diffusion of alcohol;
- food - proteins delay alcohol absorption to a greater extent then carbohydrates and lipids (questionable...).
- sex, admitting that, at equal dosage in alcohol and under equal conditions of absorption, the "peak" of BAC is higher in women than in men;
- the general condition of the subject, admitting that the states of "stress" delay the absorption of alcohol.

ELIMINATION

From the moment of absorption into the blood, the body immediately begins to eliminate it through direct elimination and metabolism. *The amount directly eliminated* is 5 - 10% and is done by breathing, urine, tears, sweating, etc. Any attempt to increase these eliminations are in vain, for example: intense exercise, increased digestion through coffee or medication. About 90-95% of the ethanol in the body is metabolized (in the liver) into carbon dioxide and water, each mL of pure alcohol releasing about 7kcal. Hence the fact that alcohol was considered food.

Various diseases of the liver can reduce elimination rates. Chronic alcoholics who frequently suffer from cirrhosis, have disorders of alcohol metabolism.

ALCOHOL TOLERANCE

People who repeatedly consume alcohol gradually become tolerant of its effects. Tolerance consists in progressively reducing the intensity of the effect and shortening its duration, with the need to increase the quantity in order to achieve the same effect. Tolerance is also *"helped"* by some of the alcoholic's acquired skills: he learns to walk straight when he is in an average state of intoxication.

There are several types of tolerance:

- ***acute tolerance*** refers to the body's response, when BAC is decreasing, compared to the same concentration when the curve is increasing, after a single administration;
- ***chronic tolerance*** implies the reduction of the effect of the drug after repeated use. However, alcohol tolerance has a limit: the most inveterate drinker can consume no more than 3-4 times more alcohol than a person unused with consumption, in order to show the same signs of intoxication.

Several explanations have been tried ***regarding the mechanism of producing tolerance to alcoholics:***

- alteration of the metabolic rate of ethanol (most likely);
- adaptive change in the CNS response to alcohol;
- decrease in gastrointestinal absorption (it has been proven that it does not occur);
- alteration of the distribution of alcohol into the tissues, in the sense of lower penetration at the level of the CNS;
- creşterea excreţiei.

Metabolic tolerance indicates a more intense metabolism. Research shows that chronic alcohol use leads to increased oxidation capacity of ethanol, a phenomenon that decreases after several weeks of abstinence.

Pharmacodynamic tolerance to alcohol involves the production of intoxication at gradually higher alcohol levels, indicating a decrease in tissue reactivity, or a certain form of cellular adaptation of the CNS.

Dependency

Alcohol is addictive after three years of chronic administration. It may be:

- ***Psychic*** addiction is the unbridled psychic impulse to continue drinking alcohol. The modification of psycho-affective functions under the influence of alcohol is also influenced by a number of constitutional, social or educational factors.
- ***physical*** dependence that evolves parallel to the development of tolerance. Experiences have shown that tolerance and physical dependence begin to develop from the very first administration.

Any sudden decrease in ethanol intake *leads to symptoms of disruption of CNS depression:* tremor of hands, increases in pulse, respiratory rate and body temperature, insomnia, nightmares, generalized anxiety or panic attacks and gastrointestinal upsets.

RISK OF DEATH BY ALCOHOLIC INTOXICATION

The BAC values are directly related to the sensitivity, tolerance and certain pre-existing conditions of the subject.

In general, it is accepted that an alcohol level of over 5.00 g‰ is fatal. In alcohol consumption, the lethal outcome can also

occur at lower values by: *obturation of the airways with vomiting, refrigeration, traumatic bleeding, lung complications or aggravation of heart disease.*

PARACLINICAL CHANGES

The lipids decrease sharply in the first week of abstinence to increase in the second. So does cholesterol. People who consume animal fats, but also of spirits, give fewer clinical cases of alcoholism than sedentary people who do not consume fat. This observation raises the question of the relationship between the consumption of fat and alcohol in dietary behavior. *VEM and VSH are elevated in alcoholics* and are in sharp regression after a week of abstinence. *Leukocytes are generally at the lower limit of normal*, lymphocytes have the same tendency to decrease.

Alcohol used in abuse is a cerebral vasoconstrictor, and *erythrocytes are altered*. Thus, the support of the O2transport is modified. So *neuronal hypooxygenation* seems to be a sure fact in the case of alcoholics.

Alcohol blocks the peripheric use of lipids, and in the *CNS it blocks the use of glucose.* The body's energy source is primarily lipids, and in the CNS is glucose.

Ethanol produces a decrease *in K and an increase in Na* in tissues, thus increasing *the risk of producing rhythm disturbances.*

WITHDRAWAL

Symptoms begin within 5 to 10 hours after stopping alcohol intake, reach a maximum in intensity on the second day and improve on the fourth day. *Anxiety, insomnia* and mild levels of autonomic dysfunction can persist for 6 months and cause the return to drink.

Around 5% of alcoholics show *severe symptoms of abstinence.* These include a state of confusion sometimes accompanied by visual, tactile, or auditory hallucinations. These psychotic symptoms disappear in a few days. A small percentage of alcoholics manifest one or two generalized *seizures*, usually in the first 48h after the cessation of consumption.

The diagnosis of *delirium tremens* is established when the evolution exceeds the usual withdrawal symptoms and confusional states appear (with delusional ideas and associated hallucinations), severe agitation and generalized convulsions. Most of the time, severe abstinence syndrome begins and ends abruptly, rarely lasting more than 3 to 5 days.

The mortality risk for delirium tremens is quite low but increases with pre-existing chronic diseases or systemic organ failure.

Psychiatry of alcoholic intoxication

Alcoholism occurs in *fragile personalities* or with a low degree of social adaptability. Psychopathic personalities can be considered as prone. In neurotics *and depressives*, alcohol plays the role of an anxiolytic. There are also normal *individuals* who end up drinking by habit.

The motivations of those who drink were the following: 54% mandatory at celebrations, in meetings with friends 53%, anxiolytic 15%, to forget their troubles 15%, for self-confidence 20%, because they have nothing else to do 9%.

According to E.M. Jellinek, the following phases of alcoholism are distinguished:

* ***"alpha" alcoholism*** in which it is a purely psychological dependence. Alcohol is used to get the anxious tension lowered.
* ***"beta" alcoholism*** is preceded by a long period of excessive consumption. Organic

complications (gastritis, polyneurisy, cirrhosis) are already present; however, a physical or mental dependence is not installed.

* ***"gamma" alcoholism*** is characterized by loss of control and the appearance of physical dependence. The increase in tolerance to toxic is described.
* ***alcoholism "delta" in*** which the dependence is so accentuated that the onset of withdrawal phenomena is early (1-2 days).
* ***"epsilon" alcoholism*** actually corresponds to dipsomania.

Periodic alcoholism (dipsomania) occurs in the form of periodic, paroxysmal bouts of abusive consumption of alcoholic beverages, lasting several days. Between the accesses there is a period of abstinence of months or years. The crisis begins and ends abruptly, accompanied by states of outpatient automatism, flight, criminal acts and even suicide. Upon awakening, the patient feels a deep disgust towards alcohol, he is guilty, he becomes depressed.

CLINICAL FORMS OF ALCOHOLIC INTOXICATION

1. Acute and chronic alcoholic intoxication.

Ingestion in small amounts of alcohol has a vasoconstrictor and exciting CNS effect, a high dose of alcohol has a vasodilator, narcotic and anesthetic effect.

From a forensic point of view, there are implications of alcoholic intoxication in: road accidents, suicides, homicides.

Acute alcoholic intoxication can take two forms:

a) simple drunkenness (acute drunkenness)

b) pathological drunkenness.

a) Simple drunkenness (acute drunkenness) has four phases:

* ***the phase of psychomotor excitation*** is manifested by euphoria, logorrhoea, decreased self-control and will, weakening of attention, narrowing of the visual field with disturbance of the appreciation of distances, tachycardia, sensation of heat. It usually corresponds to a BAC between 0.4 - *1.5 g‰*;
* ***the ebrious phase*** occurs in BAC between 1.5 - *3 g‰*, with symptoms of psycho-sensory disturbance and alteration of intellectual faculties. Incoherent speech, drowsiness, disappearance of self-control occurs with the triggering of instincts, passions, aggressive changes, sensory disorders.
* ***the sleep phase*** occurs when the alcohol level has reached around 3 - *4 g‰*. The conditioned reflexes are abolished, the sensory perception and motor coordination is deeply altered, it diminishes the control of the sphincters, a deep sleep (a few hours) is established with amnesia upon awakening.
- ***the coma phase*** occurs when the alcohol has exceeded 4 *g*. Death occurs at a concentration of 5 *g‰*, being caused by the stopping of vital functions.

b) Pathological drunkenness is an acute, serious alcoholic intoxication, which is characterized by a crepuscular consciousness disorder that occurs after the ingestion of relatively small amounts of alcohol in certain subjects who have a particular sensitivity or an encephalopathic background.

Characteristic of pathological drunkenness is that for those around him, the subject seems not to be drunk. Within this appearance, the subject undergoes a profound change of consciousness with a hallucinatory or delusional symptomatology; serious

*behavioral disorder s*occur: psycho-motor agitation, homicides, with total amnesia of the facts that occurred during the drunken state.

Chronic ethanolic intoxication occurs with chronic excessive alcohol consumption, with dependence on it. The chronic alcoholic is an ethanol drinker initially occasionally, then periodically and finally regularly, with the appearance of addiction. Symptoms are gastrointestinal (gastritis, hepatitis, cirrhosis), *neuro-psychic* (polyneuritis, delirium and hallucinations, up to dementia and delirium tremens) and *general* (cardio-vascular, endocrine failure, decreased resistance to infections).

Morphopathologically, the lesions in acute *intoxication* are nonspecific (congestions with blood sufusions in the cerebral nervous system, lungs, kidneys) and in chronic *intoxication* processes of degeneration, sclerosis and atrophy (predominantly cerebral and hepatic).

Chronic consumption of alcoholic beverages causes the appearance *of aberrant behavior.* The alcoholic becomes irritable, does not notice the decrease of his productive capacity. In the family environment he behaves like a tyrant, ill-disposed, considers himself neglected, without noticing that he is wasteful, inadious and selfish. Because alcoholism exalts libido, but lowers potency, the alcoholic becomes jealous, prone to acts of violence or sexual perversions.

The functions of knowledge progressively decrease on the road to *irreversible alcoholic dementia.*

2. Psychoses and alcoholic dementia

2.1. Alcoholic psychoses

a) Acute alcoholic delirium (delirium tremens) is a serious psychotic condition generated by prolonged alcohol consumption, sudden withdrawal, associated pathological conditions.

Delirium tremens is believed to be the result of liver damage that occurs in chronic alcoholism, so that a series of toxic substances resulting from metabolism are no longer neutralized and seriously disrupt the functions of the central nervous system.

The state period is characterized by the disintegration of the field of consciousness, with temporo-spatial disorientation and the development of confusing-oniric phenomena. On this background overlap illusions and hallucinations especially terrifying visuals. They are so real that after returning, he cannot be convinced of their hallucinatory character. Auditory, olfactory, gustatory, tactile hallucinations can also be associated. Frequently it is noticed the appearance of stereotypes characteristic of the job (the waiter serves his clients, the barber makes the gestures of shaving).

Tremors are generalized, but more expressed to the upper limbs and tongue. Hyperthermia is characteristic (40 degrees Celsius), as well as heavy sweating, which produce a sharp dehydration and hydro-electrolyte imbalance. The pulse is accelerated, the blood pressure may drop sharply, there is a danger of collapse.

Evolution is short (7-10 days) leading to exitus or to a complete remission, obtained with the help of modern therapeutic means.

b) Subacute alcoholic delirium (predelirium tremens)

It is more common than acute delirium. In the period of the state are characteristic: the modification of consciousness, according to the confusedo-oniric model, the presence of illusions and predominantly visual hallucinations with terrifying content, psycho-motor restlessness: tremors, sweats. In the case of favorable evolution, anxiety and psycho-motor anxiety cease, consciousness is clarified, sleep sets in. Some cases evolve towards delirium tremens.

c) Postonian sequelae - sometimes, after an acute or subacute alcoholic delirium, the memory of the oniric scenes persists for a longer time, with the presence of persuading the reality of the lived facts.

d) Alcoholic hallucinosis (Wernicke) characterized by especially auditory hallucinations, which occur in chronic alcoholics on a background of clarity of consciousness. The content of the hallucinations is insulting, threatening, frequently contradictory, causing anxiety and defensive reactions on the part of the patient. On the basis of perception disorders develops a paranoid delirium of persecution, of follow-up, which can lead to self-destructive conduct.

e) Chronic alcoholic deliriums represent permanent mental disorders on the background of ethyl impregnation.

Characteristic for alcoholism is ***the delirium of interpretation,*** which has an insidious development, with a content of jealousy with absurd character, leading to aggressive reactions.

2.2. Alcoholic dementia

Years of chronic alcoholic impregnation put their irreversible mark on patients, who undergo a process of global unevenness of personality. It installs an intellectual and affective deterioration, with disorders of attention and, especially, of memory, which lead to an incoherent thinking, defect of judgment, indifference.

Three particular forms have also been described:

a) General alcoholic pseudoparalysis, with delusional ideas of grandeur, frequently appearing after fits of delirium tremens;

b) Marchiofova's disease (with lesions in the corpus callosum) and

- *c) Morel laminar cortical sclerosis* (lesions in the frontal lobes).

2.3. 'Alcoholic' epilepsy

Clinical correlations between alcoholic intoxication and comitial seizures were found in 16% of alcoholics. The treatment is done by alcohol suppression and antiepileptic medication.

3. Alcoholic encephalopathies

It performs well-differentiated anatomo-chemical syndromes with a psychic picture and specific inlaying substrate, among which the more known are:

1. Korsakov polynevritic psychosis;
2. Gayet - Wernicke encephalopathy.

3.1. Korsakov polynevritic psychosis

Amnesia of recent facts with the impossibility of evoking previously fixed events. This attachment amnesia (anterograde) is not sufficiently realized by the patient, which is why he has a euphoric, disoriented behavior. The misunderstanding of daily facts in the conditions of preserving previous memories, explains the often-large-scale confabulations, to which false recognitions are added. A

second manifestation of the disease is polyneurisy. Most frequently, the psychic anniveling is accentuated by going up to the stage of dementia.

3.2. Gayet – Wernicke encephalopathy

The onset is relatively sudden with anorexia, nausea, vomiting, headache, insomnia, restlessness, irritability, weight loss, to which are soon added the signs of polyneuropathy and balance disorders. From the psychic point of view, the disease is characterized by the marked decrease of the intellect, the confused state and drowsiness, going up to a coma.

The evolution takes place in 10-15 days and in the absence of an adequate treatment, the clinical picture may evolve to coma and death, or may leave mental (dementia) or neurological sequelae (ocular paralysis).

Usually, acute intoxications are transient, healing in a shorter or longer period of time, depending on the BAC. After such intoxication, headache, sabural tongue, a stateof weakness, often after awakening there is a total or partial amnesia on the events during drunkenness. Sometimes a benign jaundice appears, accompanied by vomiting, diarrhea, slight fever, enlarged liver volume and painful, a condition that can last for two weeks.

Severe intoxication is sometimes followed by a very awkward condition (hangover), which can only be suppressed by a new ingestion of alcohol. This state can rather be attributed to the various additive factors of the alcoholic beverage. *Nystagmus* has been studied during and after an acute intoxication. Another criterion would be the *level of blood glucose*, which is even lower as the amount of alcohol absorbed was higher. The absorption of a new dose of alcohol in this state raises blood sugar, with the disappearance of the malaise.

The way of committing crimes under the influence of alcohol could be systematized as follows:

a) unintentional crimes, produced as a consequence of negligence, by psycho-sensory changes that the influence of alcohol gives (traffic law offence, work accidents);

b) offences produced by behavioral disorders, as a consequence of the change of personality under the influence of alcohol, changes that determine hetero and self-aggressive acts (family environment, work, society).

c) crimes that are committed in the state of dependence, in order to procure alcohol, the person concerned not having sufficient material resources to cover the excessive consumption, resorts to crimes such as: theft, embezzlement, blackmail, social parasitism;

d) committing offences through intentional consumption of alcohol, in order to complete the antisocial act.

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Changes in eating behavior brought by Covid-19: from normality to dysfunctionality – a narrative review

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ABSTRACT

The pandemic generated by the new COVID-19 virus forced governments of the world to adopt austerity measures to prevent and combat the spread of this virus on a large scale. Although the measures supported the aim of the spread, their adverse effects have not been delayed. Recent studies in most areas of activity involving the individual, but especially those in the fields of psychology, nutrition and psychiatry, shows that the consequences will affect societies in the long term. Starting from mental health in general, to significant increases in unhealthy eating behavior, we are actually talking about the need of an increased attention that should be paid to certain areas that are subject to unhealthy eating behavior caused by the pandemic context.

This study aims to bring to the attention of specialists and researchers in the field of mental health the importance of changes in eating behavior caused by the context of COVID-19. If for people with no psychiatric diagnosis this pandemic has rather led to the adoption of cognitive patterns and dysfunctional behavior, for patients with psychiatric diagnosis we will notice a worsening of the disorders and increased difficulty in maintaining the treatment. That is why we wanted to build a global point of view of these changes brought by COVID-19 for eating behavior and to identify what we can do to reduce the negative consequences in this sphere.

KEYWORDS:
Pandemic, mental, health, psychiatric, treatment.

INTRODUCTION

Even though almost two years since the beginning of the pandemic have passed, it can be noticed that its effects have a short, medium and long term impact on people, in the same time they operate both at a somatic and mental levels. Governments from all over the world had to apply restrictive circulation measures to citizens in order to reduce the spread of COVID-19. People were asked to be patient and to leave their houses just in case of necessity, social distancing was

imposed and human interactions were dramatically reduced. (1) We know that nutrition is a basic need for proper body functioning, though the individual is constantly exposed to different factors which could affect his eating behavior. Either we talk about cultural, environmental, family, interpersonal, personality or situational factors, these components might determine the way we eat, but they could be the reason behind our eating behavior as a coping mechanism. Consequently, what should be a a healthy eating behavior indispensable to human functioning, becomes in turn a strategy of dealing with stress factors in our life. Another crucial aspect to be noted is that the pandemic situation ranks as the first stress factor for our quality of life.

The effort made to deal with COVID-19 such as „social distancing" policies and laws which forced the citizens to stay at home, generated a drastic change of patients' way of treatment and generally of the offered medical services including patients who suffered from eating disorders. Moreover, infected patients or those who took care of them had to quarantine or could be too ill to continue following the treatment plan focused on eating disorders. (2) Due to this change of the way the medical services are offered (such as traditional medical appointments) the COVID-19 pandemic exacerbates the already pressing problem of unsatisfied treatment needs among people suffering from eating disorders, many of them not having access to specific medical care directed towards eating problems or when they search for such medical care it happens not to be received. (3)

In this context, the present research aims to bring to the general public's attention an overall perspective on eating behavior changes caused by psychosocial factors in the pandemic context. The causes linked with the pandemic context, which can contribute to the emergence of eating habits changes or to the worsening of some eating disorders, can be diverse. Starting with the stress caused by mass media through articles which outline the number of infected people and deaths, to news which informes the public on how shopping is done in supermarkets, the call to make supplies or to buy items of strict necessity. Certainly the impact of social media on people's life is not overlooked. In the case at issue, we talk about how some „challenges" from the sports domain translate similar messages, which can strengthen the perceptions related to alimentation style, therefore some behavioral changes can occur too. (3)

Through consulting the scientific literature and the highlighting of recent data and scientific results in the field up to now, we intend to develop this perspective trying to answer the following questions:

1. To what extent did the pandemic context generate eating behavior changes?
2. If these changes occur and are revealed as a coping mechanism, to what degree does the coping mechanism become addictive?

THEORETICAL BACKGROUND

Before presenting the studies and the existing data which approach eating behavior problems in the context of COVID-19 pandemic, the main theories from which we start the analysis will be briefly presented.

The scientific literature includes a variety of theories and explanations concerning eating behavior, regardless, we will make use of two of the most renowned theories in this article, which explain the reason behind the ways of approaching food by individuals. Eating behavior can be defined as a complex concept which comprises the reasons for choosing particular foods, eating style, diet, but nutrition related problems too (eating disorders as obesity, anorexia, bulimia).

In the same time, the scientific literature has proved that stress (4, 5, 6) and negative feelings (anxiety and depression) (7,8) are predictors of dysfunctional eating behavior, such as excessive eating or emotional eating. Two factors, in particular, seem to play an essential role in mediating the relationship between stress, anxiety, depression and dysfunctional eating behavior: the person's weight and the individual's ability to perceive and assess his own emotional state,

distinguishing it from the physical state – the inability to display this emotional awareness is called alexithymia. (9)

PSYCHOSOMATIC THEORY

There are people who when faced with strong negative emotions, respond to this state by excessive eating, but in fact these experiences have as a normal response the loss of appetite. (10) This theory is rooted in clinical observations on obese people when they experience such feelings (example: anxiety, depression or loneliness). Once again, Cannon claimed that the stimulation inhibits gastric motility and leads to the glucose release from liver into blood. (10) Due to the fact that these physiological states are similar to peripheral signals in the control of satiety, emotional arousal and stress generally lead to lower food intake and to the subsequent weight loss. (11)

In the absence of an interoceptive awareness, namely the incapacity to detect feelings of hunger, satiety or other discomfort, the theory of emotional eating behavior shows that individuals will turn to overeating in order to respond to any kind of arousal. In the case of an increased frequency of such behavior, a significant weight gain and eventually an addictive behavior will be noticed.

Other authors reinforce the idea of „emotional eating" as being derived from the psychosomatic theory, arguing that this „intake" is in fact a coping mechanism which assists the individual with handling his own negative feelings (12). Obviously, this reaction is considered unusual, given that the natural response to negative situations is the loss of appetite (13).

EXTERNALITY THEORY

Stanley Schachter rather focuses on external factors the person reacts to, compared to the psychosomatic theory which aims at the individual's emotional response to internal factors. In the same time, Schachter does not exclude the idea which states that the eating behavior of overweight people (as an example) no longer reacts to internal physiological signals (E.g. gastric motility) (14). The externality theory has at its core the phenomenon of „provoked eating" which relates to eating behavior stymuli regardless of the individual's inner mental state (14). In the pandemic context this theory can bring a plausible explication to ways in which people shop for food, essentially the products are no longer the vital thing for survival and proper body functioning, but a simple stimulus which guides the individual through handling the effects of the environment.

EATING BEHAVIOR AS A COPING MECHANISM

Folkman and Lazarus define the phenomenon of coping as follows: „constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (15). There are several ways in which eating disorders act as „adaptative functions" or coping mechanisms: self-soothing, emotional outlet, self-correction, self-punishment, emotional avoidance, the creation of a functioning mode or habits and it serves as an identity trait too. (16) It is noticed that the latter features reffer to patients suffering from eating disorders, but concerning the general population where we do not necessarily deal with a psychiatric diagnosis, Lazarus and Folkman's theory, which makes reference to strategies oriented towards problems and emotions, will be taken into consideration. Those strategies oriented towards problems are clearly made to solve problems while coping directed towards emotions involves the effort to withstand emotional stress, that way the individual trying to control the feelings or finding methods to release them (15).

FOOD ADDICTION

The concept of „food addiction" concerns some aliments which are linked to certain behaviors characterized by overeating and erratic consumption of calorie-rich foods. Preliminary findings suggested an association between overweight/obesity, food and addiction which led to the research of this phenomenon so that there was the proposal of a concept similar to the one of „addiction to foods" as a potential explanation of overweight and obesity (17).

Two main concepts were used to quantify the addiction potential of foods. Firstly, the chemical makeup of products, this composition is based on similarities between paterns of food and drug consumption. More specifically, people who are believed to have a food addiction consume processed food which is rich in calories, sugar, fat and salt. The biological evidence suggests that salt, sugar and fat found in extremely delicious food might have an addictive potential through dopamine activation – the reward system in the brain. (18)

EATING BEHAVIOR IN THE CONTEXT OF COVID-19

At the moment, we cannot talk about a significant number of empirical studies on a global level with regards to eating behavior changes in the context of COVID-19. However, a few preliminary studies were made and their findings do not translate anything but the necessity and the importance of researching this domain. For instance, three days after the beginning of the lock down in France a 5 items questionnaire inquiring about physical activity levels, the lack of control in terms of usual eating habits, the stress, the feeling of emptiness and boredom was distributed. 1092 interviewees answered the questions and the findings are as follows: more than 30% of respondents did not exercise, which could match the third of the people who lost the control over eating habits. Furthermore, stress, feelings of emptiness and boredom are dealt with through food by 37.4%, 36.7% and 43% respondents respectively. Even more importantly, the analysis of the latter three showed a low but significant positive correlation to decreased levels of physical activity (Spearman Rho = 0.10, $p<0.001$) and a high positive correlation to the loss of control over usual eating habits (Spearman = 0.32, $p<0.001$) (1).

Another study in which people aged between 18 and 87 from the Netherlands took part in (N=1030) researched the eating behavior changes and changes in the way consumers shopped for food. Overall, 44.4% of the participants had a normal weight and 55.6% were either overweight or obese. Looking at the findings, only 8.9% of the respondents reported eating behavior changes, in the sense that they overate. Regardless of this fact, analyzing the date from a sociodemographic perspective, we find a significant change of eating behavior among youngsters during the lock down, compared to other age groups, in the sense that young people reported a higher food intake than other participants. Additionally, obese or overweight interviewees pointed out a bigger difficulty in making healthy decisions regarding food and a tendency to overeat. Meanwhile participants with college degrees reported an increased tendency to buy foods high in sugar. (19) A psychological explanation of the relationship between obesity and unhealthy eating during the lock down might be the fact that it is triggered by stress. Stress is a psychological reaction which is frequently encountered during the pandemic. (20) Stress is associated with obesity too and the neurobiology of stress significantly overlaps with the one of hunger and energy control. (21)

One of the first empirical studies made on this subject reveals some intriguing data about changes occurred during the state of emergency, this time in Italy. The study conducted by the nutrition department of the University of Rome, gathered data from all the Italian regions from fifth to twenty-fourth April 2020 (N=3533), aiming at eating habits and people's lifestyle specifically. Subsequently, during the lock down in Italy the feeling of hunger and satiety changed for over half of the population. 17.8% of the respondents had a lower appetite while 37.4% of the participants indicated higher feelings of hunger. This increased feeling of hunger and consequent eating behavior changes can justify the viewpoint of those 48.6% who perceived a weight gain at the moment of study completion. (22)

Once again, a study on the Italian population (N=635) regarding overeating and emotional eating, collected data from people who experienced both the first and the second phase of lock down. The results confirm all the scientists' assumptions as follows: the first assumption states that emotional draining

and a low quality of life during the lock down led to the increase of emotional food consumption and to the increase of overeating episodes. The second proved assumption states that the restrictions imposed during the lock down influence to a greater extent the individuals having a higher BMI and higher levels of alexithymia. Not least, the third assumption proves that excessive food consumption and emotional eating decreased notably in the second phase of lock down compared to the first phase. (23) Which supports the arguments brought by the scientific literature according to which emotional eating increases significantly alongside a high level of negative emotions, a high BMI and alexithymia. (8, 24)

COPING AND NUTRITION DURING COVID-19

The research on COVID-19 impact outlines the fact that the illness severity has a tremendous importance in regards to the way the person eats. (25) In the same time, the lock-down period and COVID-19 context create a rather stressful and disturbing environnement for people that is why their eating habits tend to change too. Those who eat consciously, namely perceive and pay attention to the way they eat, might report higher values regarding the number of meals per day and of food amounts because they feel increased stress levels; in the majority of these cases a higher consumption of foods rich in fat, sugar, salt instead of fruit or vegetables is reported. (26) This excessive eating is a form of emotional coping. Studies prove that when we experience negative feelings or uncomfortable mental states, these are oftentimes associated with unhealthy food consumption or even binge-eating. (27, 28)

A recent study concerning the use of coping strategies in the COVID-19 context and which measured the coping phenomenon in relation to stress factors reveals that (1) positive emotions are associated with a lower tendency to make use of eating coping strategies, efficiently dealing with the tendency of choosing sugar or salt rich foods; (2) conversely, negative feelings are rather a trigger of the coping mechanism and it leads to the consumption of sugar, salt or fat rich products. It is worth mentioning that in these findings the education level (high) played a mediation role. (29).

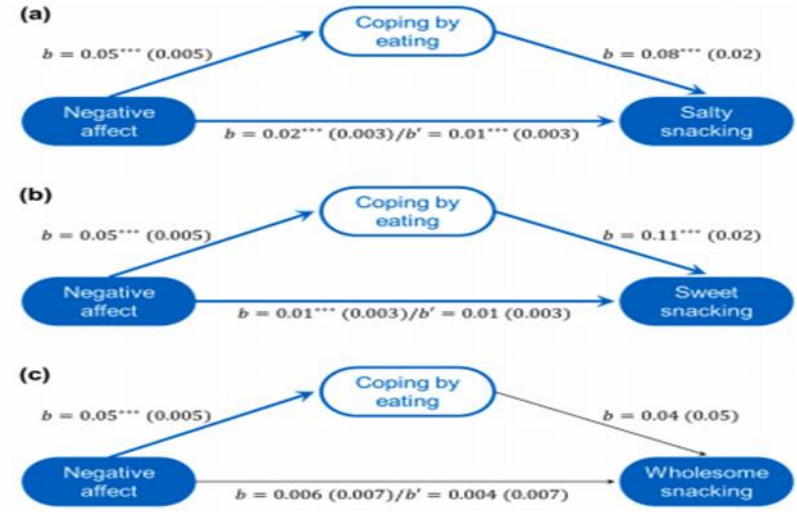

Figure 3. Negative affect predicted coping by eating and unhealthy snacking. Mediated models (unstandardized coefficients (*se*)) of the relationships between negative affect and salty (**a**), sweet (**b**), and wholesome snacking (**c**) as mediated through coping by eating (including total effect (*b*)/direct effect (*b'*) between affect and snacking. *** $p < 0.001$.

DISCUSSIONS

We have to acknowledge that the COVID-19 pandemic context generated a series of changes related to people's well-being and quality of life all over the world. Moreover, stress factors and their consequences on a short, medium and long term basis are important aspects to be considered when thinking of future research papers, treatments or psychotherapeutical approaches which aim at normalizing and treating unhealthy

behaviors. It can be noticed that in people not suffering from a psychiatric disease, the negative consequences of the pandemic context are obvious and noticeable and they even require nutritional, psychological or psychiatric intervention. Though, in the case of those diagnosed with a psychiatric disease (especially those suffering from eating disorders) we should raise our awareness as recent studies prove that this category is severely affected by the pandemic context. From the disease management to treatment plans, this category of patients requires intensive care. Indeed, once the emergence of the virus and of the insecurities about its way of reacting, but taking into consideration the restrictions imposed in the majority of countries worldwide too, a change regarding eating habits of people will be observed. In the majority of cases these changes are unhealthy, in the way that they opt for emotional eating in order to cope with stress and this aspect might lead to serious health problems.

It cannot be said that coping strategies result in addictions: (1) firstly because there are not scientific studies proving such a correlation and (2) secondly because food addiction means a limitation to a specific food category (wih particular properties) or in the pandemic context such cases are not frequently identified. On the other hand, we could argue that the use of coping strategies can produce a series of unhealthy behaviors with negative effects both psychologically and physiologically, which on a long term basis will require professional intervention in function of the individual problem.

Subsequently, through this review we intend to make the specialists in the field aware of the fact that even if just one year since the coronavirus onset has passed, its consequences (regarding eating habits but not only them) are alarming. This includes a reassessment of unhealthy eating behaviors approaches and a thorough attention directed towards the causes of these behaviors.

As regards the present review a series of limits can be identified, revealing a starting point for further empirical studies which can bring a significant contribution in our area of interest.

Firstly, we find that the literature is rather poor in empirical research which aims at eating habits changes during COVID-19 pandemic. We are more likely to find studies where eating behavior is one among the many variables, not the main subject in itself.

Secondly, the studies on Romanian citizens are almost inexistant when we talk about eating behavior changes in the COVID-19 context. It is not claimed that they do not exist, but they are insufficient for having a complete perspective on the phenomenon after a year of restrictions and challenges caused by the COVID-19 virus.

Thirdly, this review cannot cover to a significant degree the pandemic effects on the eating behavior of psychiatric patients as this category of more vulnerable people requires more attention than those not suffering from a psychiatric illness.

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Medium-term religious support program applied to suicidal psychiatric patients

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ABSTRACT

Psychiatric literature generally recognizes the importance of religion and spirituality in the care of religious psychiatric patients. In this work we aimed to investigate the influence of a supportive religious program on religious patients with suicidal ideation. The results confirmed the theoretical predictions of the psychiatric literature regarding the broad positive value of a complementary religious support applied to religious psychiatric patients. A potential negative effect of the most influential Christian Orthodox religious practices used in the therapy of suicidal patients was also noted. These findings may have significant implications for medium and long-term psychiatric interventions in faith-based settings.

KEYWORDS

Suicide, religious support, depression, spiritual/religious care practice

INTRODUCTION

The psychiatric literature recognizes largely the importance of religion and spirituality in the care of religious psychiatric patients, recommending collaborative professional spiritual/religious approaches to support them. Moreover, a majority of clinicians acknowledged their responsibility to address the religious/spiritual needs of patients. D'Souza et al. emphasized the need for psychiatrists to take into account the spiritual and religious dimension of their patients since it leads to the strengthening of the patient-physician relationship and the increase of the therapeutic impact of interventions.(1) Shin et al. showed that physicians of higher religiosity/spirituality were more willing to believe that medically unexplained symptoms of their patients, accounting for 20–30% of primary care consultations, result from a spiritual issue, underlining the importance of paying attention to the patients' spiritual life.(2) Furthermore, in another study, the majority of German psychiatric staff members expressed their willingness to deal with patients' religiosity/spirituality in therapeutic settings, while clinical chaplains, even if they agreed to the psychiatrists' opening, offered however a different general perception, a result that recommended an increase in collaboration between psychiatrists and clinical chaplains by changing their views on religious/spiritual issues for clinical practice.(3) Also, Judge showed that nurse practitioners should take into account the patients' spirituality needs, especially for chronic cases.(4) Such studies prove that religion and/or spirituality - as important components of people's lives – are largely considered by the psychiatrists to be important in therapy, at least at a functional level.(5,6) For this reason, the World Psychiatric Association recommended a more direct and close partnership between psychiatry and religion/spirituality at institutional level.(7) Moreover, because religion can help religious psychiatric patients to cope with the stressful circumstances of an illness, psychiatrists are advised to consider the spiritual history of their patients, to support healthy religious beliefs, to pray with patients (if appropriate), and to consult or do joint therapy with the trained clergy.(8)

Nevertheless, it is warned that even if praying with religious patients could induce positive effects and increase therapeutic success, the practice may still have some risky features and should only occur if the psychiatrist would demonstrate a good understanding of patients' religious beliefs and if they have good knowledge of and experience with religion.(9)

A series of reports emphasized the key role of the religious factors in reducing the incident depression and suicide rates. An extended study performed on about 50,000 nurses in U.S. found an inverse relationship of the risk of incident depression with the attendance of religious service.9 Likewise, religious social support was positively associated with the decrease of depressive symptoms, while its lack predicted an increase of the depressive symptoms and emotional disturbances.(10) Other results have suggested that religious support may not be automatically the result of simple religious attendance, but can however afford exclusive benefits to religious persons, distinctly from social support.(11) In addition, Robinson et al. showed that relationship between religious attendance and mental health differs when evaluated across ethnic groups, infrequent religious attendance being associated with anxiety and suicidal ideation in Whites and Hispanics.(12) Moreover, Koenig et al. found that while baseline religiosity does not moderate the optimism of the persons with major depressive disorder and chronic medical illness, religiosity

predicts however increases in optimism over time.(13)

Religion can as well protect against suicide attempts, regardless of social functioning, psychopathology and substance use. (5, 14) Religion acts as a protective factor both at the individual and societal levels. (15) For example, the frequent attendance of religious services significantly reduces the suicide risk while weekly attendance may lead to a 42 % reduction in suicide ideation.(16, 17) In another study performed on about 90,000 women in the United States, the suicide rate for attending at least one religious service once a week was about 5 times lower than when never attending. (18) Hence, it seems that even if simple religious affiliation might not automatically protect against suicidal ideation, it does reduce suicide attempts. (19) Similarly, people who were not involved in religious activities had four times higher suicide rates than those with high participation. (20) As a result, religious support is positively associated with recovery from severe mental illness while, more specifically, religious attendance is considered an important independent protection factor against suicide attempts and depression. (21, 22)

The reported findings have significant implications for psychiatric interventions in faith-based settings and have emphasized the importance of considering religious practices as influential protective factors against suicide, depression, and psychiatric illness, in general.(10,23) Hence, given the reported positive impact of religious practices on religious patients, psychiatrists were advised to be willing to work with members of faith communities, chaplains and pastoral workers, and to encourage all fellow psychiatrists to do the same, as religion and spirituality should be seen as essential components of psychiatric training and professional development.(24) In addition, clinicians who are familiar with the faith traditions regarding suicide are better prepared to address crisis situations by religious means as well, and are better prepared for consultation with religious professionals, when considered. (5)

However, despite consistent findings and recommendations on the benefits of religious support for religious suicide patients, the specific content of such a religious supportive program is neither detailed nor applied effectively. Therefore, in this paper, we have designed a consistent and highly flexible religious supportive program containing a series of influential religious activities which were applied to a number of patients with suicidal ideation. The obtained data were analyzed using a dedicated psychological /psychiatric evaluation scale and a religious assessment questionnaire.

METHODS

Study population and data collection. For this study, 67 religious Caucasian patients with suicidal ideation were randomly divided into two groups (34 and 33 patients), the first group receiving continuous religious support for about 6 months between 2018 and 2020. A religiously-supported patient withdrew in the middle of the study. The patients were diagnosed with schizophrenia, depression, bipolar disorder, organic personality disorder, anxiety disorder, alcohol withdrawal syndrome. Patients with the diagnostic of dementia or mental retardation were excluded.

The religiously-supported patients (RSP) benefited from religious support both during hospitalization and after discharging. Patients' religious level was evaluated using a religious questionnaire (Table 1), partially inspired from Curlin et. al. (25), while the efficiency of the religious program was assessed through

a 21-item Hamilton Depression Rating Scale (HAM-D) that estimates depressed mood, guilt feeling, suicidal ideation, and somatic, vegetative and cognitive symptoms of depression. (26) A high score is an indication of increased mental (and somatic) degradation. Ratings were performed at baseline and at the end of the study. Some of the final interviews were conducted by phone. Participation in this study was done exclusively on a voluntary basis and no reward or favor was offered to patients. Patients were allowed to completely stop the religious support at any time.

Table 1. Religious questionnaire applied for both admission in the study and general evaluation of the religious level

Do you consider yourself a practicing believer?	a). Yes. b). Not. c). Only in part
How often do you attend religious services?	a). Twice a month or more. b). Once a month or less. c). Rarely. d). Never.
What are your religious beliefs?	a). I believe in God; b). I only believe in the afterlife, but I don't believe in God. c). I believe in God and in the afterlife. d). I have no religious beliefs.
How religious do you consider yourself to be?	a). Very religious. b). My religiosity is average. c). My religiosity is low. d). I'm not religious at all
If you encounter difficult situations in life:	a). I ask God for help; b). I do not ask for God's help; c). I only ask for God's help if there is no other way to solve problems d). I believe that I can solve my problems only on my own.
In case of more difficult medical problems, would you agree to have a priest to help you along with the doctors?	a). No, never. b). Yes, to encourage me. c). Yes, because I believe that through prayer, confession and other works of the Church I can be healed or I can more easily overcome my suffering. d). I don't know what to do.
Assuming you know that one doctor believes in God and another does not believe in God, who would you choose to take care of you?	a). The one who believes in God. b). The one who does not believe in God. c). I don't know, my choice would depend on other factors.
If you ever tried to leave this world, what were your thoughts in those moments?	a). I had no regrets. b). I was sorry for what I was doing.

	c). I was afraid of God's judgment. e). I don't know what I was thinking at the time.
Did you want to be saved when you decided to leave this world?	a). No, I wanted to die. b). Yes, I wish I were saved, no matter by whom. c). I prayed to the Lord to be saved. d). I didn't care if I lived or died.
Who do you think could help you stop making such attempts?	a). Family, friends. b). The Church (God). c). The society. d). No one.
After going through this difficult situation, did you learn anything?	a). Nothing, everything is the same as before. b). Yes, I would never try to repeat such a gesture. c). Yes, I pray more and go to church. d). Yes. I think only God saved me.
Do you think that these dark thoughts occur because of a sin of yours or of some ancestors in your family?	a). I think so. b). No. c). I do not know. d). Yes, and I believe that God can solve all these problems.

Ethical approval. The patients were informed about the subject of the study and offered their informed consent. The institutional ethics committee approved the study.

Descriptive statistic. To examine the differences between the two groups, the Pearson Chi square test and *t*-student test were used. Reported *p* values for *t*-student test were two-tailed. Means and standard deviations were calculated for quantitative variables. The confidence intervals, CI, for proportions were calculated through Microsoft Excel 2007. Significance was set at standard 0.05.

RESULTS AND DISCUSSIONS

Characteristics of the patients are shown in Table 2. The two groups were almost identically structured, with an over unity women-to-men ratio. There was no significant difference with respect to the mean age. The religiously-supported group included more patients living in rural areas, but the difference is statistically non-significant (p=0.459, CI=0.41-0.65). There were more patients married or living in cohabitation in both groups, but the statistical difference was also non-significant. The patients of both groups, with a mean age of 50, declared a mean monthly income of about 160 euro. For both groups, the education was primarily secondary, with no statistical significant difference.

Table 2. Characteristics of the psychiatric patients

Defining characteristics	**RSP**		**Control patients**		**Statistic significance**	**Confidence interval (CI)**
	N	**%**	***N***	%	***p****	***95 %***
Sex						
Women	20	60	18	54.5	0.618	0.45-0.68
Men	13	40	15	45.5		0.31-0.54
Place of residence						
Urban	14	42	17	51.5	0.459	0.35-0.59
Rural	19	58	16	48.5		0.41-0.65
Marital status						
Married or living in cohabitation	21	64	25	76	0.284	0.58-0.79
Single	12	36	8	24		0.34-0.57
Age (M±SD)	52.9 ±10.2		52.2±10.1		0.743	
Women	52.1 ± 10.4		49.1 ± 12.5			
Men	54.3 ± 10.1		56 ± 3.7			
Declared income (euro/month)	160 (±70.8) (declared by 21 persons)		159 (±92.3) (declared by 17 persons)			
Education						
Higher	2		3		0.694	0.03-0.17
Secondary	29		30			0.8-0.95

** by Chi square test for 5% level of significance*

From Table 2, the most notable characteristics of patients are related to their income and level of education. The extremely declared low earnings could represent their pension which, in a favorable scenario, might be part of a larger family budged, given that 70% of the patients were not living alone. However, such a personal low income might impact highly negatively on the social living standards, and even affect the physical existence of the patients. Hence, poverty itself can be one of the main causes of their suicide ideation as a way to get rid of mental pain and, perhaps, to save dignity. Undoubtedly, by lacking the basic financial resources to live decently and, further, to treat their illness, they have a highly increased stress level. In such cases, they may find a viable refuge in God.

The results showed a statistical significant difference between HAMD scores (Table 3) for both groups ($p<<0.05$ for RSP, and $p=0.0031$ for control group). However, while for RSP there is a positive difference (16 %) between the mean scores obtained at the beginning and the end of the study, a negative difference (-6.2 %) was found for the control group. This divergence highlights a mental state destabilization of control outpatients in the medium term compared to those who received religious support. This result suggests that even if the mental state of the control patients is stabilized at discharge, it slightly degrades several months after. Overall, analyzing the percentages, there is a

significant difference between the variations of HMAD means for the two groups, indicating a clear positive role of religious support applied to RSP in the medium term.

Table 3. Statistical evaluation of the scores obtained by RSP using the HAMD scale and a religious questionnaire

Statistical parameters	**HAMD**		**Religious level**	
	RSP	**Control group**	**RSP**	**Control group**
p (two-tail)	<< 0.05	0.0031	<< 0.05	0.12
Pearson Correlation	0.65	0.73	0.85	0.90
Difference between means obtained by using *t*-student test at baseline and at the end of the study (%)	16	-6.2	-11.2	1.2

The religious level improved significantly only for RSP (p<< 0.05), with a negative difference (-11.2 %) between the mean scores obtained at the beginning and the end of the study. In other words, for this group, the religious score was higher at the end of the study. On the contrary, there is no statistically significant difference between the religious scores obtained by control patients (p<< 0.12) even if a slight decrease of religiosity (1.2 %) was noted. The results are highly correlated (Pearson correlation >50 %) for both groups and for both types of evaluations.

The religious supportive program (Table 4) was split into two main sections: (a) personal program based on personal prayer, religious reading, attendance of religious services, including those dedicated to the healing of the sick, consultation of specific religious materials in audio/video format, religious pilgrimages and (b) program conducted jointly with the therapist with theological training and the spiritual priest, respectively, which included common-offered prayers, discussions, confession, Holy Communion, and specific religious services in the patients' home. Both the personal and the common supportive program were adjusted according to the degree of religiosity of the patients and their current psycho-mental state. The supportive program included different series of activities agreed separately with each patient.

Table 4. Detailed, flexible religious supportive program of the RSP

a. **Personal program**

Activities at the patients' choice	**Recommended frequency**	**Recommended allotted time**
Prayers specific to the Christian-Orthodox ritual: morning and evening prayers	2 times a day	15 (+15) min
Prayers addressed to the Lord Jesus Christ, the Mother of God or a patient's favorite saint (akathist)	once a day	15-30 min
Reading some chapters from the Bible (Gospel) regarding the healing of the sick	once a day	5 min
Reading specific Psalms (from Old Testament)	once a day	5-15 min

recommended by the Church for finding inner peace and strong support in God		
Reading religious books which describe various good stories, parables and miracles either from the lives of the saints or occurred today	once a day	10 min – 1h
Participation in the Holy Anointing - a specific religious ritual dedicated to the healing of diseases	once a week	1-2 h
Participation in the Holy Mass	once a week	1-2 h
Listening to religious songs that convey hopeful messages	1-2 times a day	10-20 min
Listening to some spiritual advice and parables of contemporary spiritual Fathers	1-2 times a week	15 min
Watching/listening to religious shows on a religious (radio) television, including online attendance of religious services	once a day	30 – 60 min
Practicing the so-called "prayer of the mind"*	whenever the patient feels the need	
Pilgrimages to monasteries	twice every 6 months	1-4 days
b. **Joint program**		
Made jointly with the therapist		
Prayers offered by the therapist for the patient **	once a day	5 min
Prayers offered by the patient to other patients experiencing a similar difficult life situation***	once a day	5 min
Supportive religious discussions with hospitalized patients	once a day	15-30 min
Maintaining a telephone connection between therapist and patient for supportive religious discussions	once a week	30 min
Made jointly with the spiritual priest		
Discussions with the spiritual priest, including through confession	twice a month	
Prayers offered by the clergyman for the patient	-	-
Communion with the body and blood of the Lord, at the recommendation of the priest (Holy Communion)	once a week	-
Specific church services performed by the clergyman or other minister priest at the patient's home	once every 6 months	30 min

* The consecrated formula of the "prayer of the mind" in the Christian-Orthodox ritual is as follows: "Lord Jesus Christ, Son of God, have mercy on me, a sinner." However, patients were able to use modified variants; instead of "have mercy on me," and "sinner" they could use any other expressions they felt were more appropriate for them, e.g., "help me", "give me peace", "protect me", "the suffering," "the helpless" or "the grieving". Patients could repeat the prayer for a period of time of their choice depending on their inner mood. The form of addressing the prayer was at the patient's choice.

** Patients were told that the therapist would pray for them at a certain time in the evening, possibly simultaneously with them.

*** This is a method described in the spiritual-religious literature. Praying out of compassion for another, the person in need prays or learns to pray in fact for himself.

The religious program sought, first of all, to induce a positive and balanced change of the mental state of religious patients by increasing the level of trust, hope, reconciliation with himself, acceptance of suffering, and by exercising the associated religious practices with increased faith in God, but letting God decide what is best for him. Secondly, the program sought to increase the level of religious and social interaction within their religious community, through pilgrimages and attendance to religious services of the Church, including healing ones, with direct influence on the mental comfort of the patients. This two-pronged approach could provide the patient with the means for mental rebalancing by deepening the knowledge and experiences of a religious nature regarding the significance and transfiguring value of the suffering, the obligation to fight suicidal thoughts as a moral duty to God, the belief that the endured suffering will be rewarded in the eternal life, and the fact that Christians, be they sick, must be joyful, confident, active, seeing in every event of their life a pedagogy of God for them.

Much of the above religious teachings and recommendations are well known to religious patients. Therefore, they were only recalled, supplemented, consolidated and suggested to be implemented in a more systematic and consistent way through a higher community religious integration that would provide patients with moral, psycho-emotional, possibly material support for difficult cases, a support offered under the spectrum of Church teachings in a sacramental setting.

Taken hierarchically, the personal prayer, as a means of direct relationship with God, was considered a main instrument of the supportive program, given the relative ease of practicing it and the ability to generate positive emotions and living relationships with God or Saints. Patients were asked to follow as much as possible the prayer program which they chose, but they were suggested to pray freely, simply, without any restrictions, without formalities, to speak with God as they speak with the best friend or parent, generating positive emotions in any discussion they have with the Divine. Moreover, if during a usual, traditional prayer, which they read or say according to the chosen program, they will be feeling the need to deprive themselves of the written words in order to express themselves freely to God, in their own words, being animated in those moments of positive emotions, then they were advised to stop reading the prayer and to engage simply and calmly in a balanced living prayer of request and thanksgiving addressed directly to God. Most patients told they preferred this approach, confessing that the free and simple prayer, addressed with hope and emotion to God, made them feel liberated, relieved, comforted in their hearts, and confident that God would support and will help them to accept and overcome the difficulties that have arisen in their lives, also forgiving those they consider guilty to a certain extent for their troubles.

A key role in improving the mental state of religious patients with suicidal ideation may be the practice of a very short prayer as often as possible (in our case, "the prayer of the mind") in a repetitive manner to keep the mind constantly filled with protective, positive, optimistic impressions. Fighting in such a way against the mental state induced by suicidal thoughts, the mind might be trained to quickly switch from a suicidal state to a stable state (of prayer). Over time, through experience, the method can begin to operate spontaneously as a reaction to any suicidal thought or even as a reaction to other different negative mental states, other than

suicidal ones. However, most patients reported that they were unable to practice this prayer constantly and consistently due to the fact that they only could focus on the words of the prayer and its message for a very short time. Even though they felt at ease, other supportive activities seemed easier to put into practice. Probably this type of supportive religious activity would find its utility only in the long-term, backed by a more reliable psychological motivation and only with well-stabilized patients under uninterrupted psychiatric supervision and psychiatric medication intake.

The religious books, afforded to patients from the library of the clinic throughout the study, included various stories with happy ending, parables and wonders, all rendered in simple, accessible language, with the potential to induce a positive emotional effect on their mental state. Religious reading had the largest share during hospitalization, with patients testifying however that, after discharge, they have unfortunately allocated less time to religious readings due to lack of time and socio-familial problems to which they were exposed. In the case of most patients readmitted in hospital during the study, there was a strong desire to continue the same type of simple religious readings, with happy ending events, in which God or various saints miraculously intervened in solving family, health or social problems of people who believed in God and asked for His help in great faith.

Even though this type of religious support is built on an extreme simplicity in approach and content, the message that was conveyed to patients and the associated effects were likely to move positively, to encourage, to increase confidence, hope and even resignation, leaving in God's care all the insurmountable problems that appeared or will appear in their lives seemingly without a logic of causality. In fact, it is in the human nature to overcome the hard times of life by accessing simple things, easily disconnecting activities and uncomplicated readings with positive and motivating emotional messages that may quickly rebalance mentally even the healthy and highly educated people.

During the study, it was observed that under the pressure of their major health problems, patients paid no attention to the theoretical, theological, or philosophical aspects that the religious support program might involve, being more open to the faith-related discussions based on practical examples, suggestions, and proposals for the purpose of immediate help. This could also be related to their education, mostly secondary, which allowed them to receive faith more naturally, without any further inquiry, conditionality and reluctance. Therefore, many religious people who have not had the opportunity to pursue certain university education might probably have the advantage of being protected from academic dilemmas and theoretical complex analyzes, while maintaining their authentic, unquestionable faith. And whether or not the belief in the healing power of the prayer and relationship with God might induce a placebo effect is a secondary topic that concerns specialists more than patients.

As regarding the reading of some recommended chapters in the Bible, some patients needed guidance, the biblical message needing some simplification and clarification to be understood undistorted. During hospitalization, religious patients who wished to be told of illustrative stories and events described in the Bible related to their suffering, the example of Job, an Old Testament character famous for his suffering, was considered the most appropriate. From

the New Testament, religious patients were told about Jesus Christ's unconditional love for the sick, briefly describing some of the miraculous healings of the sick people obtained through faith.

Attendance of religious services and pilgrimages did not suffer interference from the therapist, being considered particular acts related to the privacy of patients. In fact, the patients' particular religious reflections and feelings were not an object of investigation in this study, the focus being only on the final effect of supportive activities on the psycho-mental state of patients.

As regarding the relationship between therapist and patients, an important aspect that strengthened it was the friendly proposal that the therapist pray for them. Patients accepted and confessed they would feel better knowing that someone was thinking of their own good, praying for them. Hence, prayer, while maintaining its intrinsic religious value, was also a mediator and catalyst for building a trusting relationship between therapist and suicidal patients by conveying a message of affection to them. In addition, patients agreed to pray unconditionally for other patients, known or unknown, for their well-being and health.

Discussions with patients were generally conducted individually, the allotted time differing from case to case. To normalize the psycho-affective state, the therapist used examples from the religious field in which through prayer, patience, resignation, forgiveness, mercy, love and trust in God, a suffering person can overcome difficult situations, as was the paradigmatic case of Job. In addition, patients with increased religiosity were told about the cathartic or even missionary valences of suffering, as was the case with St. Paul.

As previously pointed out, due to the general and religious education of the patients, it was considered that a religious support plan built on basic and easy-to-understand theological knowledge would be better suited to the purpose of the study. However, we have to add that a psycho-social interference of religious support simply could not be banned due to the specificity of the support actions. Thus, since religion teaches about love and good deeds that should be offered unconditionally to fellow sufferers, 2-3 psychiatric patients in each group were helped, at their request, to solve some of their problems, by facilitating their access to medical services, other than psychiatric, clarification of medical documents required by medical commissions, listening to their acute problems when they called urgently during an emotional crisis asking for psycho-emotional support, encouraging them to socialize more within their close community, not necessarily a religious one, or referring them to some NGOs that might afford immediate help. Therefore, a pure religious support is difficult to provide and manage because at least a minimal psychosocial influence will always have to be associated to implement it successfully.

In order to increase the success rate, the program needs to be attractive, balanced, very flexible, both in content and development, without interfering with the strong beliefs of patients, even if such beliefs might be theologically wrong. Any kind of obligation or coercion imposed on patients in their state of advanced psycho-emotional fragility would nullify the positive effect of religious support. Likewise, the discussions and guidance must be conducted with great pedagogical tact by the therapist who, by definition, starts from the premise that patients who have declared themselves religious tell the truth and act with sincerity. Even so, they need to be careful and

aware of the specific type of patients they support and that things can evolve in a completely unexpected way. For instance, there may be cases in which psychiatric patients might enter the program by fabricating the answers to the religious questionnaire, while actually not sharing the traditional religious values expressed by the main teaching body of the state-recognized religions. This is however a tolerable action simply because suicide patients may consider such a program a good possibility or opportunity to be helped. Hence, a false failure may be part of the end result.

In the end, it is worth noting the particular case in which one of the declared highly religious patients, belonging to the RSP, withdrew from the study after rejecting God and accepted the "demon". As a child born out a rape, divorced, recovered from cancer, and with multiple suicide attempts, she manifested intense hatred against her mother, while being simultaneously subjected to similar hatred by her own fully-aged daughter. Submitted continuously to an intense psychic pressure, she declared she had a high expectation to solve her problems, but since God didn't respond to her prayers, psychiatry couldn't solve the problem, family and society couldn’t come with a viable solution, she chose as an alternative the demonic way. Therefore, a double-edged potential of religion to improve the recovery of psychiatric patients from a mental illness or to accentuate its symptoms is confirmed as well by this case.(27) Therefore, religious support must be conducted with high diligence, taking into account the fragile mental condition of patients, even after their discharging, and the possibility that some may no longer follow the prescribed psychiatric drug therapy. Also, religious patients who ask for such support should not be given high expectations for the immediate resolution of their problems, but rather be reminded that the chosen religious supportive program could only help them in the long run along with psychiatric treatment, the latter remaining essential.

LIMITATIONS OF THE STUDY

Since the religious supportive program was very permissive, the patients were free to choose and change, during the study, the activities they considered most appropriate for them. The side effect was that the study suffered from the lack of homogeneity of the applied supportive activities. Therefore, it was not possible to perform a quantitative assessment of the weight and influence of some supportive activities to the detriment of others, due to the unequal time allocated by different patients for the same supportive activity, and the subjectivity introduced by patients in the implementation of a chosen activity. Also, larger groups of religious psychiatric patients would be needed to increase the accuracy of the results.

CONCLUSIONS

In this work, a detailed supportive religious plan comprising influential religious activities was conceived and applied for approximately six months to a number of Orthodox Christian patients with suicidal ideation. The results showed a statistically significant improvement of the patients’ mental state and a slight, but still statistically significant, mental degradation of the control group. The level of religiosity has also improved significantly for the religiously supported patients. By practicing personal or commonly-offered prayer, religious readings, attendance of religious services, consultation of specific religious material, religious pilgrimages, religious discussions, confession

to the priest, Holy Communion, or specific religious services performed in the patients' home, all based on the patients' faith in God, the mental state of religious psychiatric patients positively changed in the medium term.

During the study, a declared highly religious patient lost her faith in God and declared she accepted the "demonic" way. Therefore, the predicted risk that religious practices may also accentuate the symptoms of a mental illness is confirmed as well by this particular case. For this reason, religious support should be conducted with caution, taking into account the possibility that some patients may place very high hopes in such a supportive program and even stop following the prescribed psychiatric drug therapy during the program.

Overall, the obtained data confirmed practically the theoretical predictions and expectations of the psychiatric literature regarding the broad positive value of a complementary religious support applied to religious psychiatric patients. These findings may have significant implications for long-term psychiatric interventions in faith-based settings, emphasizing the protective role of influential religious practices against mental illness, in general, and suicide, in particular.

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The authors declare that they have no potential conflicts of interest to disclosure.

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Clinical, evolutionary and differential diagnostic features of alcoholism in women

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ABSTRACT
According to recent research, drinking among women is a major clinical and individual problem. However, alcoholism in women has received less attention in research. Rapid progression of alcohol induced physiological, psychosocial effects in women is associated with higher morbidity and mortality. The purpose of this study was to investigate the clinical and evolutionary age-related features of alcoholism in women. The research sample included 28 women aged 20 to 65 diagnosed with mental and behavioural disorders due to use of alcohol, and were undergoing addiction treatment. The method used to collect the data was the interview and survey according to the Glossary of standardization of symptoms and syndromes in alcoholism and alcoholic psychosis. The data was examined using the cluster methodology. The findings of the study describe the onset of alcohol use, the pattern, and the overall evolution. There are differences in drinking patterns between younger and older women, as well as biological changes in the context of alcoholism. Women in the 51-65 age range had better psychological performance, as well as a higher educational and professional level. Younger women exhibit no interest in work, a limited motivational sphere, and predisposition to anxiety. Older women showed awareness and adherence to treatment. In the development of female alcoholism, the psychogenic side is more prominent than the sociocultural one, thus emphasizing the need for an individual and gender-specific therapeutic approach. Suggestions for improving treatment effectiveness for younger women are made, as well as future research directions.

KEY WORDS:
Alcoholism, women, evolutionary features, risk factors.

INTRODUCTION

Alcoholism is a rapidly increasing global problem. The world-wide consumption has increased from 5.9 liters in 1990 to 6.5 liters in 2017 and is predicted to increase to 7.6 liters by 2030. More than 46,813 people affected by alcoholism are registered in the Republic of Moldova. Sex is an important determinant of mental health. Recent studies have revealed that women and men are motivated to consume alcohol in different ways, the disease progresses faster in women, and the treatment is often not adjusted to female characteristics. The rapid progression of physiological, psychosocial effects has consequences in terms of associated morbidity and mortality as women age. Despite advances in science and research on women's mental health, there is still a lack of literature exploring the importance of gender. Clinical studies and pharmacological research focus mainly on male subjects and do not take into account the variation between sexes such as phenomenology, drug metabolism or side effects. Throughout history, women have had fewer treatment options than men, and the social stigma has been greater. Alcoholism among female patients is becoming an increasingly significant problem both clinically and individually (socio-cultural influences, cognitive factors, resources, and genetic predisposition). Due to the frequency and dangers of alcoholism, this condition should be the focus of medical and scientific research both in Republic of Moldova and worldwide.

MATERIAL AND METHODS

The study was conducted at the Republican Narcological Dispensary of the Republic of Moldova during 2020. 40 patients diagnosed with mental and behavioural disorders caused by alcohol consumption were investigated. We studied 28 women, ranging in age from 20 to 65, diagnosed with mental and behavioural disorders caused by alcohol consumption. To collect data, clinical-statistical methods and the interview-survey adapted by the Department of Psychiatry, Narcology, and Medical Psychology at the State University of Medicine and Pharmacy ”Nicolae Testemițanu” were used. The collected data was processed using the specialized program Microsoft Excel, with multicriteria statistical interpretation, including the calculation of frequencies, average, and standard deviation.

The key findings were researched and analysed:

-General patient information, medical history, personal and family history

-The underlying symptoms' aetiology and clinical features

-Patients' age at the onset of alcoholism, as well as the duration of systematic consumption

-The disease evolution

-Triggers in the development of addiction

-Medication and psychotherapy

Inclusion criteria:

1. Women diagnosed with mental and behavioural disorders due to use of alcohol (according to ICD-10).
2. Women with alcoholism between the ages of 20 and 65.
3. Absence of significant neurological and psychiatric comorbidities.
4. The presence of compliance and consent.
5. Only informed patients about their treatment and any planned investigations.

Exclusion criteria:

1. Lack of compliance and consent.
2. Patients with severe psychiatric and somatic comorbidities.

3. Age under 20 years and over 65 years.

4. Male sex

RESULTS AND DISCUSSIONS

According to the findings, the 28 patients included in the study ranged in age from 20 to 65 years old, with the following distribution by age groups: 20-35 years- 8 (28.57 %), 36-50 years- 9 (32.14 %), and 51-65 years- 11 (39.29 %). (Figure 1)

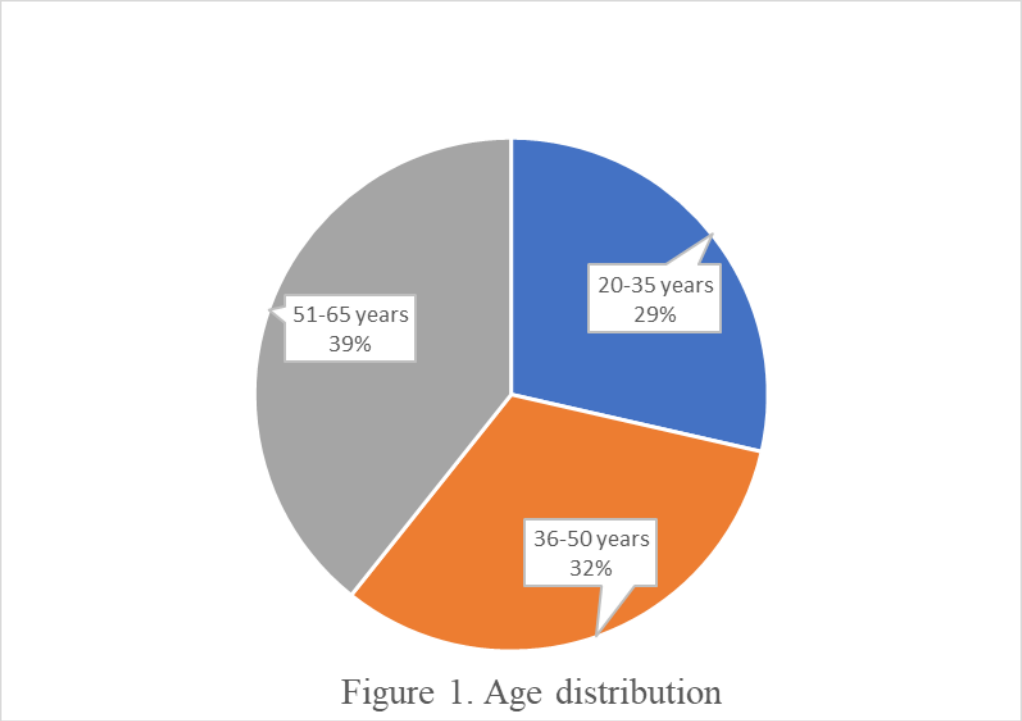

Figure 1. Age distribution

Following the analysis of patient data, there was a low incidence of the disease among patients with high school and higher education (Figure 2).

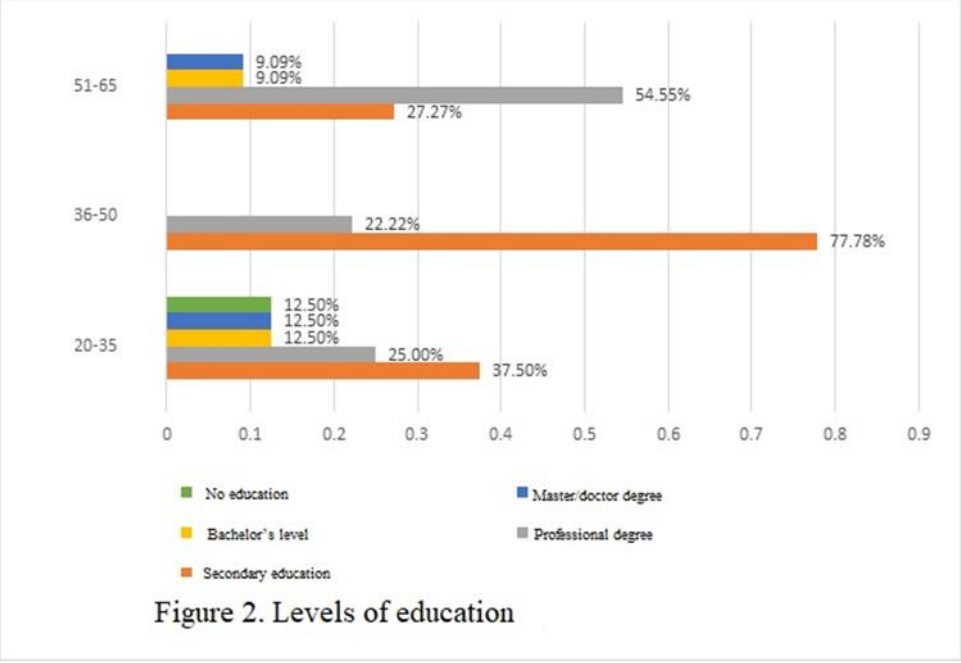

Figure 2. Levels of education

This is supported by several clinical trials conducted on women (2,3). As Katikireddi points out in a cohort study, both socially and culturally disadvantaged groups suffer more from alcohol-related harm than women with higher social status (4).

According to our research, the following factors promote primary consumption and lead to the development of alcoholism in women: aggravated paternal heredity (42.86 %), various psychological traumas primarily family - family conflicts (50.00%), and excessive control, particularly with extremely protective mothers (46.43 %). Social and cultural factors include: unemployment (67.86%), divorce (53.57%), a lack of interests and activities (50.00%), consumption with childhood and adolescent friends (39.29%), and consumption in the family circle (32.14 %). These are the initial premises in the development of alcoholism and can be referred to as primary triggers. (Figure 3).

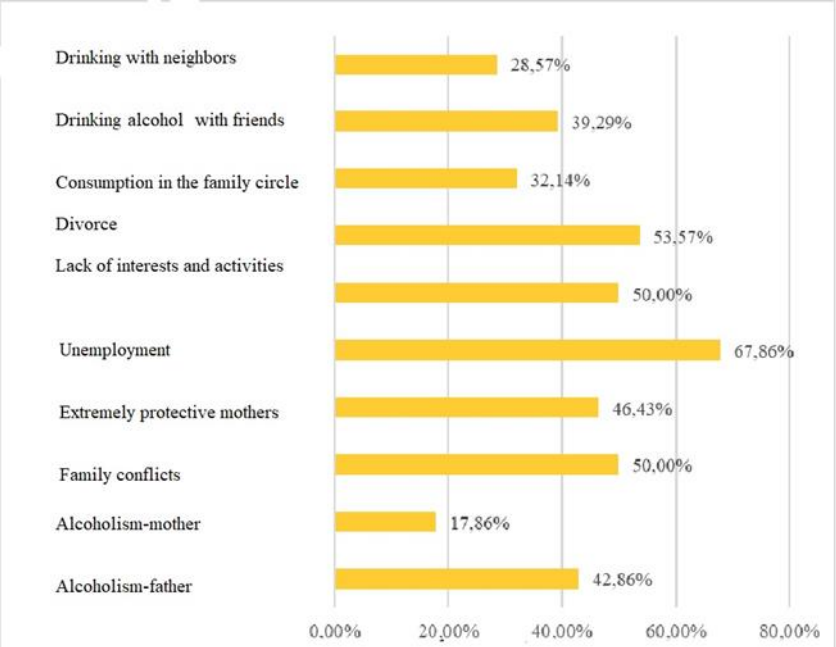

Figure 3. Factors that promote primary consumption and lead to the development of alcoholism in women

According to literature (5, 6, 7), stress, family conflicts, and early life trauma, particularly childhood sexual abuse, are associated with an increased risk of substance use disorders later in life.

Significant features and differences in consumption patterns are highlighted, as are the factors involved in the disease's evolution by age category. The results have shown that the age group most at risk for anxiety are women between the ages of 20 and 35 (87.50%). Women in this age group are also more likely to have limited motivation (75.00%), show less interest in work (75.00%), and engage a "risky" consumption pattern in the company of strangers (37.50%). Patients aged 36 to 50 drink alcohol primarily as a result of poor family circumstances (55.56%), husband infidelity (44.44%), and job insecurity (44.44%). Women between the ages of 51 and 65 are more likely to self-medicate the pain or other conditions (90.91 %), drink alcohol alone (100.00 %), but perform better socially. (Figures 4, 5, 6, 7)

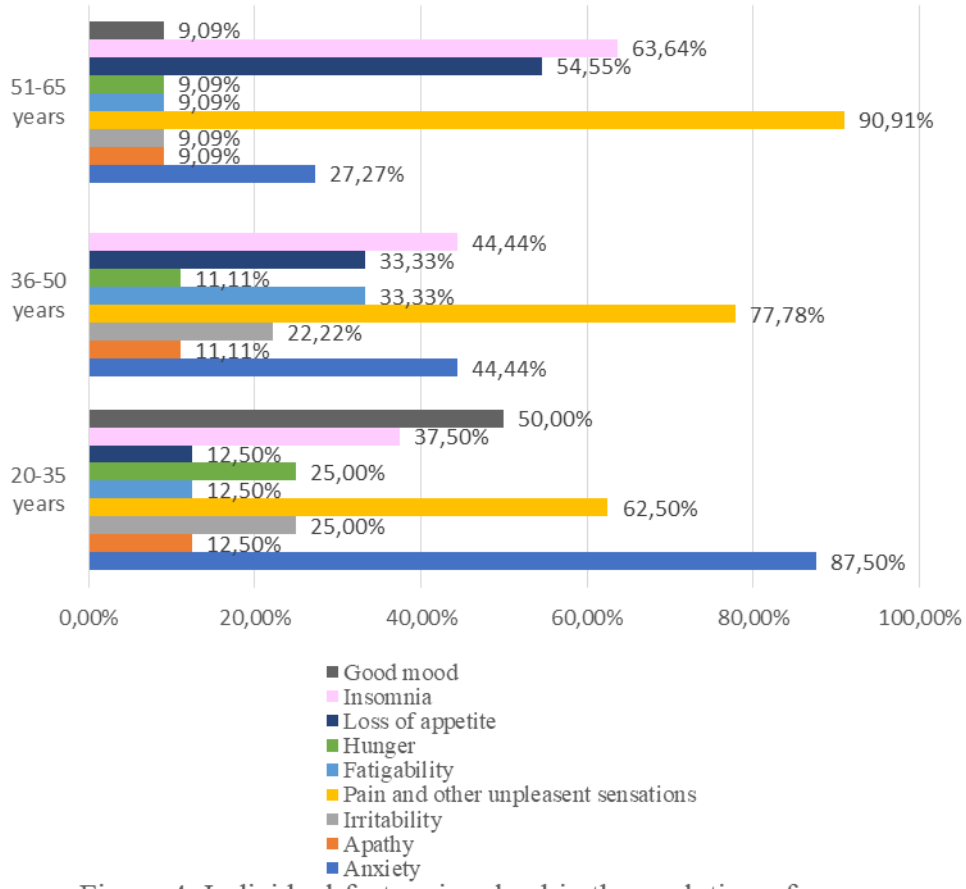

Figure 4. Individual factors involved in the evolution of alcoholism in terms of age

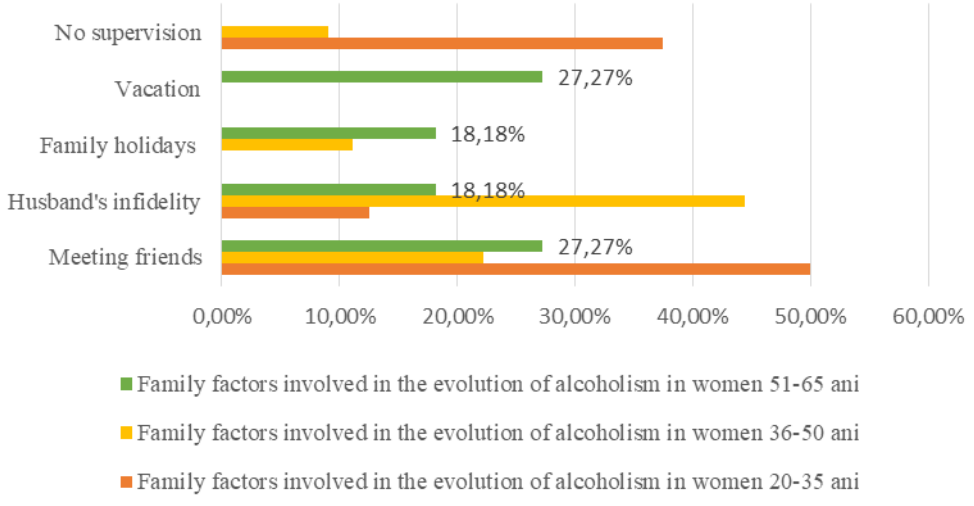

Figure 5. Family factors involved in the evolution of alcoholism in women

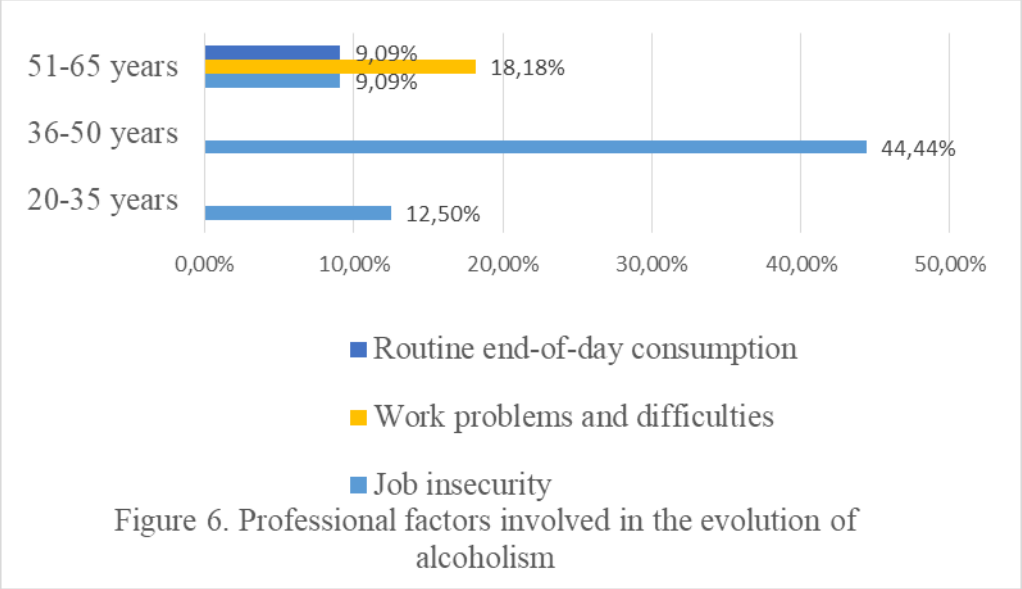

Figure 6. Professional factors involved in the evolution of alcoholism

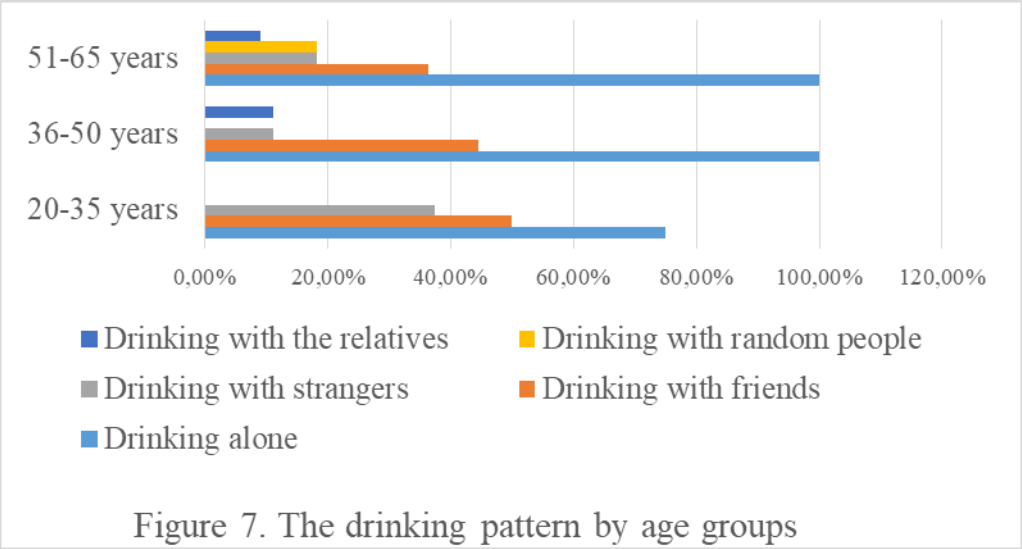

Figure 7. The drinking pattern by age groups

The results supplement those obtained by Yu W (8) and Turner S (9) who state that women use alcoholic beverages to self-medicate their moods, such as depression, anxiety, or premenstrual dysphoria.

In a number of other studies (10, 11), it has been found that excessive alcohol consumption among young women that attempt to "provoke" traditional gender roles is correlated with the exposure to a variety of dangerous events including physical violence and sexual abuse.

The age of onset of systematic consumption, the period of systematic consumption until the appearance of the first signs of alcoholism, the age of the first treatment, all are represented on 3 chronological axes with the 3 events for each age category of patients. In terms of clinical evolution, there is a rapid progression of the disease and development of complications and multiple organ damage in a relatively short period of time, with a period of systematic consumption until the appearance of alcoholism of: 4.12 (SD = 0.78) years for the group 20-35 years, 6.44 (SD = 3.17) years for the group 36-51 years, and 9.82 (SD = 5.02) years for the group 51-65 years, which confirms the progressive onset. The group of 20-35 years registers the first treatment at 32.12 (SD = 3.33) years old, the group of 36-50 years old at 41.44 (SD = 4.08)

years old, and the women in the age group 51-65 years old at 58.18 (SD = 3.59) years of age. The findings support the progressive effect of alcoholism in women, as expressed by the "Telescoping Phenomenon," which is frequently mentioned in the literature (12), (13), (14), and is manifested by an acceleration of the changes associated with alcohol abuse in women.

Chronic diseases caused by prolonged alcohol consumption are more pronounced in patients aged 50-65 years, with cardiovascular diseases - 7 people (63.64 %), gastrointestinal diseases - 6 people (54.55 %), and other pathologies (endocrine, systemic, haematological disorders, neoplasia) -4 people (36.36 %) (Figure 8).

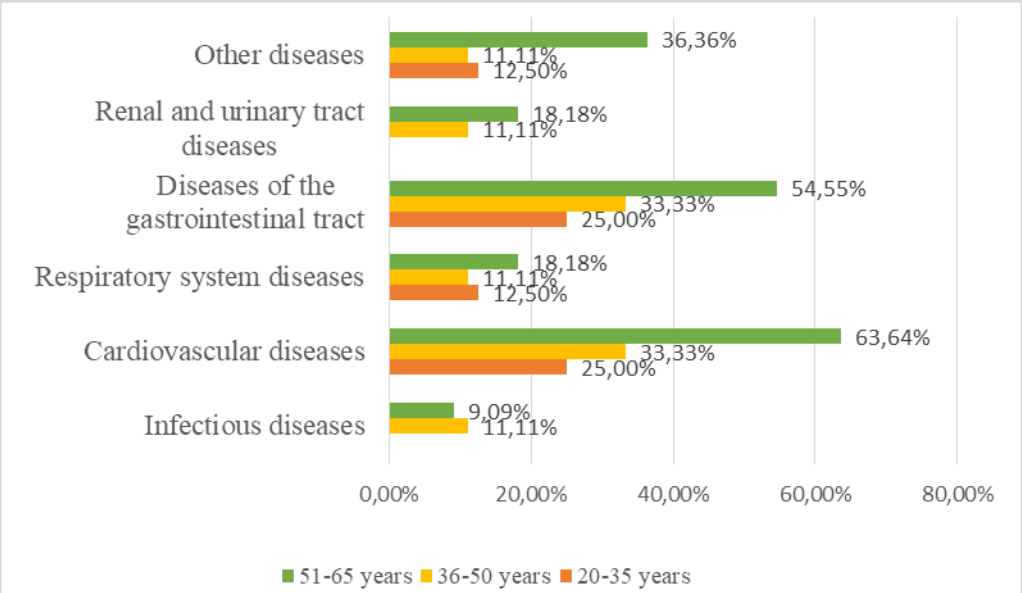

Figure 8. Chronic diseases caused by prolonged alcohol consumption

With regard to disease awareness among patients, it was found that: 14 patients (50.00%) are aware of all types of damage caused by the disease, 6 patients (21.43%) are not critical of the disease, and 8 patients (28.57%) are only aware of the health damage. With an age distribution as shown in (Figure 9).

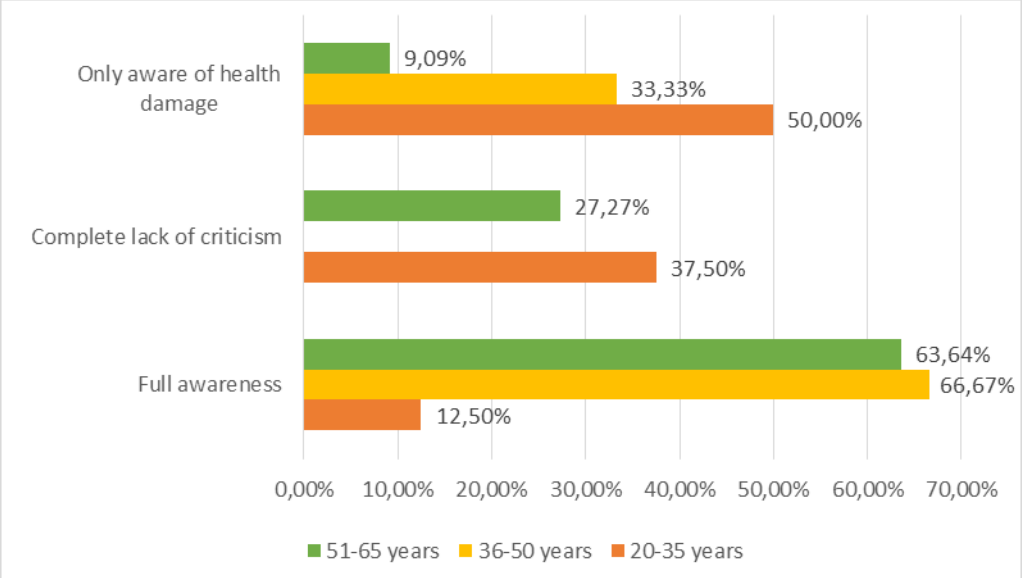

Figure 9. Level of disease awareness

CONCLUSIONS

Gender differences contribute to a better understanding of alcohol-related disorders highlighting the importance of investigating drinking patterns, alcohol abstinence length, medical history, and psychiatric comorbidities. Gender is also an important variable to consider when planning appropriate treatment services. There is little information available about the experiences of women undergoing long-term treatment. Their motives and opinions have been little explored in the literature. This paper emphasizes the importance of research to address these deficiencies, as well as to better understand the features of alcoholism in women, in order to standardize therapeutic approaches and improve the quality of life. Data analysis in the Republic of Moldova over the last 5 years shows that the incidence of alcoholism is decreasing, but the prevalence of alcoholism is consistently high, being three times higher than the European average. Over 46,813 people are currently suffering from alcoholism, with over 7,200 of them being women. The treatment of patients with alcoholism requires a complex individual approach, adapted to gender variability. It is recommended to take into consideration the psychogenic aspect when dealing with mental trauma in women, focusing on the therapeutic principles in regards to mental illnesses. Early on, it is critical to emphasize young patients' motivation for treatment in order to raise awareness of the dangers of excessive alcohol consumption.

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The authors declare that they have no potential conflicts of interest to disclosure.

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Neuro-bio-chemical balance within deviant delinquent behaviors in adolescents

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ABSTRACT

Juvenile delinquency is often viewed as a social phenomenon. Behavior disorders, especially in teenagers and outside true psychiatric pathologies, are analyzed as inner neuro-hormonal imbalances with familial and social influences based on intellectual and emotional stimulation levels. All outer stimuli trigger powerful and abrupt responses in these individuals due to their physiological transformations that affect the neurological bio-chemistry and the central nervous mechanisms. Some of the cerebral areas are hyperactive, affecting impulse control, volition, emotional balance and the tendency to aggressiveness. Beyond hormonal impregnation, it seems that some of the dopaminergic activity is increased, similar to addictive behaviors, triggering satisfaction and rewarding systems and conducting to gratification and short term satisfaction seeking, beyond the limitations imposed by cognitive functions.

Further research on neuro-bio-chemical activity in teenagers might reveal patho-physiological justifications for deviant behavior, even in non-psychiatric patients, which could change the forensic psychiatric evaluation on adolescents by individualizing clinical and biological aspects of each case.

KEYWORDS:

Behaviour, forensic, deviance, juvenile, socio-psychology, delinquency.

INTRODUCTION

Adolescence has many variable definitions. One of the common characteristics is that ambiguity of the transformations the body and mind experience prevails in all of the definitions. The certainty is the fact that within this period, the future adult is being prepared for social, proffesional and family life by physical conversions and modifications that will reflect on the youngster's way of thinking and behaving, finally concluding his environmental adaptation. All informations received at this age and all experiences are of vital importance for the final aspect of adulthood as they allow integration off new knowledges and development of new abilities.

The conventional knowledge was that teenagers are capable of making decisions and assuming one's actions and consequences, at least from the middle period of adolescence. As all new studies show, the changes that undergo within the brain's neurobiology affect mostly the circuits of the brain responsible for those specific actions and the maturation of those systems is not set into place until they reach 20-25 years old. Furthermore, neurologic systems tend to influence negatively the capacity of control of their actions and emotions with poor assessment of the outcome of their decisions. That being said, genetic and environmental factors can impact heavily on their general way of thinking, engaging in specific activities and emotional control.

The fact that brain's plasticity allows experiencing and developing the personality can have disastrous effects if the external stimuli are negative but that could offer a new perspective on the way deviant behaviours are managed through social, educational and legal systems, offering better possibilities for forensic psychiatric assessment, corrective measures and prevention programing with positive impact on long term prognostics of the future adults.

As such, this paper proposes a literature review on neurobiological studies and imagistic findings that provide evidence on the modifications and alterations of the adolescent's brain especially concerning behavioural disorders with high risk of negative social impact and legal implications.

BRAIN PLASTICITY DURING ADOLESCENCE

As studies from the last decades show, brain development seems to progress in one direction, from the back to the frontal regions, from basic functions to complex functions. The focus is no longer on the quantity of the neurons but on the quality of their connections which allows integration of all information followed by wide distribution and efficient processing. This first step of transition has specific transformations such as myelinisation of axons that lead to faster speed of signals concluding to developing white matter. Another step is dendritic branching which allows neurons to develop complex and efficient connections between different regions. Finally, synapses and neurotransmitters are going through up and down regulation, proportionally with the grade of their usage. Unused connections are lost and highly used connections become stronger, developing the brain's cortex where the conscious and efficient thinking origins. As such, this would be the first motivation for the importance and impact of experience on the brain's plasticity, especially during adolescence.

The most important regions that express specific modifications during this period are the prefrontal cortex, the amygdala, the hippocampus and the nucleus accumbens in the ventral striatum. The prefrontal cortex is

the main station for integrating knowledge, external stimuli, affective states and experience and processing all elements into decision making and controlling their engagement into specific actions. The nucleus accumbens in the ventral striatum is the main circuit for rewarding assessment which drives motivated behaviour and goal searching, uniting emotional, memory motor and sensory stimuli. An important aspect is that this region has hyperactive functions in adolescents compared to children and adults. The amygdala is the centre of fear and emotional processing by mainly filtering risk situations and stressful factors and balancing decisions to avoid taking actions in order to survive or for self-preservation. These regions, alongside others such as pain matrix or temporo-parietal junction have complex interconnections that reflect directly into the person's way of thinking, feeling and behaving. Adding the dopaminergic system activity during adolescence we get the final ingredient of the brain's progression into maturity which is defined by efficient analyse over internal and external stimuli, complex assessment of information, controlling impulses and negative instincts, controlling emotions, risk processing, equilibrated decision taking, assuming consequences of one's actions leading to prosocial behaviour and environmental adaptation. All these alterations translate into higher sensitivity to reward with heightened emotional approaching and poor risk and threat assessment which leads to impulsivity and risk-taking actions. (1)

Alongside cognition modification and enhancement, one of the most important external and emotional factors that influence their experience is the swift between family and friends and peer groups on the scale of priorities. As the adolescent prepares for a more independent life, family takes secondary role and self-awareness becomes more linked to friends and social groups as part of his new evolution outside protective area of the home. Social acceptance and eventually romantic involvement represent signals for rewarding system in the brain which activates decisions and actions, bypassing control filters in the prefrontal cortex. This can only lead to impulsivity and risk-taking especially when social rejection becomes the main stimuli. Furthermore, it seems that emotion and pain processing inside anterior cingulate cortex and insula bring profound implications in matter of group acceptance peer rejection and social isolation, altering the control systems in the prefrontal cortex even more.(2) Interestingly, as social environment can negatively impact behaviour, close environment can repair the balance as familial support, having brothers and sisters or very close friends and even being involved in extracurricular activities offer protective and positive influence on these adolescents compared with others that risk developing behavioural disorders, social anxiety and isolation or even depressive symptoms because it seems that the first group have enhanced capacity of using prefrontal cortex filters which means the responsibility of their decisions is more mature.(3)

NEUROBIOLOGICAL ALTERATION OF BEHAVIOUR

Motivated behaviour is one of the primary functions of environmental adaptation and social integration. It is based on the capacity of making decisions proportionally to the quality of stimuli assessment, selection and filtering stimuli, comparative processing of information, discrimination of option, developing choices, anticipating the outcome of the choice, assuming that outcome and motivated action towards that choice in order to obtain a specific goal. These functions are all based on the psychological notions of

responsibility and discernment, notions that are deep rooted and managed by neurological and biochemical activity in specific regions of the brain. Adolescence is defined by powerful modifications of these functions and poor equilibrium between regions of nervous system that integrates behavioural notions related to outer stimuli. These alterations are pushing the young to experiment, allowing them to learn from every outcome of their actions in order to gain efficient discrimination and control of their future decision, forming their critical thinking. Evidence based on social studies and imagistic findings suggest 2 models of brain modifications that prove the inefficiency of adolescent neural systems in matter of decision making and motivated behaviour. These models could be the start of a new vision about adolescents, especially those that are at risk of antisocial behaviour and those who are involved in legal situations. The 2 hypothesis models consist in The Triadic Model and The Social Processing Model. Alongside there are complementary events that take place during this period of age such as dopaminergic activity and hormonal impact that deepens those imbalances and change the neurobiology even more. (4)

The Triadic Model

The triadic model is inspired by findings of last decade's studies and is based on 3 elements: the contrast between approach and avoidance behaviour, the disproportion between emotional and cognitive filters that conduct behaviour and the imagistic findings that describe 3 areas of the brain and the constant activation changes between these 3 polarities: the amygdala, the ventral striatum and the prefrontal cortex, respectively the centres for avoidance, approach and the modulation of the two.(5)

One study has demonstrated the imbalance between the 3 poles of decision and action by comparing behaviours of adults and adolescents exposed to a financial risky situation. They were supposed to place a bet with the possibility of either winning or losing an important amount of money. Adolescents showed greater rates of choosing to place the bet (assuming a risk), they tended to be less upset about losing and more happy about winning in comparison with the adult group were the main preference was to not place the bet (avoid risk) and their emotions seemed less expressed in both winning and losing situations. As such, we can compare the 2 groups at neurological levels. As imagistic studies have shown, prefrontal area reach peak development in adulthood. The adolescent brain is characterized by smaller grade of development in prefrontal cortex but higher development of the striatum and oscillating activity of the amygdala which explains lack of control over the modulation of approach and avoidance in face of rewarding stimuli of emotional factors with expression of striatum and inhibition of amygdala leading to strait decisions and barely no control and filtering of options and outcome. Moreover, the hypo-activity of the amygdala region and poor activation in the prefrontal cortex could reflect the possibility that negative stimuli are not completely or correctly assessed or, they could even be partially interpreted as positive stimuli, allowing a false positive evaluation of the risk instead of negative evaluation and avoidance decision.(6)

The Social Information Processing Model

This model was formulated as a three neurological nodes that integrate environmental factors and reflects them in the way behaviour is conducted. The detection node identifies visual characteristics of social stimuli, filtering them inside inferior locations

of occipital and temporal lobe, respectively using memory and recognition inside temporal lobes. The affective node complements the social stimuli with emotional charge by activating the amygdala, the ventral striatum and hypothalamus. The cognitive node activates dorsomedial, ventral and lateral regions of the prefrontal cortex assimilating all information and orienting them towards decision, action and goal achievement reflecting control and modulation of the information and active responses to stimuli. (7)

A social and medical observation study puts adolescents in a neutral situations of playing bet games. In the second step, another adolescent (same age, sex) is invited to stay near the first one that is asked to play the betting game, the last one not being involved in playing. The presence of the peer, apparently enhanced the choice of study individual to engage in the risk situation leaving aside the possibility of losing. In terms of neurobiology, this study confirms the social information processing hypothesis as visual social stimuli is detected (the peer) and emotion are attached to the rewarding possibility instead of information of preservation and avoidance to be passed through the amygdala leading to approach risk the goal being not only material but emotional by gaining approval and respect from the peer and subsequent raise of self-esteem. (8) The difference between adults and adolescence from this point of view is the activation of social information filters with affective input which determines risk decisions abruptly in case of young individuals versus adults that tend to avoid risky situations in social context and assessing emotions in more intimate context. Of course, genetics, sex differences and environmental social, familial and educational factors must be taken into consideration for a more detailed perspective in the future.

HORMONAL INFLUENCES ON THE NEUROBIOLOGY OF ADOLESCENT BRAIN

Puberty is directly linked with major hormonal impact that start changing the young body into an adult with all physiological functions at efficient state. Two primary axes influence these modifications and those are the hypothalamic-pituitary-gonadal axis and the hypothalamic-pituitary-adrenal axis implying heavy release of androgens, estrogen and progesterone respectively cortisol and corticosterone with direct remodelling of the anatomy and physiology of the body. Beyond these transformations, the nervous system becomes exposed to the whole hormonal outburst and it’s neurobiology is directly affected by them as studies suggest large areas of gonadal and adrenal receptors mainly in specific areas of the brain that drive conduct and behaviour – the mesolimbic region, amygdala and medial prefrontal cortex.(9)

In the case of gonadal axis, the GnRH secretion in the hypothalamus engage pituitary release of LH that will activate gonadal secretion activation with transformations of anatomy, physiology and behaviour towards sexuality preparing the future adult for the reproductive function. As hormones impact regions of brain involved in behaviour and knowing already that control systems are somewhat hypo-active at this stage, emotional imbalance, risk-taking and extreme experiencing become very probable and deviance or inadequate sexual / emotional answer to stimuli could go further than expected without difficulty.(10)

In the case of adrenal axis, the CRH is released from the hypothalamus, activating

ACTH secretion from the pituitary and further stimulating the adrenal cortex into producing corticosteroids. Steroid hormones are released in case of physical or psychological stress stimuli, engaging the whole vital elements of the body towards a single goal – survival. In adolescents, there seem to be an altered system of steroid hormones release and function. During puberty, the adrenal axis releases large quantities of hormones in order to adjust the necessities of the body in different situations. With receptors being immature and sensitive, steroids will take longer do saturate those receptors and even longer to be eliminated from those receptors. This phenomenon takes place in the context of prefrontal cortex and striatum being filled with hormonal receptors. This means, on one hand, that stress will be processed in different manner by adolescents than adults and on another hand, stress situations will lack control and critical judgment capacity, especially if emotional factors get involved. (11)

A study on adolescent and adult aged rats, both males and females, being exposed to stressful situations, demonstrated that pre-pubertal rats take longer to return to baseline levels of corticosteroids after the stress has passed, compared to adults. Even more, adults seem to present reduced corticosterone responses at stress stimuli, compared to adolescents that have heavy steroid responses.(12) As such, we can understand that hormonal impregnation on the nervous system bypasses filtering structures in the brain and rises sensitivity to environmental stimuli but more so, rising the expression of the responses to stress factors and emotional or sexual stimuli.

DOPAMINERGIC ACTIVITY DURING ADOLESCENCE

Dopamine pathways are distributed along 3 regions in the brain that include mesocortical, mesolimbic and nigrostriatal areas. Furthermore, these areas project to amygdala, striatum and prefrontal cortex. The rise in quality and quantity of dopamine receptors is abrupt during adolescence and inequitable between regions which means some points will become hyper-active and other will respond slower to some stimuli. Dopamine receptors are classified in 2 subtypes: D1 receptors which tend to have excitatory effects and D2 receptors that tend to have inhibitory effects. Equilibrium in the D1 and D2 receptors is known to have serious implications in psychiatric pathologies (psychotic syndromes, addictions) and conduct disorders. The function of dopaminergic system is viewed by some authors as a contrasting balance between D1 and D2 receptors with D1 responding to dopamine level rise and leading signals of approach response to incentive stimuli and D2 responding to level drops, leading signals of avoidance response to stimuli. Dopaminergic activity overlaid with the triadic model could explain and predict poor impulse control, poor critical assessment of situations and risk-taking behaviour. (13)

In the prefrontal cortex, dopamine activity undergoes quantitative changes and receptor expression modifications that impact decision making activity and control. Study of Berridge (2011) states that D1 receptor activity in the prefrontal cortex reflect impulsive response to environmental stimuli allowing integration of all information into behaviour and learning. D2 receptor activity seems to be linked with more focused, motivated behaviour and decision making with more critical judgmental capacity. The density of dopamine receptors within

prefrontal cortex is higher for D1 type during adolescence versus D2 type, this proportion being inverted during adulthood as D1 receptors start to decrease in density and functionality. This statement enforces other observations about the importance of dopamine receptor quality and quantity versus dopamine levels per se. Not only D1 receptors high density in the prefrontal cortex bypasses control and evaluation systems leading to weak assessment of negative stimuli, but also helps activate impulsivity and extreme behavioural related to incentive stimuli and the linkage of the dopaminergic activity with substance abuse cannot be ignored as adolescents are known to be more prone to addictive disorders in congruence with genetics and environmental influences. (14).

In the striatal area, dopaminergic receptor activity follows the same contrasting pattern. As rat model shows, D1 receptors tend to increase their density and function in the dorsal and ventral striatum area followed by abrupt decrease in late adolescence age range. D2 receptors tend to increase their density up to specific limit then remain constant through time. This model appears to add even more activity to the striatum reinforcing impulsive decision and action taking as part of necessary experience and learning acquisition.(15)

SEX DIFFERENCES IN BRAIN DEVELOPMENT DURING ADOLESCENCE

Until now, observations have been made that male adolescents tend to have higher volume of white matter compared to females that have thicker cortical expression, especially in the temporal and parietal areas. Although this implies different paths of neural activation and processing, performance is observed as being balanced between sexes. Thicker cortical volumes in females implies bigger capacity for controlling emotions and decision as response to outer stimuli, a fact that can be sustained by clinical observations.(16) Moreover, dopaminergic activity has differences that sustain the above as dopamine receptor expression seems to manifest relatively stable during adolescence and adulthood in females in contrast with males that tend to present hyper-expression of dopamine receptors, especially D1 type, during adolescence. Still, there seems to be a higher sensitivity for females related to dopamine level alterations. This translates in abrupt responses to dopamine level and receptor activity raises which implies more abrupt behavioural responses to stressful or incentive stimuli. (17)

THE NEUROBIOLOGY OF ADDICTIVE BEHAVIOUR

Dopaminergic system is the primary neurobiological circuit involved in addictive behaviour bases, in both young people and adults. As studies show, environmental factors are no longer the primary reason for addiction but there are more profound, pathophysiological elements that play key roles in development of risky behaviours.

Leaving aside genetic influences, the triadic model of neuroplasticity in adolescents has remarkable resemblance to the dopaminergic activity regions engaged in addictions which would partly explain the high rate of young individuals who try different psychoactive substances. Still, at nervous system level, dopaminergic activity interact with the natural pathways by inverting some functions towards new motivated sustained behaviour related to addiction reward goals. The nucleus accumbens is involved in assessing reward as a motivation for decisions and action. In substance abuse cases, accumbens will overwrite natural incentive stimuli by replacing normal incentive stimuli with the single rewarding scope of feeling the drug’s

effect, altering behaviour into repeating a single motivated action – the drug search and consuming. The relays of the triadic model are present further in the addictive neurobiological model but engage different roles as the abuse becomes more important. The amygdala becomes the site of projection for negative effects of withdraw, activated by lack of drug in the organism and the prefrontal cortex is responsible for the cravings which overwrites modulation of decisional evaluation, especially because of dopamine receptor influence. (18)

As a general overview we can interpret that the poor activation of prefrontal cortex with high activation of the striatum is the cause for engaging in risky situations and taking on bad examples and incentive social stimuli to try psychoactive drugs. As the drug consuming progresses, the amygdala, the striatum and the prefrontal cortex begin to interact in a loophole sustaining drug craving, drug search and drug intake, overwriting natural pathways of social integration and behavioural control. We can also observe that the amygdala, is left aside in decision-making and stimuli processing as it should inhibit risk taking. Still, during addiction, amygdala plays a key role of projecting negative symptoms and psychological stress related to withdraw. Leaving aside genetic alteration in the brain's anatomy and chemistry, the theory stated above should cover explanations for the high rates of drug trying and relatively high rates of drug abuse during this age period. (19)

NEUROBIOLOGY OF VIOLENT AND AGGRESSIVE BEHAVIOUR IN ADOLESCENTS

Adolescents with violent and antisocial behaviour are not a novelty, in fact, the problem of management and social reinsertion for these young individuals becomes more profound as the prognosis for these people worsens. Functional imagistic studies have brought evidence that adolescent brain is not as mature as we thought but also motivated behaviour and discriminating their actions are not fully efficient functions and imbalances inside neurological circuits become even more unstable as dopaminergic and hormonal influences grow. Emotional stimuli influence even more the neural impairment inducing risk taking behaviour with subjective and poor assessment of the information and outcome of the situation. Emotions play key roles in behavioural disorders in adolescents, as affective neurological filters are not fully mature and controlled. High emotional stimuli conduct to high impulsivity but as the triadic nodes mature, amygdala steps in to process negative emotions, fear and stress communicating to a more mature prefrontal cortex to act in an avoidance way. Emotional disruptions during adolescence define a sensitive decision pathway to affective stimuli that will be pacified as the teen progresses to adulthood, so, decision and impulses are directly proportional with the affective incentive stimuli, before neurological maturation. (20)

In matter of repetitive and compulsive behavioural disorders, there are clinical observations that incline towards a disproportionate functioning of emotion and behavioural pathways that suggest the poor emotional processing and low empathic response would trigger aggressiveness and violent conducts. Deviant chronic behaviour is classified by DSM into conduct disorders and oppositional defiant disorders. The two stand for intense chronic antisocial and violent conduct with negative educational, social and legal implications. The prognosis for these young individuals is as severe on long term as the conduct appears in preadolescent ages because there are high possibilities that this aggressiveness could be

part of psychiatric disorders (that have different medical and legal approaches). Oppositional defiant disorders tends to have better long term outcome then conduct disorder and adolescents with no psychiatric diagnosis can transition through one of these disorders at some point during the teen years with possible good outcome if management is efficient. (21)

Conduct disorders manifest violence as impulsive actions or instrumental aggressiveness, the last one referring to premeditated acts. Reactive and impulsive violence can manifest anywhere during adolescence and during adulthood, they can be part of the clinical aspects of borderline personality, bipolar disorders or post-traumatic stress disorder. Impulsiveness tend to involve high emotional stimuli and intense negative factors that impact the individual in a certain moment. With instrumental violence, which is more specific to conduct disorders there seem to be very little or no emotional or emphatic influence in decision making and behaviour manifestation. Examples can be given with the ”Callous Unemotional” traits, where lack of affective processing and empathy is contrasting compared to the capacity of the violent act. (22)

Empathy is the primary socio-emotional factor that motivates pro-social behaviour. It links environmental stimuli and affective stimuli overlying information about others and information about self, conducting to positive approaching on other individuals, resonating with other social participant and inhibiting impulsivity and violence towards others. Neurobiological bases of empathy reside, remarkable, in the same areas that process pain and suffering that the self is exposed to (somatosensory cortex, anterior cingulate cortex and insula). As such, the neural mechanism of empathy are actually the same that get activated by negative emotions and pain felt first hand, so, the key to empathy is the superposition of self-pain processing and painful sensorial stimuli perceived from the environment. Lack of empathy is defined by disrupted perception of fear, guilt and affection with impulses of inflicting pain on others remaining active. (23)

Decety et al (2008), conducted a functional MRI study in order to assess neurobiological differences between adolescents with conduct disorders and neutral adolescents. Both groups were scanned while they watched videos and pictures of people experiencing accidentally inflicted pain and trauma compared with neutral images respectively videos of people experiencing intentional inflicted pain. Visualising people suffering accidental pain, activated the pain matrix in both groups, including the anterior cingulate cortex, insula, somatosensory cortex and periaqueductal grey. Still, the conduct disorder group manifested greater amygdala, striatal and temporal pole activation compared with control group. Visualising intentional inflicted pain revealed more important differences between the two groups. While the control group showed activation in medial prefrontal cortex, lateral orbitofrontal cortex and right temporo-parietal junction, the conduct disorder group only showed activation of insula and precentral gyrus. Furthermore, in conduct disorder group apparently there is a poor linking between amygdala and prefrontal cortex at the specific time of watching someone inflict pain on another. (24)

The pain matrix triggers automatic somatic and sensory perception of the visual stimuli with periaqueductal grey and amygdala processing fear and anxiety, the anterior cingulate cortex processing emotional impact insula and somatosensory cortex being the

centres for pain processing. The medial prefrontal cortex is related to cognitive social processes especially with understanding and regulating social emotions. the temporo-parietal junction is the region where moral judgement, behaviour evaluation and critical predictions are developed but also, the main circuit of empathy and social emotions integrating visual, auditory and somatosensory stimuli from the environment. The study pointed out that control groups activated the pain matrix alongside empathic and social morality development pathways. In conduct disorders groups there is only a partial expression of pain matrix (in the insula) but the activation of precentral gyrus (primary motor cortex) seems to be an interesting finding as this area is particularly active in children with ADHD or in psychopathologies that manifest with aggression, impulsivity and violent behaviour. Also, the poor linkage between the amygdala and the prefrontal cortex reflects an inefficient neurological regulation of social stimuli, stress situations and low capacity for inhibition and avoidance of certain activities. But this poor linkage is also an evidence of the incapacity of experiencing positive affective sensations and the lack of activity in the whole pain matrix reveals the low empathic capacity. (25)

GENETIC INFLUENCE AND ENVIRONMENTAL FACTORS

Adolescence is a period of high plasticity of the brain, undergoing intense transformation of the nervous system in order to prepare the future adult to become independent, self-aware, socially and morally integrated and efficiently adapted to his living environment. Environmental stimuli are key contributors to those transformations as such, all contaminated negative influences could have long term impact, especially in adolescents that carry genetic markers with expression on neuro-psychological phenotype.

In matter of addictions, twin studies demonstrated that genetic transmission of substance abuse counts up to 70% in those groups it seems that behavioural addictions are also influenced by genetic factors. Genetics can change specific neurobiological pathways modulated by the certain neurotransmitters, neuropeptides, signalling messengers or drug metabolism enzymes which will conduct to stronger expression of drug receptors or disrupted metabolism of some substances. In these cases, environmental influence is critical as recent studies suggest that the initiation of drug use can be influenced by family or peer groups and other environmental factors but progression to compulsive use and addiction depends almost entirely on genetic factors. (26)

In matter of violence and aggression, the altered neurobiological findings within fMRI studies strongly suggest that genetic factors influence most of the pathways in the triadic model, the pain matrix and receptor expression, circuits deeply involved in every behavioural disorder. Also, studies demonstrate that activation and inhibition of certain neural pathways depend on the presence, quality and quantity of incentive stimuli from the environment, concluding that interaction with negative stimuli from the environment could trigger and perpetuate some deviant disorders, especially in people with phenotypical reflection of neuro-morphology and physiology genetic alterations. *(*27)

CONCLUSIONS

Motivated behaviour in adolescents lack mature neural circuits that express and process critical thinking, moral judgement, discernement of posible outcomes, options evaluation and emotional control leading to higher impulsivity, emotional choices over objective decisions and engaging in risk situations without proper anticipation and motive selection, although the plasticity of the brain during adolescence is meant to prepare the young individual for a lifetime of critical choices and social efficient integration by experimenting.

The triadic model appears to have interesting resemblance with the neurobiological model of addictions, which would explain how large groups of adolescents are easily attracted to trying substance use. Genetics and other environmental factors will decide whether those experiments will lead to progressive drug abuse.

The social information process model explains the altered and exaggerated reactivity to stress factors, emotional stimuli and peer acceptance, which explains antisocial acts and exaggerated responses when negative stimuli arise from the close environment.

Dopaminergic activity and hormonal surge complete the circuit of hyperactive impulsivity, emotional enhanced signaling and hypo-activity of control systems.

Functional MRI studies have brought proof that neurobiological disruptions have direct matches with behavioral disorders especially with emotional involvement and in the presence of right incentive stimuli. As far as emotion go, conduct disorders have either heightened emotional sensitivity and exaggerated response to stimuli or hypoactive response to affective stimuli and poor processing of empathic prosocial sensations.

Integration of present knowledge about neurobiology of adolescent behavior with clinical wide observation, with further study on the matter, could open the path to future prevention and management of adolescents with deviant behavior and social or legal implications. If behavioral mechanisms and critical assessment at neurological levels are immature, punishment and negative outcome of one’s action cannot be fully understood and long-term prognosis are negatively affected. In light of future possible studies, timely identification, prevention, corrective measures and social insertion could be more efficient if integrated into specific educational and social programs. Medical and forensic assessment of these cases could be more inclined towards understanding physiology before judging the teenager and environmental changes with proper follow up could change dramatically their lives.

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The exorcism. A Religious and Medical Perspective on the *Demonic-Possession Phenomenon*

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ABSTRACT
Saying prayers and enchantments to cast out demons from the body of a possessed person, the exorcism is a public act of the Christian Church, performed with authority, in the name of Jesus Christ, requiring that the person or object in question be protected from Satan's possession and released from his dominion. This *definition* includes the act itself as well as the means used. The tradition of the church considers that the clues of demonic possession can be: speaking a language unknown to the possessor or understanding it, revealing things that are far away or hidden; abnormal physical strength due to the person's age or condition, someone else's speech through the possessed, self-harm and suicide attempts, aggressive and restless behavior, anger, extraordinary perceptual power, supernatural knowledge, extraordinary demonic phenomena such as cramps, screams, falls, exhaustion, but also the perfect healing after the expulsion. Usually, before consuming the exorcism, it is crucial to determine whether it is the presence of the evil one and not a mental illness, the care of which is within the competence of the medical sciences. In this article we will analyse the following aspects: *The Bible* and the demons, Jesus Christ – *the conqueror of demons and Satan*, the church's activity on exorcisms, the medical perspective and finally some journalistic records about the seriousness of misunderstanding the phenomenon of possession.

KEYWORDS:
Illness, healing, sin, grace, mystery, mental disorder.

INTRODUCTION

Disease or not (1), the image of the devils as evil spiritual beings has been difficult to shape in what we now call revelation, that is, in the "revealed" science of the Christian doctrine. When the demons offered the whole earth for eternal love (2), they were by no means evil. So, we understand why early

biblical texts often borrowed elements from popular beliefs, folklore, and pagan tradition, since books are inspired from books. Even today the situation is not different and, everywhere and at every social events and religious holidays, we meet witches with famous rituals, predictions, traditions, superstitions and folklore, what to do and what not to do, where there is no lack of prayers that the devils hate them and curse the devil. Speaking of spiritual beings, even the evil ones, as some would call them, have no place and space among mortals because: the thing the king demands is hard and there is no one else to make it known to the king but God whose existence is not among mortals (Dan 2:11) (3). Thus, if God has no place among the earthlings, nor the other spiritual beings, good or bad, arrogant or with a thought of vengeance, cannot build a shelter among men because, besides all these, there is a great abyss between us and you, so that those who would like to pass through here cannot come to us from there either (Lk 16:26). Here is how the mystery evolved from demons or evil spirits to pass unnoticed to Satan, God's adversary in regard to mankind, who gained meaning only in the light of Jesus Christ's teaching, as a fulfillment of the philosophy of opposites in the world. In order to make the third navigation possible (4), Jesus Christ came to earth to deliver us from the Tempter and his subjects (5).

THE BIBLE AND THE DEMONS

Etymologically in the Bible, in Hebrew satan "the adversary", in Greek diábolos "the slanderer", an unseen personal being, but with direct influence and determination or through temptation on other beings is introduced under the name of Satan. We are informed about the existence of the character and his cunning activity and we are also warned about the means we have at our disposal to be able to avoid that one. Of course, we do not find too many references to this adversary of God in the OT though there are many explanations, but we only remember that it is a mystery which is part of the salvation since the Genesis (cf. Gen 3:15). Later, the Book of Wisdom will give a name to the mystery, namely the devil: God created man for incorruption and made him the image of His own eternity. Through the envy of the Devil, death has entered the world and those who belong to his party experience it (Wis. 2: 23-24).

JESUS CHRIST – THE CONQUEROR OF DEMONS AND SATAN

We jump over time and space, from the thousands of personified obscure forces of the ancient Orient that assaulted man and reach the world of demons as a universe contrary to God, where the symbolic representation of the action of Evil in popular beliefs knows a considerable development, without reaching a coherent expression. Jesus is part of this context, whose life and activity are focused on the struggle between the two worlds, with the declared goal of liberating the man: now it is the judgment of this world; now the ruler of this world will be cast out (Jn 12:31). Evil possession is often identified as a disease, and this is the only way we can understand why the Gospel texts sometimes stated that Jesus healed the demon-possessed, while sometimes He cast out demons: all the sick and possessed by the devil and the whole city were gathered at the door. He healed many who were sick with various diseases and cast out many devils. He would not let the devils speak, because they knew Him (Mk 1: 32-34). NT does not question the very clear cases of possession, but we must take into account the discourse of those times where there was no difference between disease and demonic possession, writhing, foaming, clinical states of psychiatric competence (cf. Mk 9:20 ss). Among the many episodes of Jesus'

encounters with the possessed, the incident in the land of the Gerasenes is worth mentioning, where the possessed spirit was called the "Legion," for we are many, and he was cast out into the herd of swine. What we want to emphasize is that the one who was possessed prayed to Jesus after healing to let him stay with Him. But Jesus did not allow them: "Go home to your family and tell them what the Lord has done for you and how He has had mercy on you" (Mk 5:19). This is how the Spirit of God, who is the true power of Jesus' action, testifies that God's kingdom reached the people, where Satan, who believed himself to be powerful, was cast out by someone even stronger: all their sins and blasphemies will be forgiven, but the blasphemy against the Spirit will not be forgiven. And if anyone speaks a word against the Son of Man, he will be forgiven, but if he speaks against the Holy Spirit, he will not be forgiven in this world or in the world to come (Mt 12: 31-32).

THE CHURCH'S ACTIVITY ON EXORCISMS

As noted below, in the NT, what will later be called an exorcism will be performed only in the name of Jesus. When He sent His disciples on a mission, He passed on his power over the demons, and they found the power that was with them. From then until today, this will be a sign that will accompany the preaching of the gospel, along with the miracles: then He said to them, "Go into the world and preach the gospel to all creation! He who has believed and has been baptized shall be saved; but he who has disbelieved shall be condemned. These signs will accompany those who have believed: in My name they will cast out demons, they will speak with new tongues, they will pick up serpents, and if they drink any deadly poison, it will not hurt them; they will lay hands on the sick, and they will recover" (Mk 16: 15-18). But let us not be in a hurry, and dwell a little on a significant text of the Acts of the Apostles, entitled Paul and the Jewish Exorcists: God did extraordinary miracles through Paul, so that even handkerchiefs and aprons that had touched him were taken to the sick, and their illnesses were cured and the evil spirits left them. Some Jews who went around driving out evil spirits tried to invoke the name of the Lord Jesus over those who were demon-possessed. They would say, "In the name of the Jesus whom Paul preaches, I command you to come out." Seven sons of Sceva, a Jewish chief priest, were doing this. One day the evil spirit answered them, "Jesus I know, and Paul I know about, but who are you?" Then the man who had the evil spirit jumped on them and overpowered them all. He gave them such a beating that they ran out of the house naked and bleeding. When this became known to the Jews and Greeks living in Ephesus, they were all seized with fear, and the name of the Lord Jesus was held in high honor. Many of those who believed now came and openly confessed what they had done. A number who had practiced sorcery brought their scrolls together and burned them publicly. When they calculated the value of the scrolls, the total came to fifty thousand drachmas. In this way the word of the Lord spread widely and grew in power (Acts 19, 11-20). This is the key point of the Church's struggle with demons, which began to perform as: the struggle against superstitions and magic of all kinds, the belief in predictive spirits; the war against idolatry, against the false wisdom of demonic teachings, which will constantly seek to deceive people. Aren't we misleading people with the excuses and apologies we have begun to abuse when it comes to serious institutional slippage? Isn't it time to end the foamy and tearful editorials in defense of which we don't know their emeritus? The pursuit of righteousness in truth and the collective examination of the

conscience of past errors sound like demonic defiance, which has no other purpose than to mislead the little ones of Christ. And for such deeds Christ has another remedy, not that of a penitential Church, which humbles itself by asking for forgiveness, which feels consternation, remorse, pain, compassion and closeness, but **the stone tied around its neck and thrown into the sea**: But whoso shall offend one of these little ones which believe in me, it were better for him that a millstone were hanged about his neck, and that he were drowned in the depth of the sea. Woe unto the world because of offences! for it must needs be that offences come; but woe to that man by whom the offence cometh! Wherefore if thy hand or thy foot offend thee, cut them off, and cast them from thee: it is better for thee to enter into life halt or maimed, rather than having two hands or two feet to be cast into everlasting fire. And if thine eye offend thee, pluck it out, and cast it from thee: it is better for thee to enter into life with one eye, rather than having two eyes to be cast into hell fire. Take heed that ye despise not one of these little ones; for I say unto you, That in heaven their angels do always behold the face of my Father which is in heaven. (Mt 18: 6-11). And let us not be deceived by the so-called diocesan phases of opening the causes of beatification and canonization of God's servants, for all these are from men and for men, so that we the mortals may have a clear conscience that we have been better than our fathers who "persecuted the prophets" (cf. Acts 7:53). No one told Jesus to flee from the security forces and become a specialist in the service of the poor, no one told Christ to join anti-Communist resistance groups, because all this is from people and people ignored the words of Daniel the prophet according to the needs of the times and of the Apostle to the Romans that only the Lord changes days and time and that there is authority only from God (cf. Dan 2:21; cf. Rom 13: 1-8). Yes, local, national, world heroes, but with the saints to..., let's think again! (6). The teaching of the Church is clear: Satan and his people are working behind all these human deeds in order to block the advancement of the gospel. Only through the Holy Spirit and prayer it will be possible to differentiate spirits. We can speak of a war for life and death between the two spiritual worlds, where the Church has an invincible hope: Satan, already defeated by Jesus Christ, has only a limited power. At the end of the ages, the final defeat will be "recorded" (cf. Rev 20: 1-10).

THE MEDICAL PERSPECTIVE

Since the Middle Ages, but still today, many patients with mental disorders such as psychosis, but also those with dissociative disorders are often considered to be possessed. This explains why specific behaviors of people with mental disorders are often not recognized as such and are subjected to inappropriate treatment or exorcism, which will lead to negative consequences for the evolution of the disorder (7). There are few clinical studies on the characteristics of the delusional ideation of possession, considered as a subdivision of the delusional ideation with a religious theme (8). Some authors estimate that this type of delusional ideas can be found in 20-40% of psychotic patients, more often in men than in women (9). The delusional idea of possession is more often associated with delusional symptoms of influenza or hypochondriac ideation, olfactive hallucinations, depressive mood, and suicide attempts (10). These patients also have a history of childhood sexual abuse, cannabis use, auditive pseudohallucinations and dissociative disorders (11). The content of this type of delusional ideation is often a relic of or refers to traumatic experiences (7, 8, 9). The characteristics of the symptoms presented by the patients and the way in which they are evaluated during the interview have a key role

in supporting the differential diagnosis, especially in terms of differentiating a psychotic disorder from a dissociative disorder, which will require different therapies (12). Thus, Ross describes the concept of dissociative psychosis because some patients diagnosed with a psychotic disorder associate, as comorbidity, dissociative symptoms (13). It appears that 50% of patients initially diagnosed with dissociative disorder also meet the diagnostic criteria for schizophrenia (14). Identifying the delusional idea of possession is an unfavorable prognostic factor in terms of disease progression and treatment compliance (10). Thus, a study conducted in India in 2000 by Kulhara et al. found that 40% of patients with schizophrenia, who also had delusional ideation of possession, participated in magic-religious therapies and did not accept a psychiatric examination (11). In different cultural contexts, being possessed is less stigmatizing than being diagnosed with a mental disorder (9). This situation also exists in various European countries, such as England, Spain or Poland, where the idea of exorcism is sometimes supported to the detriment of appropriate psychiatric therapy (15). From a psychiatric point of view, the belief of being possessed could be categorized as a prevalent/ overestimated idea, a constant and unreasonable belief, which does not meet the criteria for the delusional idea; however, this delimitation between the two types of ideas is not so clear (16). Future clinical trials are needed to investigate in more detail the prevalence of the delusional idea of possession, especially in developed countries, studies involving people of different faiths and atheists, to assess how exorcism can be used in different cultural and religious contexts. As a result of the gradual increase in interest in the phenomenon of possession, the World Health Organization included this entity in the category of dissociative/conversive disorders, subcategory of trance and possession disorder (17) in the tenth edition of the International Classification of Diseases (ICD 10). This diagnosis in ICD10, had no correspondent in the Manual of the American Psychiatric Association DSM IV, being included only in appendix B, requiring further studies and research (18). DSM V includes those situations in which the patient describes as if a spirit, a supernatural being or an outsider had taken control of his own person in the diagnosis of dissociative identity disorder (DID), the type with possession. This 'identity' is also present repeatedly, unexpectedly and involuntarily, and causes the patient suffering or causes clinically significant consequences without representing the characteristics of a widely accepted cultural or religious practice (19). Thus, what is common to these descriptions is that certain manifestations are assigned to the possession of the person by a spirit, so in psychiatric terms, the possession is more of an etiological element than a diagnostic criterion. Particular attention should also be paid to exorcism rituals, with the integration of different denominations into the therapeutic care of patients with mental disorders (20). The different ways of religious expression that have an impact on human behavior can be seen as a psychopathological continuum, along with delusional and prevalent /overestimated ideas. Based on clinical criteria, there are studies that highlight the possibility of differentiating schizophrenia from demonic influence and report the effectiveness of exorcism in psychotic patients or considered possessed patients, with dissociative trance disorder or possession disorder. Thus, the spiritual aspects of life should no longer be a taboo subject for the medical and scientific world (21).

JOURNALISTIC RECORDS

With its combative, offensive spirit in the ideological struggle against obscurantism and mysticism that has not disappeared but always appeals to the props of the Middle Ages modern society has frequently sanctioned institutional slippage in so-called exorcisms. In this respect here is an example presented by the newspaper Scînteia on Friday, August 13, 1976, year XLV, no. 10569, The Devil...on magnetic tape: A new case of exorcism – with tragic consequences – is investigated in F.R.G. The victim: a student from Klingenberg on the Main. Although she was in a state of severe mental agitation and refused any food, she was forced to endure grueling mystical practices of "casting out the devil," prescribed by Dei Welt in an exorcism code dating back to 1614. In her lifetime, the regional prosecutor's office requested an autopsy. The student was starving. Obviously, if proper treatment had been applied, the outcome could have been avoided. A similar case in 1973 in Vachendorf was also investigated by the authorities. The exorcist then used "modern means", recording on tape the "fight with the evil" and the cries of the tortured victim. In the middle of the twentieth century, mysticism and ignorance continue, as can be seen, to fall victim. In the same combative spirit and a few days later, the correspondent of the Scînteia newspaper from Bonn, Corneliu Vlad, details in the article Marginalii – Victims of obscurantism, Friday, September 3, 1976, year XLVI, no. 10587: On the same day as the headlines of the latest human victories in space exploration, West German newspapers published a brief report on the death of a student, Anneliese Michel, at the end of exhausting exorcist practices – in other words, the expulsion of the devil, who would have mastered the body and soul of the young girl – practices performed at the urging and under the direct supervision of some clerics. In a short time, the tragic event, revealing the persistence, in the middle of the twentieth century, of obscurantist practices reminiscent of the darkest episodes of the Middle Ages, would become a widely debated topic in the press and public opinion. Newspapers and television would point out that the incident in the small town of Klingenberg is not unique. The press reported on a similar case in Burgkirchen in 1973, and the theologian Adolf Rodewyck, the author of several books on exorcism, said in an interview that such cases always arise, even if they do not always reach the public. As for the exorcist priest Arnold Renz, involved in Annelie's case, he said that the death of the devil-possessed student was the only way forward... "How can such things still be possible nowadays?" The Klingenberg case must call for serious reflection. By publishing numerous similar statements, the newspaper's report as significant for the climate that made it possible to trigger the Klingenberg drama that during this period the revenues of the more than one hundred cinemas where the American film of gross perversions and obscenities "The Exorcist" is programmed breaks all records. Just one kilometer from Annelia Michel's parents' house, this film has been running with the house closed for several weeks, Bild am Sonntag reports. The detrimental nature of obscurantist practices such as those reported by the West German press has been reported in other Western countries for many years. The French newspaper Le Monde reported that "demonology seems to have returned to fashion," a whole literature proliferating on this topic. Placing the phenomenon in the historical context of the "consumer society", characterized by "general confusion of value and morality", the French author Roland Villeneuve points out in a recent paper that it is within this context that "the exploitation of superstitions finds full ground". The improbable but within the realm of cruel

reality incident in the West German town provides the most recent and tragic evidence in this regard. Today it is very difficult to come to terms with everything that the journals tell us: good and evil, God and Satan coexist on the same path. Prelates who are talking about the mafia infiltrations of a Comorian business for the management of pilgrimages, in the spaces of pilgrims everywhere as well as in the management of stalls selling religious goods and of any kind, to those who zealously seek the face of God on earth. That is why we need to deepen the topic of this research as we do not lack documents in this regard.

CONCLUSIONS

We note that from a religious point of view, the *exorcism* is a public act of the Christian Church, performed with authority, in the name of Jesus Christ, which requires that the person or object in question be protected from Satan's possession and released from his dominion. The evidence of demonic possession can be multiple and therefore both mental health professionals and people with different religious beliefs need clear criteria in order to distinguish between different religious experiences with adaptive or maladaptive expression. *NT* does not question the very clear cases of possession, but we must take into account the discourse of those times where there was no difference between disease and demonic possession: *writhing*, *foaming*, clinical conditions of psychiatric competence. It is obvious that we can speak of a war on life and death between the two spiritual worlds, good and evil, but the key question that can be triggered from the present research can be summed up simply in the following question: Does the man, religious or not, still know where to look for God nowadays?

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Burnout *versus* didactogeny: the reality of a pathologized connection

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ABSTRACT

With its disastrous impact upon the teaching-learning process, the *burnout* matches perfectly the image of a grave digger of all good school intentions.

Characteristic for the teaching staff representatives, constantly forced by the excessive workload or by the lack of appreciation of their efforts from their colleagues' part, by ungrounded favorization of other mates or by the lack of communication and support from the part of their superiors, along with the lack of time for rest or for their families, for fun and relaxation, the addressed phenomenon, manifested through specific symptoms (physical exhaustion, reduced professional performance, decreasing ability to dialogue and interaction with the others, feelings of spiritual emptiness, emotional lability, cynicism, anger, aggression, etc.), can induce in all those attending the school for gaining knowledge and practical skills multiple states of pathological type (anxiety and mutism, frustration and depression, confusion and panic, demotivation and absenteism, headaches and intestinal disorders, dizziness and hormonal disturbances, palpitations and hypertension), thus putting at risk not only their health but even their lives.

From the very moment it gets invaded by *burnout,* the school ceases to correspond to the traditional image created for describing it by the brightest human minds; or, in such a context, no one can assert, any more, that it really represents *an institution* "assumed to possess a correct knowledge about itself, an exact knowledge of the outward and inward world of the pupil, for achieving their full union", *a place* forbidding "supression of child's nature and imposing the adult one's nature", *a form of social organization of the interindividual relations* meant at "making predominating the spiritual side, namely the heart, intuition, reasoning and will, and permitting the expression of their qualitative essence" and/or *a field with vast relational-type networks* through which "the adult generations, with their professional experience, provoke and develop in their scholars different physical,

intellectual and moral states, claimed both by the political society as a whole, and by the specific background to which it is particularly addressing".

KEYWORDS:
Burnout, didactogeny, pathologized school environment.

Burnout belongs to the category of factors known as exercising a huge pressure on people's professional condition, thus directly contributing to its distorsion or even annihilation[1]

When speaking of *burnout* – explains A. Längle, the reputed Austrian psychotherapeutist (1) –, we experience an immense feeling of emptiness and a manifest sensation of meaningless. Due to these two elements of psychoemotional expression, the phenomenon here analyzed may be viewed as a special form of existentialistic vacuum, an empty space characterized by the absence of its former – actually, positive – qualities, along with the manifestation of an immense spiritual abyss. Essentially, persons affected with *burnout* lack the existential spur for action, for personal fulfilment, ultimately – for happiness.

From the moment in which this term has become the object of scientific investigations (2) and up to now, when it is expressed by the almost generalized term of "prioritary theme" (3), the phenomenon under analysis has continuously demonstrated its multiple causality, as well as its complex and dynamic, longitudinal and transversal, individual and organizational, cognitive and affective, spiritual and physical characteristics. Consequently, along the time, the literature of the field provided various definitions, each of it fully reflecting its reality. Here are some examples in this respect:

- *burnout* is a state of chronic wear, depression and frustration generated by submission to some cause, to a way of living or to a relation uncapable of producing the expected reward, finally leading to a decreasing involvement and to unsufficiently good work results (4);
- *burnout* is the answer to a chronic emotional stress, characterized by three elements: (a) emotional and physical exhaustion; (b) reduced productivity; (c) hyper-depersonalization (5);
- *burnout* is a syndrome of emotional exhaustion, depersonalization and reduced professional accomplishment, manifested in individuals

[1] In the literature of the field, the term *burnout* occurs in several variants, such as: *burnout syndrome*, *professional burnout*, *syndrome of professional burnout*. The explanation is simple: (**i**) it is defined as a *syndrome*, because the element here discussed actually summarizes some symptoms characterizing a certain pathological condition of the human organism, (**ii**) it is called *burnout*, according to the English term, meaning precisely *combustion*, and (**iii**) stress is laid on the qualifying adjective *professional*, once pressure is applied, as already mentioned, on individuals' professional condition. Finally, selection of the manner of term's utilization remains a topic still to be investigated.

professionally involved with others (6);

- *burnout,* occurs in all activities involving several individuals; the psychologically participative workers consume their cognitive, emotional and physical resources (7);
- *burnout,* manifested through emotional breakdown, depersonalization and reduced personal achievements, is manifesting in the employees whose activity involves intense contacts with people (8);
- *burnout,* should be approached as a loss of idealism and enthusiasm provoked by the organizational context (9);
- *burnout,* expresses a phenomenon capable of alienating the employee from his/ her professional duties (10);
- *burnout* represents an ”anti-system” type psychomental construction, occurring and acting destructively inside the various functional (cognitive, emotional, motivational) systems of an individual (11);
- *burnout* is an emotional reaction against permanent stress, which, along the time, decreases one’s individual energetic resources, up to the installation of emotional wear, physical fatigue and cognitive boredom (12);
- *burnout* is an emotional response characterizeed by weariness, over-exertion, distress caused by the imbalance between the demands of the job and the available resources of the subject (13).

All such definitions, alongwith other ones – for example, those provided by A.M. Pines, E. Aronson and D. Kafry,[***] or the ones formulated by A.K. Markova[****], J. Edelwich and A. Brodsky[*****] – permit the deduction that, as a matter of fact, the condition of *burnout* is characterized by the following aspects:

- it is generated by the manifestation of a prolongued and difficult to eliminate stress during work, involving factors related both to the professional activity as such (high volume of

[***] In the opinion of A.M. Pines, E. Aronson and D. Kafry, *burnout* is ”an emotional and physical exhaustion, resulted from a prolongued influence of some demands”. See, in this respect, Pines, A.M., Aronson, E., Kafry, D. Burnout: From Tedium to Personal Growth. New York: Free Press, 1981, p. 17.

[****] *Burnout*, asserts A.K. Markova, summarizes a continuous loss of emotional, cognitive and physical energy, a process characterized by symptoms of emotional and mental overworking, by physical overworking and reduced level of accomplishment of job’s objectives. See, in this respect, Маркова, А.К. Психология профессионализма. Москва: Международный гуманитарный фонд „Знание”, 1996, с. 125.

[*****] According to J. Edelwich and A. Brodsky, *burnout* represents a progressive loss of idealism, of energy and motivation, a situation affecting social professions, caused by precarious working conditions. See about this Edelwich, J., Brodsky, A. Burn-out: stages of disillusionment in the helping professions. New York: Human Sciences Press, 1980, p. 10.

tasks, frequent prolongation of the working hours, lack of communication and support from the part of the chiefs, lask of appreciation of the work performed, unsuitable working conditions, etc.), and to employees' personality traits (perfectionism, excessive need of having all under control, the inability to say no, emotional lability, low self-esteem, etc.);

- it affects especially persons whose profession assumes important responsibilities and frequent human interactions, namely persons mainly charged with "relational activities providing assistance and support" (physicians, nurses, social workers, lawyers, policemen, etc.);
- it represents the concise expression of an intense syndrome of emotional exhaustion (which considerably contributes to an emotional vacuum, to losing appetite for life and optimism, to the installation of uncontrollable anxiety and inner tensions, to seeing work as a tiresome duty);
- it provokes an atrocious depersonalization (leading to attitudes characterized by manifest impersonal conduct and/or disconnection from the people around (especially from those in need of their care), alongwith their stigmatization or even rejection);
- it becomes responsibile for the drastic abatement of professional achievements (which results in the diminution or even loss of cognizance, in self-devalorization, considerable reduction of self-esteem and self-efficiency);
- it is the expression of a process whose final phase renders a spectacular depressive symptomatology (reduced self-esteem level, feelings of spiritual emptiness, loss of creativity and of the propensity to dialogue, irrational fear of danger, prolongued states of melancholy and irritability, problems related to concentration and decision-making, conviction that the professional life invades the private life, etc.);
- it reminds of the behavioural attitudes of the persons considered as manifesting between the *normal* and the *pathological* condition, with the tendency towards *pathological* (in such a case, *burnout* may be associated with a "fragile" psychomental structure, capable of endangering, in any moment, the normal course of one's life).

Having all these in view[******], we may entirely conclude that, through its

[******] Numerous other information is also available on the phenomenon here under study – such as, for example, the structure, dynamics, patterns and/or their controversial aspects –, yet the lack of space obliged the author to leave it aside. The interested ones may consult the following sources: Cooper, C.L., Dewe, P.J., O'Driscoll, M.P. Organizational Stress: A Review and Critique of Theory, Research, and Applications. Thousand Oaks: Sage Publications, 2001;

manifestations, *burnout* appears as a complex disorder, capable of drastically reducing the capacity of thinking, relationing and intervening of some human creature. The most diverse aspects of a human life – from the psychic, emotional and physiological, up to the professional and social ones – may be easily disturbed or even abolished. Not by chance, the literature of the field (14) describes the persons affected with *burnout* as *tired, weary, physically* and *psychically exhausted,* with a *degraded health condition* and a *seriously diminished work capacity,* the very condition of *burnout,* being associated with terms such as: *depletion, wear* and/or *ruined health condition.*

To what extent the observations on the destructive character of *burnout* are valid for teaching activities? Is this domain the expression of some professional activities considered as protected – either wholly or, at least, partially – against anxiety and demotivation, frustrations and self-depreciation, discontent, dissatisfaction and depression? How can be, generally, viewed a member of the teaching staff: a qualified person, never caught up by impatience (per contra, being always enthusiastic, deeply satisfied with his/her work and, accordingly, self-satisfied and complacent, while fully confident in his/ her mates) or, on the contrary, a specialist who, as ”a person among other persons” (with a more or less pleasant character), working in an milieu in which things are decided upon not by himself/ herself but by other ”persons among other persons” (equally, with a more or less pleasant character), is only part of a reality almost always under high tension, a situation explaining the confrontation – to be inevitably faced – with what we usually define – in a form or another, to a lower or higher extent – as nervousness/ impatience, failure, disappointment, exhaustion/ depletion, fatigue, indifference or pessimism?

As, according to the estimations formulated by H. Freudenberger as early as the beginning of the ‘70, further endorsed by numerous other specialists in the field[*******], *burnout* is specific to *attendance and rescuing professions which involve numerous interpersonal contacts,* to which mainly predisposed are *persons deeply engaged, devoted to a cause and determined to struggle for the plans had in view*, it goes without saying that the instruction process and, respectively, the qualified persons developing it will necessarily suffer its influence. The connection becomes even more prominent once having in view that, in most of the cases, the teaching activities assume *increased volumes of work* and *insufficient rewards and esteem* (of both financial and institutional, and social nature), *lack of collegiality* (mistrust, hearsays, gossip, unsolved conflicts, etc.) or *lack of axiological solidarity* (namely, when a discrepancy occurs between the individual values of the teaching representative and the values of the institution in which he/ she activates), *birocratic-type superfluity* or *absence of any assistance from the part of the school managers,* an *enormous time pressure,*

Golembiewski, R.T., Munzenrider, R.F. Phases of Burnout: Developments in Concepts and Applications. New York: Praeger, 1988; Popa, M. Sindromul de epuizare (*burnout*), in: M. Popa. Introducere în psihologia muncii. Iași: Polirom, 2008, pp. 248-252; Truchot, D. Epuisement professionnel et burnout. Concepts, modèles, interventions. Paris: Dunod, 2004 and/or Zlate, M. *Burnout*-ul ca epuizare profesională. in: M. Zlate. Tratat de psihologie organizațional-managerială. Volume II. Iași: Polirom, 2007, pp. 597-617.

[*******] Estimations discussed in the introduction of the present study.

or the multitude of cases evidencing unsolved aspects related to *an even-handed control of everyone's activity*.

Related to such recent approaches, mention will be made in the following of several observations and conclusions, based on thorough scientific investigations developed all over the world, endorsing the thesis according to which, nowadays, the teaching activity is deeply influenced by the *burnout* syndrome. Several proofs show that the vulnerability of the teaching staff to *burnout* records higher and higher values, (15) and also that, when speaking of pedagogic activities, *burnout* is manifesting in a much more dramatic manner than in other social professions (16, 17). Another observation refers to the fact that, in the absence of *burnout*, teachers would be undoubtedly healthier and that their work would show much more pleasure and abnegation (18-20). Also evidenced is the fact that the baneful effects of *burnout* are reflected in a decreasing productivity of the teaching work and, consequently, in a general degradation of the school itself (21-24).

When affected with *burnout* teachers categorically will lose their quality of behavioural model, demonstrating, from one day to another, that they do not belong, any longer, to the category of appreciated persons, capable, as stated by H. Spencer (25), to help their disciples to fulfill their objectives, to offer to them systematically the satisfaction of victory, to encourage them when difficulties are to be faced and to sympathize with them in the happy moments of success. Within such a context, as demonstrated several times (26-29), these persons easily lose their temper, get intensely angry, argue with the others, manifesting their anxiety and frustrations, their depressive and languid nature. More than that, they demonstrate a high rigidity and immutability *versus* their pupils, as well as an acute lack of exiguity in relation with the latter ones' information baggage and individual development.

Data provided by specialists on the essence of *burnout* and on its influence upon the conduct of the teaching staff permits the conclusion that such a phenomenon represents an indubitable source provoking didactogeny. How will react a pupil faced every day with a teacher rapidly losing his/ her temper or frequently getting angry, is apathetic or inflexible, rigid and cynical? It goes without saying that, sooner or later, in such cases, the child will experience severe psychological (anxiety, increasing frustration, elective mutism, low self-esteem, depression, etc.), pedagogical (diminished school motivation, absenteism, dropping out of school, etc.) and/or somatic (headache, gastric acidity, intestinal symptoms, etc.) disorders. The same situation will occur when the same teacher will show his/ her pushing exigency for the individual development of the children, while also vehemently rejecting any transgression of school discipline.

Therefore, one should note that *burnout*, exercising a disastrous impact upon the teaching-learning process, matches the perfect image of a good school intention grave digger. Characteristic for the teaching staff representatives, constantly forced by the excessive workload or by the lack of appreciation of their efforts from their colleagues part, by ungrounded favorization of other mates or by the lack of communication and support from the part of their superiors, alongwith the lack of time for rest or for their families, for fun and relaxation, the addressed phenomenon, manifested through specific symptoms (physical exhaustion, reduced professional performance, decreasing ability to dialogue

and interact with the others, feelings of spiritual emptiness, emotional lability, cynicism, anger, aggression, etc.), can induce in all those attending the school for gaining knowledge and practical skills******** multiple states of pathological type (anxiety and mutism, frustration and depression, confusion and panic, demotivation and absenteism, headaches and intestinal disorders, dizziness and hormonal disturbances, palpitations and hypertension), thus putting at risk not only their health but even their lives.

From the very moment it gets invaded by *burnout*, the school fails to correspond to the traditional image created for describing it by the brightest human minds; or, in such a context, no one can assert, any more, that it really represents *an institution* ”assumed to possess a correct knowledge about itself, an exact knowledge of the outward and inward world of the pupil (…), for achieving their full union” (30), *a place* forbidding ”supression of child’s nature and imposing the adult one’s nature”, (31) *a form of social organization of the interindividual relations* meant at ”making predominating the spiritual side, namely the heart, intuition, reasoning and will, and permitting the expression of their qualitative essence” (32) and/or *a field with vast relational-type networks* through which ”the adult generations, with their professional experience, provoke and develop in their scholars different physical, intellectual and moral states, claimed both by the political society as a whole, and by the specific background to which it is particularly addressing” (33).

******** It is by these words that the reputed German specialists H. Schaub and K.G. Zenke characterize pupils. See, in this respect, Schaub, H., Zenke, K.G., Dicționar de pedagogie. Translated by Rodica Neculau, scientific adviser – Constantin Cucoș. Iași, Polirom, 2001, p. 96.

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2. The term *burnout* is for the first time mentioned in the work of G. Greene, reputed English writer, playwright and literary critic. In the year 1961, he publishes a novel entitled ”A Burn-Out Case”, in which he minutely describes the state of mind of a professionally deeply disappointed architect. In spite of having demonstrated his availability, characteristic for a person who, according to A. Längle, lacked the existential logic for action, for personal fulfillment and happiness, the term did not shake, at that time, the specialists of the field – mainly psychology of work and psychiatry –, being simply disregarded and assigned to ”naive psychology”. A little later – more exactly, in the year 1969 – the notion of *burnout* is once agin mentioned by H. B. Bradleu, who publishes a study dedicated to the activity of policemen trained for the conditional release of offenders. Once again, the notion is utilized for evidencing how consumptive and dangerous to health may be some types of professional activities.

Later on, the ideas put forward by G. Greene and H. B. Bradleu were taken over by the clinician psychologists H. Freudenberger (1974) and C. Maslach (1976), for their epistemological substantiation. At that time, H. Freudenberger was running an alternative day hospital, receiving and attending various categories of junks and whose activities were fulfilled mostly by young volunteers. A perfectly specialized observer of the daily events and circumstances, H. Freudenberger states that *burnout* had also entered the institution he administered, its main victims being the young volunteers. If, in the beginning of their work, they were enthusiastic, only several months later they appeared as exhausted, complaining of fatigue, insomnia, headaches and gastrointestinal disorders. More than that, their conduct came to be characterized by irritation, immutability, adynamism, negative attitudes, seclusion, detachment, avoidance of social contacts. For explaining such symptoms, H. Freudenberger launches the idea that, overall, they may be considered as ”the basic characteristics of the phenomenon defined *burnout*”. He also makes a special mention, namely that : (**i)** ”*burnout* is specific to certain attending and supporting professions, which involve interpersonal contacts”, and that (**ii**) ”mainly exposed to *burnout* are the persons engaged and devoted to some «causes», persons «who like fighting»”. Another observation: in the opinion of H. Freudenberger, the causes of the phenomenon lie ”in some individual treats of people, in their idealized image about themselves, in their self-perception of being competent, charismatic, dynamic characters, but who, as the objectives had in view become impossible or almost impossible to attain experience failure, lose their confidence in themselves, becoming estranged from themselves”.

When speaking of the ideas of C. Maslach – who, unlike H. Freudenberger, is much more interested in social psychology, being involved, in the same period, in the study of *coping* strategies in cases of emotional activation –, the orientation gets characterized by an intense presence of the *interrelational element*. Interested by the manner in which the activity of doctors, nurses and psychiatrists is developed, she states that the emotional experience of these three categories of specialists was usually stressing, which, sooner or later, used to lead to disorders of somatic (headaches, ulcers, etc.), psycobehavioural (consumption of alcohol and drugs, suicide, etc.) and/or social (conjugal conflicts, interpersonal tension in the office, etc.) nature. C. Maslach also shows that the signs characterizing *burnout* are emotional exhaustion, professional failure and affected health condition. Considering, as H. Freudenberger also did, that what we call *burnout* is specific to attending and/or supporting professions, C. Maslach offers a new vision on its etiology: in her opinion, its causes are localizated not so much in the individual, in his/ her personality traits (as stated by H. Freudenberger), as, rather at work, in the relations established with coworkers, within the entire interrelational background of the job.

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3. According to R. Schultz, J.R. Greenley and R. Brown, by the end of the XXth century, about 2,500 scientific studies dedicated to *burnout* have been issued. Their – numerous and highly different – authors approached the

phenomenon from various perspectives. Thus, while some of them focused on the identification of its symptoms, causes or consequences, others laid stress on evidencing the modalities of its prevention and/or counteraction. Others (B. Perlman and E.A. Hartman, C.L. Cordes and T.W. Dougherty, W.B. Schaufeli and B.P. Buunk) aimed at elaborating synthetic visions, reflecting the whole range of aspects of the phenomenon. In latest years, the interest for the scientific study of *burnout* increased considerably, a tendency to be continued.

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Through the lens of delusions. A case report of schizoaffective disorder

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ABSTRACT

Schizoaffective disorder represents a psychiatric condition characterized by symptoms of both schizophrenia and mood disorders, such as bipolar disorder or depression. Together, these two conditions have a major impact on individuals and affect many aspects of their lives. Moreover, practicians often have difficulties in diagnosing and treating the patients suffering from this disorder. In patients with psychiatric conditions, including schizoaffective disorder, the lack of insight is frequently a significant problem. Objectives: This paper aims to provide a general perspective upon the evolution of schizoaffective disorder and to emphasize the patients' limited capacity to recognise their condition and the need for treatment. Methods: This article will present the clinical case of a 37-year old woman, who is brought by the police to the ER of "Socola" Institute of Psychiatry for psychomotor agitation, emotional lability, mood swings, delusions of prejudice and persecution, impulsive behavior and aggressiveness towards her parents, especially her father. Conclusions: Impairment of insight is considered an important characteristic of psychiatric disorders, including schizoaffective disorder. It is crucial for physicians to develop trusting relationships with both the patient and the patient's family in order to improve the quality of life of both patients and their families.

KEY WORDS:

Schizoaffective disorder, psychotic symptoms, mood disorders, insight.

BACKGROUND

Schizoaffective disorder represents a psychiatric condition characterized by symptoms of both schizophrenia and mood episodes of depressive, manic, and/or mixed types. The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) definition requires the presence of schizophrenia symptoms concurrent with the mood symptoms (depression or mania), and lasting for a considerable part of a 1-month period. Schizoaffective disorder is further classified as manic type (when manic symptoms are prominent), depressive type (when only schizophrenia and major depressive symptoms have been present), or mixed type (includes episodes of mania and sometimes major depression) (1). The schizophrenic spectrum includes delusions, hallucinations, disorganized speech, negative symptoms (flat affect, avolition, anhedonia, social withdrawal).

The prevalence is estimated to be around 0.3%, while studies show that 30% of cases occur between 25-35 years old and are seen mostly among women. (2)

The pathogenesis of the disorder is multifactorial and the exact causes have not been yet discovered. However, there are a few risk factors to be taken into consideration, such as genetics, brain chemistry and structure, trauma, environmental factors (infections, stress), psychoactive or psychotropic drugs. (3)

Lack of insight is a common clinical problem in psychiatric patients, which leads to a greater hostility and worse impulse control, since it affects one's capacity to recognise the deficits, consequences and need for treatment linked to the disorder. (6) Many patients who are diagnosed with schizoaffective disorder also have either poor or absent awareness of their disease, which makes it difficult for them and their families to lead a normal life. Poor insight has been linked to poor outcome of psychosis in multiple ways. The negative influence of poor insight has been demonstrated in relation to quality of life, rehospitalisation, poor treatment adherence and poor outcome of psychosis. (5)

Diagnosis is based on the patient’s medical history and a clinical review of symptoms and answers to specific questions. While in schizophrenia some transient mood disturbance can often be observed, the diagnosis of schizoaffective disorder can only be made if the mood disturbance is present for a significant period of the entire duration of illness (4). However, practicians frequently have difficulties in diagnosing and treating the patients suffering from this disorder, since it is a pathology that reflects two types of mental illnesses, which can be easily confused with other psychotic or mood disorders. Therefore, there are some disorders that have to be excluded when trying to formulate a diagnosis.

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Schizophrenia - For diagnosing a schizoaffective disorder there has to be a definite period of at least two weeks in which only psychotic symptoms (delusions and hallucinations) are present. However, a major mood episode (depression or mania) is present for the majority of the total duration of the illness. Once the psychotic symptoms overshadow the most part of the total duration of the illness, the diagnosis leans towards schizophrenia. Also, schizophrenia requires 6 months of prodromal or residual symptoms; schizoaffective disorder does not require this criterion. (2)

Major depressive disorder with psychotic features - These patients only experience psychotic features during their mood

episodes. On the other hand, schizoaffective requires at least 2 weeks in which there are only psychotic symptoms (delusions and hallucinations) without mood symptoms. Patients with MDD with PF do not meet criterion A of schizoaffective disorder. (2)

Bipolar disorder - Patients with bipolar disorder with psychotic features only experience psychotic features (delusions and hallucinations) during a manic episode. Again, schizoaffective requires a period of at least 2 weeks in which there are only psychotic symptoms without mood symptoms. Psychotic features in bipolar disorder do not meet criterion A of schizoaffective disorder. (2)

People with schizoaffective disorder generally respond best to a combination of medications, psychotherapy and life skills training. In some cases, hospitalization may be needed. Long-term treatment can help manage the symptoms. The medical treatment usually includes antipsychotics, mood-stabilizers, antidepressants, depending on the type and severity of symptoms and whether the disorder is the depressive or bipolar type. Antipsychotics especially include paliperidone, but risperidone, olanzapine, quetiapine, ziprasidone, aripiprazole, and haloperidol can also be used.

As with most mental disorders, schizoaffective disorder is best managed by a multidisciplinary approach, including nurses and pharmacists, and clinicians that practice close interprofessional communication. Pharmacotherapy, psychotherapy, skills training, and vocational training work together to create a holistic treatment plan.

The prognosis for people with schizoaffective disorder depends on the individual's compliance with prescribed medication, the number of episodes, the persistence of psychotic symptoms as well as the emotional support of their families.

CASE PRESENTATION

This case refers to a female patient, C.R, aged 37, from the urban area, who is brought by the police to the ER of the Socola" Institute of Psychiatry, on 4.10.2021, with the following symptoms: psychomotor agitation, emotional lability, mood swings, delusions of prejudice and persecution, impulsive behavior and aggressiveness. According to the police, the patient tried to stab her father with a knife and he was admitted to ICU. The patient refused to sign for the admission, and therefore her admission was decided by a committee.

HISTORY OF PRESENT ILLNESS

This is the fourth admission to Socola" Institute of Psychiatry.

- The first admission was in February 2010 (16 days): the diagnostic was Panic disorder aggravated by recent mourning (grandmother) and the treatment was Mirtazapine 30 mg/day, Valproic acidum 500 mg/day.
- The second admission was in April 2010 (2 months) with the diagnostic of Severe depressive episode and the treatment with Quetiapine 400 mg/day, Sodium Valproate 900 mg/day.
- The third admission was in December 2010 (1 day) the diagnostic of Schizoaffective disorder, the treatment with Quetiapine 600 mg/day, Depakine (valproic acidum) 500 mg/day.

The patient lives with her parents, in urban area. She is unmarried and has no children. She graduated high school and worked as an art teacher, but at the moment of admission, she was unemployed. The patient is a smoker,

she drinks alcohol occasionally and does not use any psychoactive drugs. According to her mother, the first signs appeared 12 years before, when the patient started "seeing things in a distorted way". She sought her parents' help and went to the doctor and the psychologist. For 6-7 years, until 2020 she wouldn't go out alone and she would always ask for her mother's presence. She used to have a normal relationship with her parents, but in September 2020 she began to accuse them of going through her things and controlling her life. She started to act violently towards them and did not want to accept a dialogue with them. In April 2021 moved out of the house, but in September 2021 lost her job since she didn't attend the teacher certification exam and therefore she moved back with her parents. She continued blaming them for her problems and kept on accusing them of violating her intimacy. During all that period she refused to accept any treatment.

PHYSICAL EXAM

It did not lead to any pathological findings.

PSYCHIATRIC EXAM

Appearance and General Behavior:

Attitude: partially cooperative, aggressive behavior, psychomotor restlessness.
Clothing: neat, good hygiene status.
Voice: diminished verbal flow, voice of medium tonality and decreased intensity.
Look: establishes and maintains visual contact with the examining physician.
Facies: hypomobile.
Mimics and Pantomime: decreased gestural activity.

Cognitive functions:

Sensation: hyperaesthesia, irritability, irascibility.
Perception: she denies the presence of hallucinatory phenomena.
Attention: spontaneous and voluntary hypoprosexia, marked distraction, inability to concentrate.

Memory: selective evocation hypermnesia for events related to the patient’s personal life.
Thinking: disorganized, accelerated rhythm, suspicion, interpretation, delusions of persecution and prejudice ("I am afraid that my parents will go through my things", "my father sexually assaulted me").
Imagination: bizarre

Affective and motivational functions:

Mood: negative hyperthymia, emotional lability, increased anxiety.
Aggressive behavior and negative emotions towards the family.
Feelings: inadequate.
Passions: insufficiently structured.
Motivation: delay in initiating activities, indecision
Instincts: eating-diminished, preservation-aggresiveness, sexual-diminished, social-isolation.

Executive functions:

Volition: hypobulia
Motor activity: low energy, fatigability.
Verbal activity: disorganized speech, tangentiality.
Behaviour: impulsivity, bizarre behavior.
Sleep: mixed insomnia.

Judgement and Insight:

Conscience: orientation in space, time, and person preserved.
Insight over illness: absent.
Intellect: in accordance with educational background.
Character: inappropriate attitude.

Psychological examination: manic episode with psychotic symptoms, emotionally unstable personality, integrative and relational

deficiency, low impulse control, psychic instability, aggresivity, delusions of persecution and prejudice.

POSITIVE DIAGNOSIS: Schizoaffective disorder, mixed type

The patient was irritable, suspicious, interpretative, anxious, emotionally labile, and had a tangential speech. She declared that her father sexually assaulted her, but when asked, she could not substantiate her claims. Also, she often expressed her concern that her parents would go through her things and steal her money while she was absent.

During hospitalization, the patient was under supervised treatment. She was given Quetiapine 600 mg /day, Orfiril long 1000 mg/day, Lorazepam 1 mg/day, Clonazepam 2mg/day. The next day she refused to take the Orfiril, therefore it was replaced with Carbamazepine 800mg /day.

The following days the patient's evolution was stationary and declared that her thoughts have cleared. However, she did not consider that there was a reason for her staying in the hospital. Also, she did not agree that her mother or any other relative to receive any medical information about her.

Moreover, she admitted that she did not regret stabbing her father and that she has tried to hurt him before.

Then the Quetiapine was raised to 800 mg/day, but still made no improvement in what the insight was concerned. Therefore, the next step was the prescription of Invega (Paliperidone). At first, 9 mg/day and then 12 mg / day. However, the patient declared that she felt better with the old treatment and stated that the new one (Paliperidone) "took her personality away".

During her last days of hospitalizasion the patient was calmer, cooperative. She was interested in how her father was feeling and finally accepted having a dialogue with her mother. On the other hand, although she understood that she had some problems, she claimed that she refused to accept that she was "mentally ill". Therefore, the patient asked to be discharged on 22.10.2021, after 18 days of hospitalization.

DISCUSSIONS

This case is representative for the evolution of schizoaffective disorder and also for the lack of insight patients diagnosed with this disorder usually have.

The patient was first diagnosed with a panic disorder which appeared after the death of her grandmother, whom she was very fond of. However, according to her mother, she began to act strangely long before that event. Then, a few months later was diagnosed with a severe depressive episode and then with schizoaffective disorder. During all this time the patient tried psychotherapy and was prescribed various medication schemes.

The particularity of this case is represented by the fact that although the disorder was diagnosed relatively early, the patient was not compliant and consequently there was no favorable response to the treatment. Moreover, she benefited from her family's support, but due to her delusions and distorted perception there was a permanent conflict between them.

During her last hospitalization she was irritable, hardly cooperative, anxious, suspicious, delusional, emotionally labile and had no critical view over her disease. The relationship with her parents has been very difficult since her disease first started due to

the fact that she held them accountable for all the problems she encountered.

During her stay in the hospital doctors explained what her diagnosis meant and made efforts trying to convince her to accept her disease and the treatment. Although a slight improvement was observed, the patient still did not consider she had reasons to remain any longer, despite the doctors' recommendations.

CONCLUSIONS

Impairment of insight is considered an important characteristic of psychiatric disorders, including schizoaffective disorder. A great proportion of patients with this diagnosis has either poor or absent insight. Diminished insight is associated with poor treatment adherence and has been linked to a greater risk for relapse of symptoms. When behaviors reach a point that the patient is in danger of harming self or others, hospitalization becomes necessary. One of the goals of short-term hospitalization, including involuntary hospitalization, is to provide a safe setting where a patient has time to develop enough insight to be safely treated in a less restrictive environment. When trying to help patients who lack insight, it is important for physicians to develop trusting relationships with both the patient and the patient's family in order to improve the quality of life of both patients and their families.

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Hebephrenic schizophrenia and the need for an early diagnosis. Case presentation

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ABSTRACT

Schizophrenia is a severe mental disorder that requires lifelong treatment. Early intervention can help control symptoms before other complications occur and can help improve the long-term outlook. There is evidence that pharmacological interventions, when used early and in a sustained manner, can improve the long-term prognosis. Because schizophrenia is difficult to diagnose before the onset of acute symptoms, treatment may be delayed for a significant period of time. In some situations, the symptoms may be evident since childhood, in early-onset, disorganized or hebephrenic type, with a very severe prognosis. Unfortunately, the symptoms of this period often go unnoticed, especially due to the fact that the parents and the child's entourage do not have the necessary informations to notice them. In this context, the question arises whether a form of screening and monitoring of children with early behavioral changes, through teachers, school doctors and psychologists, could lead to early therapeutic intervention, with better long-term results. The present case shows a frequent situation, in which the patient presents at adult age due to an aggravation of the symptoms, which were present since childhood. Due to the delayed intervention, the patient's evolution was marked by frequent relapses and resistance to most of the treatments. The prognosis is a reserved one, emphasizing the importance of implementing methods for early detection of the pathology, since childhood, when an early intervention could have better results.

KEY WORDS:

Schizophrenia, early diagnostic, prognosis.

INTRODUCTION

Schizophrenia is a group of severe mental disorders that have in common symptoms such as hallucinations, delusions, dull affections, thinking disorders, and withdrawal from reality. People with schizophrenia have a wide range of symptoms. In the past, depending on the specific symptoms, five subtypes of schizophrenia were recognized. Due to the widespread overlap of symptoms, these subtypes are no longer considered separate diagnostic categories, but are often considered by many physicians when diagnosing schizophrenia. (1)

Schizophrenia is a chronic mental disorder with an overall prevalence of 0.3% to 0.7%. Although there is no significant difference between the sexes, there is a slight predominance in men. Schizophrenia affects people of all ethnicities. (2)

Criteria for schizophrenia include signs and symptoms lasting at least six months, including at least one month of positive and negative symptoms in the active phase. Illusions, hallucinations, disorganized speech, and disorganized behavior are examples of positive symptoms. Negative symptoms include a decrease in the range and intensity of emotions expressed (affective flattening) and a diminished initiation of goal-oriented activities (abolition). (3)

The development of schizophrenia results from neurotransmitter abnormalities such as dopaminergic, serotonergic and alpha-adrenergic hyperactivity or glutaminergic hypoactivity and GABA. Genetics also play a key role because there is a 46% concordance rate in monozygotic twins and a 40% risk of developing schizophrenia if both parents are affected. The neuregulin gene (NGR1), which is involved in glutamate signaling and brain development, has been implicated, along with dysbindin (DTNBP1), which helps release glutamate and catecholamine O-methyl transferase (COMT) polymorphism, which regulates dopamine function. (4)

There are also several environmental factors associated with an increased risk of developing the disease like abnormal fetal development and low birth weight, gestational diabetes, preeclampsia, emergency cesarean section and other complications at birth, maternal malnutrition and vitamin D deficiency, winter births - associated with a relatively higher risk by 10%, urban residence - increases the risk of developing schizophrenia by 2 to 4%. (4)

One facet of the diversity of schizophrenia is its age of onset. The incidence of schizophrenia peaks between 10 and 25 years for men and between 25 and 35 years for women.(5) Another peak, especially among women, occurs in the middle of life, after the age of 40. In a small group of people, schizophrenia begins after the age of 60. Finally, the onset of schizophrenia can occur in childhood or adolescence, usually after the age of 5 years. (6)

Adolescence and early adulthood are the peak periods of the incidence of major mental illness. A large body of evidence now suggests that early intervention may reduce the duration of untreated disease and improve treatment outcomes for people in the early stages of a major psychotic disorder. Improved detection of early signs and symptoms that occur before or during this period has a great potential to improve long-term results. (7)

Most individuals experience a period of prodromal symptoms before the diagnosis of schizophrenia. Prior to the onset of psychotic symptoms, individuals may experience

changes in knowledge, behavior, and function. Therefore, it is crucial to identify populations at high risk for schizophrenia in order to initiate early intervention. (8) It has been found that it is more profitable to invest in prevention than in intervention. Until now, psychiatry has focused primarily on tertiary prevention, with the sole purpose of treating established diseases to prevent deterioration. On the contrary, due to primary prevention, the incidence of some diseases could be minimized and the risk factors could be reduced. (9)

We present a suggestive case regarding the importance of an early referral to a psychiatrist, from the first onset of symptoms. The case captures the frequent situation in which the patient, even if he declares behavioral changes that appeared many years before, presents for consultation after a period of marked delay, on one hand making it more difficult to establish the diagnosis and on the other hand missing the optimal period for the therapeutic intervention.

THE REASONS OF THE PSYCHIATRIC ADMISSION

A 39-year-old from Iasi presents himself at the emergency room of "Socola" Institute of Psychiatry Iasi in February 2022 in a psychiatric emergency accompanied by his mother (legal guardian) for a symptomatology objectified by psychomotor agitation, marked anxiety, interpretativity, suspicion, fragmented sleep, reduced communication, disordered thinking, delusional-hallucinatory behavior, behavioral stereotypes, anhedonia, apathy, difficulties in integration and adaptation in the socio-familial environment with a tendency to social isolation.

PERSONAL PATHOLOGICAL HISTORY - avitaminosis B, malnutrition, testicular ectopia, sinusal tachycardia.

HEREDOCOLATERAL ANTECEDENTS - insignificant for the psychiatric pathology.

LIFE AND WORK CONDITIONS - the patient is a high school graduate, has never worked, and his income consists of the disability pension (he is the holder of a disability certificate).

MEDICAL HISTORY

The patient has 70 previous hospitalizations within the Institute of Psychiatry, the first presentation in 2003 accompanied by his mother in the emergency room for a symptomatology objectified by depression, anhedonia, dysabulia, anxiety attacks, intrapsychic anxiety, diminished psycho-cognitive performance , affective flattening, lack of concern for hygiene and its appearance, disordered thinking, disorganized speech and severe deficit of integration and adaptation in the socio-familial environment.

His mother reports that the patient has been an introverted and withdrawn child since childhood, adherent to routine, a fearful nature, with difficulties in relating to peers, but with good school performances until the age of 12. Following a verbal conflict at school, he began to have bizarre manifestations, to isolate himself socially, the school results decreased drastically, despite the efforts of both parents and teachers. The mother states that the boy was not passionate about anything anymore, he could not initiate and complete an activity and that it is a miracle that he managed to finish high school.

THE PHYSICAL EXAMINATION reveals a normal state of nutrition, the patient being of normal weight, with pale and dehydrated skin, the general condition of the patient being influenced within the limits of the basic pathology.

PSYCHIATRIC EXAMINATION

1. Appearance and General Behavior:

- Attitude: seemingly calm psychomotor, partially communicative, cooperative, orientation in space, time, and person preserved
- Clothing: apparently adequate for the hospital environment, poor hygiene
- Voice and thinking: slightly diminished ideo-verbal rhythm, voice of low tonality and reduced intensity, emotionally modulated, disordered speech, in accordance with disorganized thinking
- Look: hypoexpressive, establishes and maintains intermittently visual contact with the examining physician;
- Facies: hypomobile
- Mimics and pantomime: slightly decreased gestural activity

2. Cognitive functions:

- Sensation: slight hyperaesthesia.
- Perception: the patient does not present psycho-productive phenomena such as hallucinations during the last hospitalization
- Attention: spontaneous hypoprosexia manifested by detached
- Memory: fixation hypomnesia, evocative hypermnesia
- Imagination: exaggerated, revealed by the delusional-hallucinatory content

3. Affective and motivational functions:

- Mood: oscillating mood, reduced tolerance for minor frustrations, emotional inversion towards parents with behavioral manifestations, verbal heteroaggression in the socio-familial environment, tendency to social isolation, irascibility, irritability.
- Feelings: indifference, detachment
- Passions: stagnant on the structure of delusional themes
- Motivation: periods of delay in initiating and finishing activities;
- Instincts: eating - diminished (sitiophobia); preservation - denies autolytic ideation; sexual - diminished.

4. Executive functions:

- Volition: hypobulia
- Motor activity: stereotypes, akathisia
- Behavior: inhibited
- Sleep: decreased need for sleep, fragmented sleep, restlessness, mixed insomnia.

5. Judgment and Insight:

- Conscience: orientation in space, time, and person preserved;
- Insight over illness: partially present;
- Intellect: slightly diminished
- Character: shy, withdrawn, introverted attitude towards the examiner; respects the reciprocity of the dialogue

POSITIVE DIAGNOSIS

The following criteria, as outlined by the DSM-5, must be met in order for schizophrenia to be accurately diagnosed:

- The individual experiences two or more of the following for a significant portion of time during a 1-month period. And at least one of these must be (1), (2), or (3):
    1. Delusions
    2. Hallucinations
    3. Disorganized speech (incoherence or derailment)
    4. Completely disorganized or catatonic behavior
    5. Negative symptoms, such as diminished emotional expression
- For a significant amount of time since the disturbance began, level of functioning in one or more major areas (e.g., work, interpersonal

relations, or self-care) is clearly below the level achieved prior to onset.
    - In children or adolescents, there is a failure to achieve the expected level of interpersonal, academic, or occupational functioning.
- Signs of the disturbance continue for 6 months or longer. This period must include at least 1 full month of symptoms that meet the first criteria and may include periods of residual symptoms. During these residual periods, the signs of the disturbance may be manifested only by negative symptoms or by two or more symptoms outlined in the first criteria, only in a lesser form.
- The disturbance cannot be better explained by schizoaffective disorder, depressive or bipolar disorder because either:
    - No major depressive or manic episodes have occurred concurrently with the active-phase symptoms or…
    - If mood episodes have occurred during active phase symptoms, it's been for a minor amount of time.
- The disturbance cannot be attributed to the physiological effects of a substance (e.g., a drug of abuse or medication) or another medical condition.
- If the individual has a history of autism spectrum disorder or a communication disorder of childhood onset, the additional diagnosis of schizophrenia is only made if delusions or hallucinations as well as the other required symptoms of schizophrenia are present for a month or more.

In this case, the following DSM-5 criteria for schizophrenia are met:

- Bizarre, delusional-hallucinatory behavior
- Complex auditory hallucinations
- Mystical-religious ideation
- Disorganized speech and completely disorganized behavior
- Negative symptoms : anhedonia, apathy, hypobulia, difficulties in integration and adaptation in the socio-familial environment with a tendency to social isolation
- Failure to achieve the expected level of academic and occupational functioning (he finished high school with great difficulty, he never worked).

EVOLUTION AND PROGNOSIS

The first diagnosis established during his first presentations was that of atypical depression, being prescribed treatment with Risperidone 4mg /day.

Over the next years, he has developed many other symptoms, including diffuse anxiety, angry outbursts, interpretativity. During his presentations, the diagnosis was changed to schizoaffective disorder, mixed episode. The patient received treatment with Olanzapine 20 mg/day, Valproic acid 1000mg/ day and Nitrazepam 2.5mg / day. The evolution under the treatment was favorable only for short periods of time, the patient presenting decompensations and frequent presentations at the psychiatric emergency room despite a good compliance.

A few years later, he developed new symptoms, such as psychomotor agitation, emotional inversion towards the parents, irritability, irascibility, reduced tolerance for minor frustrations, verbal heteroaggressivity, bizarre, delusional-hallucinatory behavior,

complex auditory hallucinations, mystical-religious ideation, delusional ideation of persecution, poor impulse control, suspicion, interpretability, completely disorganized thinking and speech. The diagnosis was changed into schizophrenia, according to the evolution of symptoms. At the time of diagnosis, the recommended treatment consisted of Risperidone 4mg/day, Valproic acid 1500mg/day and Diazepam 10 mg/day. Due to non-compliance to the therapeutic indications and alcohol abuse that occurred during treatment, the symptoms reappeared. Thus, Olanzapine 20mg/day was reintroduced into the regimen, along with Valproic acid 1000mg /day and Lorazepam 1mg /day, again with disappointing results. Olanzapine was then tried to be replaced with Aripiprazole 15mg /day and after the stabilization of the symptoms with Aripiprazole 400mg / month, but without a good evolution.

Despite the various therapeutic regimens, the patient's condition continued to worsen, with numerous decompensations, being tried, due to the increased resistance to antipsychotics up to that moment, the introduction of Clozapine 600 mg /day, together with Bromazepam 9mg/day, Valproic acid + salts 1500mg/day, Levomepromazine 75mg/day, its condition being slightly improved for a year. The treatment regimen subsequently underwent other changes, with the patient showing minimal improvements over short periods of time with most antipsychotics, despite good compliance. This aspect can be noticed as well after the large number of hospitalizations at the Institute of Psychiatry.

During the last hospitalization, the patient received treatment with Clozapine 500mg/day, Valproic acid 1500mg /day, Levomepromazine 75mg/day and Bromazepam 3mg /day, but with minimal changes in his clinical condition.

The patient's prognosis in this case is a reserved one, as suggested by the modest or even non-existent responses in some cases to the various treatments tried over the years, as well as the periods of therapeutic non-compliance associated with alcohol consumption. In addition, in recent years the deficit of adaptation, integration and relationship in the socio-familial environment has increased significantly, in line with the worsening of certain symptoms such as marked anxiety, disorganized thinking and behavior, interpretability, delusional-hallucinatory behavior and increased tendency to isolation.

DISCUSSIONS

Although DSM 5 presents a new, longitudinal approach to schizophrenia, there are still difficulties and contradictions in making the diagnosis. In DSM IV, schizophrenia was divided into several subtypes: paranoid, hebephrenic, catatonic, undifferentiated, residual.(10) In the hebephrenic or disorganized form, affect shows sustained flattening, becoming shallow or inappropriate; behavior can appear aimless, irresponsible and unpredictable, often with mannerisms; there is a loss of impulses and motivations and goals are abandoned; negative symptoms are predominant; thinking becomes disjointed, rambling or incoherent. There is also a tendency to social isolation and poor prognosis associated with the rapid development of negative features. Hebephrenia can only be diagnosed in adolescents or young adults and when hallucinations or delusions do not dominate the clinical picture.

The peculiarity of the case is represented by the patient's resistance to a wide range of drugs, tried over the years, as well as the existence of symptoms since the beginning of adolescence. In addition, even if according to

DSM-5 the diagnosis is schizophrenia, the patient could be classified in the hebephrenic subtype, in terms of negative symptoms that dominated the clinical picture, disorganized thinking, speech and behavior and the appearance of symptoms, at least from his mother's statements, since childhood. The difficulty in this case is the delay in the presentation to the doctor and the fact that the patient's mother does not provide a greater amount of information about the early onset of symptoms. The importance of more elaborate childhood data lies in the severity of this subtype of schizophrenia, with a more negative prognosis the earlier the onset and the later the treatment is instituted. In the present case, the question is whether a more in-depth assessment during childhood could have detected the pathological changes earlier, with the early introduction of a therapeutic regimen, with possible better results.

A literature search using as keywords "prevention and schizophrenia" would recover very few published papers and studies, compared to a much larger number if the same research is done in other chronic conditions. Information is needed on risk factors in childhood, but only a small percentage of infants and young children are assessed in a standardized way for developmental delays. This translates into late interventions, when more severe forms of schizophrenia or psychosis have developed. In addition, a late intervention in schizophrenia has a greater impact on the costs of the health system, which is obvious in the case of this patient because of the large number of admissions and treatment costs. (11)

The first few years of psychosis are a critical period, as many patients experience substantial cognitive and social impairment. The longer the duration of untreated psychosis, the worse the outcome at 6 months in terms of overall symptoms, overall functioning, positive symptoms and quality of life, as well as a weaker response to antipsychotic treatment. Consequently, in the hope of reducing the adverse impact of schizophrenia on functional outcome, many researchers have highlighted the need to intervene earlier in the development of psychosis, in the "prodromal" phase. There are two main ways to identify individuals as prodromal for psychosis : self-reporting "basic symptoms", including disorders of thinking, language, perception, stress tolerance and social-emotional reactivity or diagnosis of attenuated psychotic symptoms, transient psychotic symptoms or a substantial decrease in social functioning in combination with genetic risk. These criteria define individuals who have a high clinical risk of developing a psychotic disorder, usually schizophrenia, within one year of identification. (12)

Given that the disease develops gradually and that some of the symptoms, such as social withdrawal, apathy, changes in sleep patterns, decreased interest in regular activities, slow thinking, negligence or inappropriate behavior, occur during adolescence, steps can be taken to detect them in time. Even if a definite diagnosis of schizophrenia could not be established from the first manifestations, a close follow-up of children with this type of change, through school medicine doctors or school psychologists, could facilitate an early address to a psychiatrist and, possibly, the establishment of a therapeutic conduct or psychotherapy from the first stages of the disease.

Although there are currently no well-established treatment regimens like there are for adults, pharmacological treatment being

based primarily on the new atypical antipsychotics (risperidone, olanzapine or quetiapine), early psychotherapeutic intervention may be beneficial in the long term. On one hand, the psychotherapist can better monitor the evolution of children with certain suggestive manifestations, guiding them to a psychiatric check-up if they worsen, on the other hand such interventions can help the psychological preparation of children for a better and longer adherence to the treatment, to the awareness of the pathology and its consequences and to a better integration in the socio-familial environment.

CONCLUSIONS

The case illustrates the situation in which the referral to a psychiatrist is delayed, a few years away from the appearance of the first signs of alarm. This is a common situation, caused mainly by the inability of parents or relatives to notice the suggestive changes in time. In the long run, late intervention has both material costs, which affect the country's health system, and social, adherence and response to treatment being more modest, with difficulties of integration and subsequent adaptation in the socio-familial environment. Even if a parenting campaign is costly and difficult to carry out, interventions at school level by training teachers, school psychologists and school doctors could help identify children with early symptoms or early warning signs for psychosis or schizophrenia. A record of these children, followed up regularly by school doctors and psychotherapists, with immediate referral to a psychiatrist in the event of an unfavorable evolution over time, could be an effective method of detecting and treating schizophrenia with onset in adolescence and childhood, with better long-term results.

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The authors declare that they have no potential conflicts of interest to disclosure.

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Amura SG.: Neurotransmitter transportor: recent progress. Ann Rev Neurosci 1993; 16; 73-93.
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