Psychological Aspects in Cardiovascular Patients

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Abstract

Introduction: *Cardiovascular diseases are frequently associated with psychological difficulties, which often aggravate the somatic symptomatology. Broken heart syndrome is a type of cardiac disease with a strong psychosomatic component.*

Objectives: *1) The analysis of the effect of age and gender on the level of depression in cardiovascular patients. 2) The analysis of two case studies of patients with broken heart syndrome, with emphasis on the psychopathological tendencies and the stress factors (acute and chronic).*

Methods: *The paper has two components – a quantitative and a qualitative one. For the quantitative part, the study involved 160 cardiovascular patients, hospitalized at the time. The research design is a cross-sectional one, with two independent variables and one dependent variable, and the statistical procedures included descriptive statistics and factorial ANOVA analysis with two factors. The second part of the paper consists of two case studies, of patients with broken heart syndrome, who have been assessed by means of clinical observation, clinical interview and psychometric instruments.*

Results: *The multivariate statistical measurement revealed a significant effect on the depression level concerning gender, an insignificant effect concerning the age variable and a significant effect of both factors when they are included together in the analysis. The qualitative analysis of the case studies indicates the pre-existence of psychopathological tendencies, acute stress factors (recent significant losses) and chronic stress factors in the personal history of the patients.*

Conclusions: *Women suffering from cardiovascular diseases, especially those under the age of 65, are more prone to experience high depression levels and sometimes psychological factors can even enable a heart disease, as in broken heart syndrome, which sustains the need for psychological support in cardiovascular pathology.*

Keywords: cardiac disease, psychopathology, stress factors, age, gender

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I. Introduction

Depression in cardiovascular diseases

As the interaction between mental health and somatic disorders has been studied and demonstrated, the World Health Organization (WHO, 2014) highlights that a more integrated vision of these two aspects of human health should be considered. A mental health disorder is usually associated with discomfort and suffering, in social, professional, or other relevant domains (APA, 2016). Both mental health disorders and somatic ones must have similar strategies for their management, control and prevention, because they have multiple similarities, as they both (WHO, 2014):

- are chronic disorders, which need long-time management;
- have common determinants, such as genetic, biological, social, behavioral and environmental factors;
- have negative consequences on individual and social level;
- are causes of disabilities, which can have a high socioeconomic impact;
- are interdependent and usually coexist.

Cardiovascular disease is a somatic disorder, but its development, as well as its evolution could be influenced by psychological factors. The study of depression in cardiovascular patients has been constantly gaining importance and the use of antidepressants in this medical condition has grown over the time (Czarny et al., 2011), although the efficacy of antidepressants, compared to placebos, has become more and more difficult to be demonstrated in modern studies, which attracted a rising number of critiques of the psychopharmacological approach for depression (Stahl, 2018). However, a balanced view of this matter is required and the decision should be carefully taken by the psychiatrist, based on the consideration of all clinical symptomatology, especially in patients suffering from other medical conditions besides depression. In this context, psychotherapy could also be an important tool in the management of depression in cardiac patients, especially concerning those who do not tolerate antidepressants or prefer a non-pharmacological approach, and it could also be used in order to enhance the benefits of medication (Tully & Higgins, 2014). Thus, the identification of depression symptoms in cardiac patients is highly important, NHFA (National Heart Foundation of Australia) recommending screening for depression in these patients (Colquhoun et al., 2013). The presence of depression could double the risk of a second cardiac event in cardiovascular patients and could be a risk factor for a negative prognostic in patients recovering from a heart attack (Stansfield & Fuhrer, 2002). Medical meta-analyses suggest a cardiovascular risk that is higher by over 50% in patients with clinical depression or with depressive symptoms, compared to control groups (Shah et al., 2014).

The role of age and gender in cardiovascular patients experiencing depression

The relationship between cardiovascular risk and prior depression appears to differ from men to women, Ferketich et al. (2000) showing that, in women, higher levels of depression have been related to non-fatal cardiac events, but not to fatal ones, whereas in men, they have been related to both of them. Previous studies have shown a high prevalence of depression among the elderly, irrespective whether there was a clinical or subclinical form (Sozeri-Varma, 2012; Thomas, O'Brien, 2009), so the age could count as an important factor in experiencing this pathology. It has also been noticed that the self-report of depressive symptoms tends to decrease with age, but not when depression is assessed by a clinician (Brodaty et al., 2005), so the elderly might not be fully aware of their depressive mood. However, the clinician could also overestimate the level of depression in the elderly, so it is important to further investigate depression and the relation it has with age. In order to better understand and find specific psychological interventions for depression, it is important to analyze how it tends to change with age.

Gender could also influence the severity of depression, as in cardiovascular studies Shah et al. (2014) observed an underrepresentation of women compared to men, although it is known in medical practice that women have higher mortality rates compared to men, according to the authors. Younger women with coronary disease have a higher level of depression compared to men and older women, as depressive symptoms represent a predictor of mortality in women under 55 years old, but not in men or in elderly women (Shah et al., 2014). Depression is more common in women (Cyranowski et al., 2000, Ford & Erlinger, 2004), with the scientific literature describing depressive disorders that occur only in women, such as premenstrual dysphoric disorder, which is listed in DSM 5 (APA, 2016), as well as premenopausal depression (Freeman et al., 2014) and post-partum depression. The risk of developing depression during their lifetime is two times higher in women compared to men (Kuehner, 2017) and women are also more likely to experience subclinical forms of depression and anxiety (Altemus, Sarvaiya & Neill Epperson, 2014). Although the reason

depression is more prevalent in women is not fully understood, hormonal changes, cerebral structure differences, the response to stress factors, as well as gender stereotypes, social roles and expectancies have been considered (Albert, 2015; Altemus, Sarvaiya & Neill Epperson, 2014). Men with depression are more likely to display different concerns than women, particularly in milder forms of depression, as they rarely talk to their doctor or psychologist about feelings of sadness or hopelessness, being more focused on professional stress, decrease in professional or social functioning and having the tendency to display anger, irritability, or addictions when depressed (Ogrodniczuk & Oliffe, 2011). Ford and Erlinger (2004) found that, although until the age of 65 women experience higher prevalence of depression, after this age, the frequency of depression decreases in both genders and the gender gap closes. However, the evolution of depression in men remains unclear, since an one of the results of their research was that in single men the prevalence of depression increased with age.

In order to identify and lower the depression levels in cardiac patients, a psychologist may be part of the treatment team and perform the activities of a clinical psychologist in medical settings, such as clinical evaluation and intervention, education and research (Stanton et al., 2007). Hypertension, diabetes, dyslipidemia, smoking, excessive drinking and the lack of physical activity are considered risk factors of severe cardiovascular diseases (Martinez-Garcia et al., 2018), and a psychologist could help the multidisciplinary team in the management of these risk factors. A clinical psychologist in a medical setting could bring the psychological and social perspectives to a particular medical case and help the patient understand his psychological needs and find healthier coping mechanisms concerning difficult emotions and stress factors.

The broken heart syndrome

A particular form of cardiovascular disease is stress-induced cardiomyopathy, also named Takotsubo cardiomyopathy or the broken heart syndrome, a temporary cardiac condition which appears as a reaction to an acute emotional stress factor (Virani et al., 2007). It is very similar to a myocardial infarction and it implies the apical ballooning of the left ventricle, without a coronary stenosis visible in angiographic investigations. One explanation for its development lies in the high reactivity of the sympathetic nervous system and heart reaction to a high level of stress hormone, but the exact physiological mechanism is not completely understood, as the induction of coronary vasospasm by acetylcholine or ergonovine has yielded mixed results (Virani et al., 2007; Scally et al., 2018).

Despite its acute nature and the total rehabilitation, in the vast majority of the cases, without proper treatment, the mortality risk is a high one, sometimes comparable to the mortality risk in myocardial infarction (Tornvall et al., 2016) and therefore, the beta blocker treatment often becomes a long term one, as the medical doctors prefer to prevent a potential future fatal cardiac disease due to stress hormones. Although this pathology was initially considered an acute one, without a long-term impact, recent studies indicate a high risk for the patients with this pathology to further develop a chronic cardiac dysfunction (Scally et al., 2018).

Nevertheless, there has been noticed a frequent association of this syndrome with neurological and psychiatric disorders (Buchmann et al., 2019). Although a recent major stress factor plays the main role in the etiology, there are studies which consider chronic stress prior to the event as a risk factor, as major stress is a trigger, which would be another explanation for its association with prior psychiatric disorders (Summer et al., 2010).

II. Objectives and hypotheses

This study considers the topic of depression in relation to gender and age in Romanian cardiovascular patients, as well as the topic of broken heart syndrome, as, to our knowledge, the available literature dedicated to this topic on Romanian patients is scarce. It was also noticed that international literature highlights the underrepresentation of women in cardiovascular studies, the fact that they are more prone to depression and the mixed results regarding depression in elderly people. Therefore, this study aims to establish whether, in Romanian cardiovascular patients, the level of depression varies according to age and gender categories and also whether there is a variation produced by a combined effect of both age and gender categories.

Moreover, the literature on broken heart syndrome has validated this pathology, but epidemiological studies, as well as case studies represented in the scientific literature are presented mainly form a medical point of view. As a result, we aimed to describe two case studies from a clinical psychology perspective, as it is useful for psychologists to find interventions in these cases, as well as prevention strategies.

For the quantitative component of our study, we established the following hypotheses:

H1. There is a supposition that there is a statistically significant variation of the level of depression according to the age category.

H2. It is inferred that there is a statistically significant variance of the level of depression according to gender category.

H3. It is supposed that there is a statistically significant variance of the level of depression according to the combined effect of age and gender categories.

For the qualitative component of the study, we had the following research questions:

Q1. Which are the psychopathological symptoms in our patients?

Q2. Which are the acute and chronic stressors in our patients?

III. Methods

Research design and variables

The research design is a cross-sectional one, with the following variables: independent variables (gender, age category) and a dependent variable (level of depression).

Participants

The sample size in this research was established after a power analysis for the two-way ANOVA statistical test with two factors, at an alpha error probability of 0.05 and a medium estimated effect size of 0.25. In *Figure 1* there can be observed the graphical representation of the power tendency. In order to obtain an acceptable power of 0.8, the total sample size has to be of at least 158 participants.

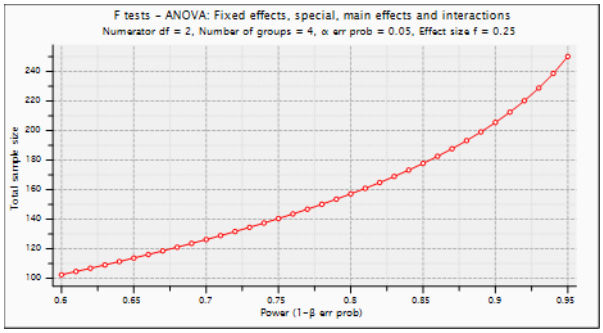

Figure 1

In order to comply with these suggestions, our study had a total number of 160 participants, 54 men and 106 women, who were cardiovascular patients referred by their physician to a psychologist. Of them, 79 participants were over 65 years old and 81 participants were under the age of 65. They all had hypertension and at least another cardiovascular diagnostic and were hospitalized.

Instruments

Beck Depression Inventory II (Beck et al., 2012) is one of the most widely used instruments for depression evaluation, as it indicates the presence and the severity of symptoms, rather than being a diagnostic tool. BDI II is the most recent version and it has been developed after over 30 years of research, starting from the former versions, BDI and BDI IA, and it has been translated and adapted on Romanian population.

Procedures

The patients were referred by their physician to a psychologist and they willingly participated in the evaluation process, after having given their informed consent for both clinical evaluation and the use of the results in a research project, under confidentiality terms. The data collection process was held in a hospital environment, with the approval of the ethical committee of the institution. The clinical evaluation was a complex one, implying both qualitative and quantitative methods and was followed by supportive counselling intervention; however, for this study we analyzed only the variables considered relevant for our objectives.

IV. Results

Statistics

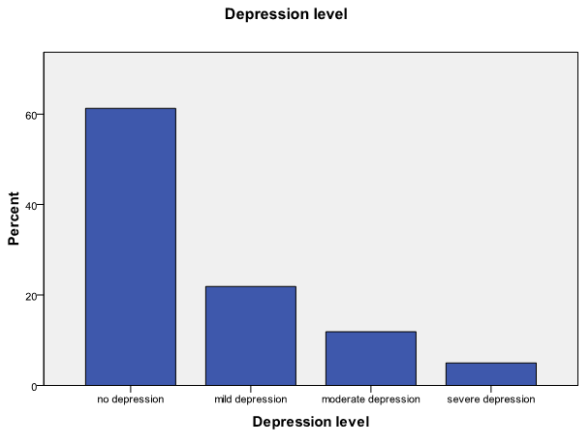

Figure 2

In order to observe how the depression level varies in cardiovascular patients, a descriptive analysis of the BDI scores could be a helpful tool. The participants' level of depression was established by the cut-off scores mentioned in the Beck Depression Inventory Manual. There can be noticed that the majority of patients did not reach the cut-off score for clinical depression (61.3%). The findings indicated that 38.7% percent of the patients had clinically significant depression, irrespective whether it was mild, moderate or severe depression. The exact distribution of the depression severity is shown in *Figure 2*.

In *Figure 3*, there can be noticed a more detailed distribution of the depression level, which illustrates some interesting tendencies concerning the depression level in men and women, differentiated according to the age category. These aspects are further analyzed in the *Discussions* section below.

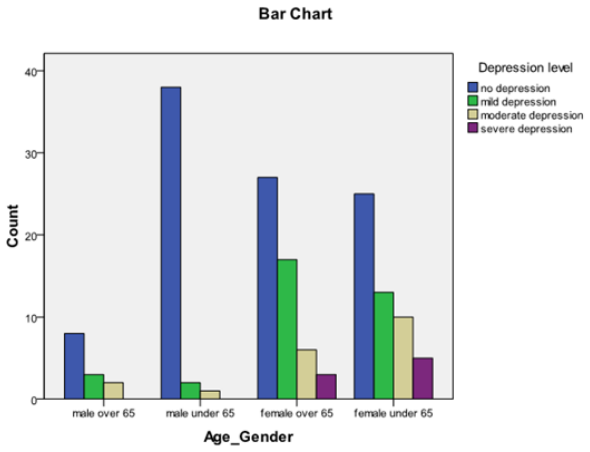

Figure 3

After having conducted the descriptive statistics procedures, it was observed that the distribution of Beck Depression Inventory scores did not have a normal pattern. Although this is a common situation, as the instrument is a clinical one, so there is a small probability to obtain a normal distribution of clinical depression severity, in order to perform the multivariate procedures previously intended to, the distribution had to be normalized by statistic procedures. Therefore, we subtracted the root square of the actual scores. *Table 1* presents the descriptive statistics of the quantitative variable, both for the actual scores and the normalized ones.

In *Figure 4* are presented the Normal Q-Q plots for both situations and there can be noticed a distribution that follows the normal expected one only after the implementation of statistical procedures. *Figure 5* also shows a more normalized distribution after the procedures, as well as the elimination of extreme values. These premises sustain the use of multivariate statistics.

	BDI		**SQRT_BDI**	
	Statistic	Std. Error	Statistic	Std. Error
Mean	12.89	.621	3.42	.087
Std. Deviation	7.855		1.103	
Skewness	.836	.192	.143	.192
Kurtosis	.373	.381	-.474	.381

Table 1

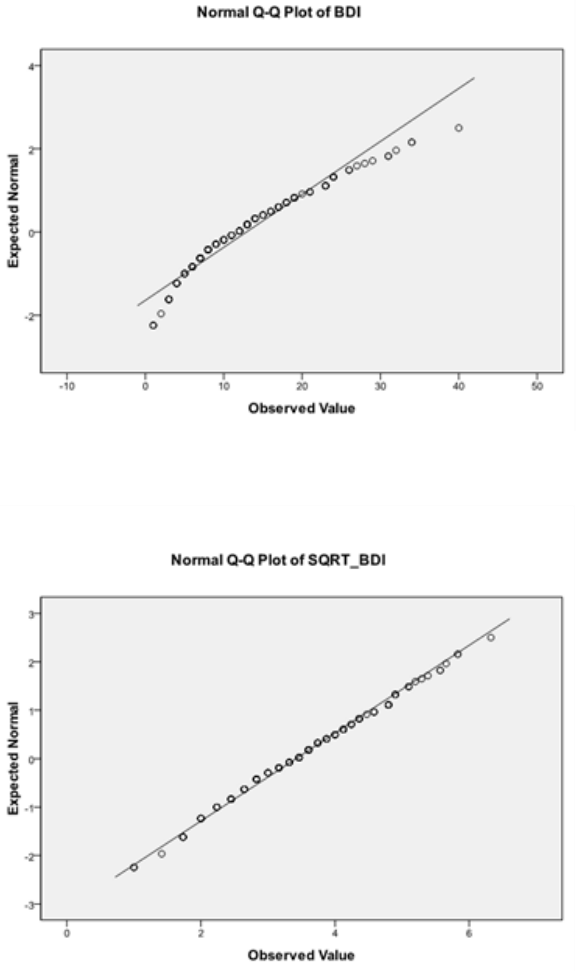

Figure 4

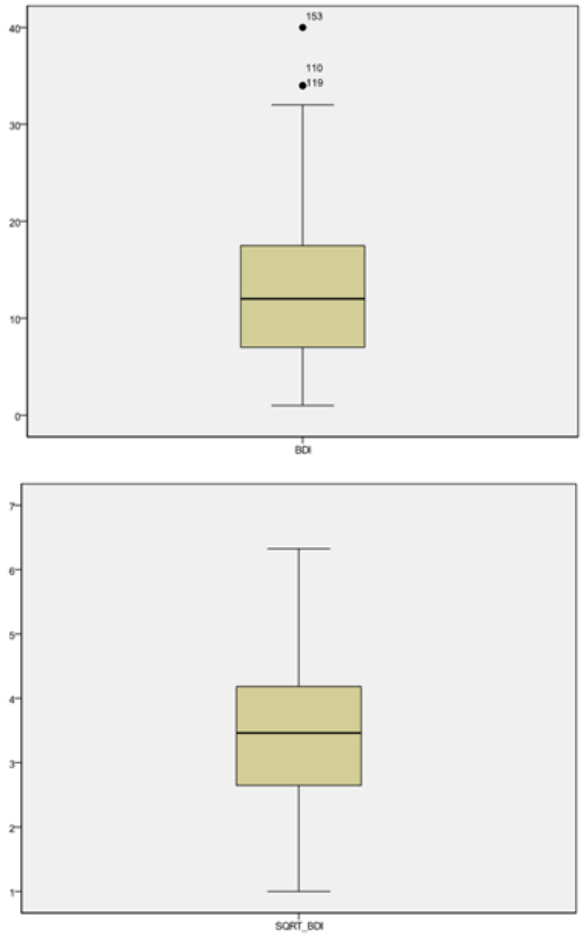

Figure 5

Table 2 presents, in a synthetic manner, the descriptive statistics for BDI scores after the application of statistical procedures.

		Mean	Standard deviation	N
Gender	Male	2.76	0.943	54
	Female	3.75	1.030	106
Age	Over the age of 65	3.53	0.963	79
	Under the age of 65	3.31	1.220	81
Male	Over the age of 65	3.19	0.971	17
	Under the age of 65	2.57	0.874	37
Female	Over the age of 65	3.63	0.947	62
	Under the age of 65	3.93	1.123	44

Table 2

In order to test the research hypotheses, a two-way ANOVA test, with the 2 factors: gender and age, was used. Levene's test has a p value of 0.31, which allows us to accept the homogeneity of the variances. *Table 3* illustrates, in a synthetic manner, the results of inferential statistical analyses, which reveal a statistically significant global effect (F=14.424, p<0.01, partial eta squared= 0.217), with a statistical significant main effect of the gender factor (F=36.152, p<0.01, partial eta squared = 0.188), but not concerning the age factor (F=0.009, p=0.925). The interaction between the two factors is a statistically significant one, but the effect size is low (F=7.112, p<0.01, partial eta squared = 0.044). Thus, only the first and the third hypotheses are sustained by the data. *Figure 6* shows the graphical representation of our results.

	Df	F	Sig.	Partial Eta Squared
Corrected model	3	14.424	0.000	0.217
Gender	1	36.152	0.000	0.188
Age	1	0.009	0.925	0.000
Gender*Age	1	7.112	0.008	0.044

Table 3

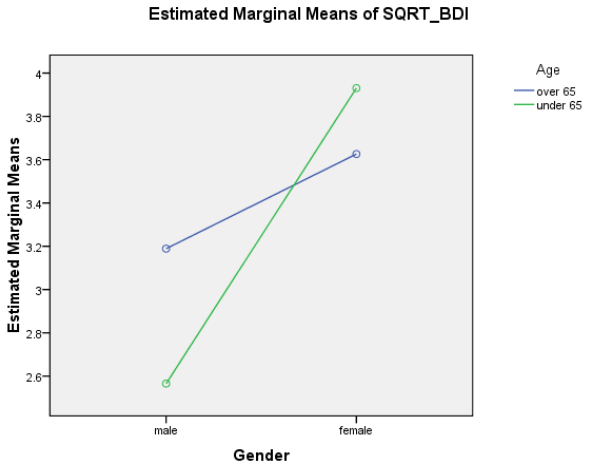

Figure 6

Case studies

The motivation for psychological evaluation

Case study 1

Woman, 58 years old, has graduated university studies, without prior important medical affections, was

referred by her physician to the psychologist, as the established diagnostic was unspecified cardiac disease, but the medical investigations could not indicate a precise physiological cause and the patient seemed quite restless during the medical examination.

Case study 2

Man, 56 years old, university studies completed, with personal history of ulcers, in medical observation and under treatment, without pre-existing cardiovascular disease, with an active lifestyle, with regular physical exercise, seeks medical evaluation, which concludes the diagnostic of cardiomyopathy. However, his physician also requests psychological evaluation during hospitalization, as this problem was an acute one and appeared after recent psycho-traumatic events.

Instruments

- Clinical observation;
- Clinical interview;
- Beck Depression Inventory (Beck et al., 2012) was used to evaluate the level of depression;
- State Trait Anxiety Inventory (Spielberger, 2007) was used to evaluate anxiety as a state and as a trait. In this research, anxiety as a state was measured in reference to the previous week, as anxiety as a trait explored more stable anxious tendencies.
- Millon Clinical Multiaxial Inventory (Millon et al., 2010) was used only in the first case, as other methods and instruments have not provided sufficient information. In a clinical setting, the information required for a psychological evaluation has to be rapidly obtained, as the patient is available for a limited number of psychological sessions, as opposed to psychotherapy, in which the information comes at the right moment, when the patient is ready to process it. Therefore, when faced with a patient less open or less insightful on his emotions, the clinician must use more complex instruments, such as this one.

Q1. Which are the psychopathological symptoms in our patients?

Case study 1

During the psychological evaluation, the patient reported angina, dyspnea, and episodes of psychomotor agitation, associated with high psychological distress, with high difficulty to relax, with a strong need for various activities. She did not seem concerned about her psychological symptoms, but was preoccupied by the medical aspects. Although she did not spontaneously reveal the information, during the semi-structured clinical interview she reported that her husband died one month before and that the symptoms appeared only after the major loss.

At the Beck Depression Inventory, she scored 3, which suggests the absence of clinical depression. At State-Trait Anxiety Inventory she had a raw score of 25, with a corresponding T score of 40 at the state subscale, as well as a raw score of 34, with a corresponding T score of 54 at the trait subscale. These results suggest that, although at the more stable component of anxiety there is a slightly raised score, both scores remain in the normal values range, compared to the test manual norms. As the results are not consistent with the relative motor agitation that was clinically observed, a more complex instrument was administered, the Millon Clinical Multiaxial Inventory, which revealed clinically significant scores, but not suggestive for a personality disorder, in the following personality patterns: histrionic (base-rate score of 83), narcissistic (base-rate score of 77) and compulsive (base-rate score of 70). The patient did not present severe personality pathology or severe clinical syndromes, but she had significant scores at the moderate clinical syndromes of mania (base-rate score of 63), and alcohol addiction (base rate score of 65). These results are convergent with the information extracted from the second clinical interview, held after the completion of the inventory. Then, the patient spontaneously mentioned her harmful use of alcohol and admitted that she had a tendency for involving in many activities in order to avoid negative emotions.

Case study 2

In the psychological interview, the patient presented a dysphoric disposition, insomnia, and decline in his interest in everyday activities and socialization, in contrast with his extrovert personality, tiredness and attention deficits. The clinical interview revealed that his sister died two months before, of neoplasm, after a long sufferance. In the same period of time, few weeks before his sister's death, his divorce process had come to an end. It was hard for him to accept the decision of the divorce, as he considered that he and his wife could have done more to save their marriage. However, his wife did not have the same opinion. In his personal antecedents, it was also revealed that his first wife died when he was 30 years old. He raised, with the help of his sister, their (then) six years old daughter. This aspect was a bonding element between him and his sister and he had also been very grateful for her help. Therefore,

he had feelings of guilt and was blaming himself for not having insisted more that his sister took her illness more seriously. The loss was, therefore, even more hurtful for the patient.

The psychometric evaluation revealed, when using BDI, a score of 16, which suggests the presence of low intensity clinical depression. The State-Trait Anxiety Inventory revealed a raw score at the state component of 42, which is correspondent to a T score of 58, which suggests a rise in anxiety, but in normal range. Correlating these aspects with the depression level and with the recent loss, we can conclude that these scores indicate the level of distress that the acute events brought upon. The trait component of anxiety had a raw score of 52 and a corresponding T score of 72, which indicates a stable anxiety symptomatology, above the normal limits. The personal history of the patient sustains this result, as he mentions frequent psychosomatic reactivity in stressful situations at work, together with a stable tendency towards worrying in everyday situations and persistent difficulties in relaxing, even during holidays.

Q2. Which are the acute and chronic stressors in our patients?

Table 4 synthesizes the acute stress factors which have recently appeared in the patients' lives, as well as the chronic stress factors.

	Case Study 1	**Case Study 2**
The trigger/ the acute major stress	• The death of her husband.	• The death of his sister; • The divorce.
The chronic stress/ adverse experiences from personal history	• A prior abusive marriage, with frequent conflicts with her first husband, and excessive use of alcohol in both partners; • Highly stressful professional activity for approximatively 20 years, with high responsibility; • Extremely high perfectionism, with a tendency for establishing standards that are hard to reach, rooting from her childhood; • A history with problematic use of alcohol, with periods of abusive consumption, on an everyday basis, and in high quantities.	• Difficulty in healthy coping with stressful situations at professional level, and the constant tendency for excessive worrying; • Extremely stressful situations at work in the past two years, in which he constantly felt under extreme pressure from his superior and he felt threatened to be held legally responsible for some illicit activities done by his superior; • Difficult relationship with his wife, with frequent conflicts during the entire marriage, which became even more frequent and intense during the last year of their marriage; • The death of his first wife in a car accident when he was 30.

Table 4

V. Discussions

In this study we sought to investigate the effects age and gender have on the variation of the level of depression in Romanian cardiovascular patients. Apart from contributing with valuable information in the study of depression in cardiac patients, this research could also represent a base for conceiving prevention and intervention strategies for specific populations.

Our results have some practical implications, as the effect of gender on depression level appears to be a statistically significant one, with women suffering more severe levels of depression. Thus, women with cardiovascular diseases should be monitored by their physicians and possibly screened for depression. Women tend to have higher levels of depression, as previous studies have showed (Cyranowski et al., 2000; Ford & Erlinger, 2004; Kuehner, 2017), in our study severe depression occurring only in women, with more severe and moderate depression cases in women under 65, compared to women over 65 years of age. The effect of age in cardiovascular patients does not appear to be a significant one, which suggests that age should not be a criterion for offering mental health support to

cardiovascular patients. However, age could be a criterion, when, in addition, gender is considered, as the effect of gender and depression is statistically significant. The depression level is the highest in women under the age of 65, so they should be primarily screened for depression and oriented to a psychologist or other mental health professional, as they could be at greater risk. Moderate and mild depression were present in a larger proportion in women, compared to men. Men tend to display lower levels of depression, especially those under the age of 65. This highlights the need for offering support to younger women, yet without neglecting older women's mental health.

Moreover, we observed that 38.7% of the researched patients presented depressive symptomatology with clinical significance, which we consider to be rather high in number, which sustains the necessity for mental health support interventions in cardiac patients. As mentioned in the scientific literature, there is a continuous need for research in the field of mental health disorders which appear in comorbidity with general health ones, such as cardiovascular conditions, as they affect the patients' quality of life and can influence the somatic pathology (Ruo et al., 2003; Colquhoun et al., 2013).

Another aim of this study was to present case studies of patients with broken heart syndrome. In the first case study, our clinical evaluation revealed psychological difficulties that the patient held hidden under her apparently perfect image. Although she seemed a well-adjusted person, without depressive or anxious reactions following the death of her husband, there could be noticed a proneness towards desirability, together with a personality configuration with histrionic, narcissistic and compulsive tendencies. This configuration indicated that the patient needed to show a good image and to cover any suffering, by taking care of her body image, by involving in many activities and in alcohol consumption, as revealed by her significant scores on maniacal syndrome and alcohol addiction scale. These behaviors became ways of escaping from the hurtful reality and possibly laid a foundation for the broken heart syndrome to appear. In the second case, although the patient was more aware of his emotions and he expressed depressive and anxious feelings towards the loss, there could be noticed stable tendencies towards anxiety, which we consider the foundation on which trigger events facilitated the development of the cardiac disease. Therefore, our findings are consistent with the scientific literature which emphasizes the role of both acute and chronic stress in the onset of broken-heart syndrome (Summer et al., 2010), as in our patients' case, there could be noticed both acute stress factors and adverse factors in the personal history. Also, as shown in other studies (Buchmann et al., 2019) in both cases we identified pre-existing psychopathological aspects.

The main limit of the case study approach consists in its low possibility for generalization. However, as the problem of broken heart syndrome is not a frequently studied one in the psychological approach, the first step consists in analyzing case studies and deriving hypotheses that are yet to be verified. One limit of the quantitative component of the study derives from its cross-sectional design, which does not enable causal explanations. Future research should take into consideration longitudinal designs, in which we can observe the evolution over time of both cardiac disease and depression severity in our patients. As such research could imply high costs and resources, the participation of psychologists in national studies held in medical settings, as well as accessing national or international funding could be considered valid solutions. Other limitations stem from not including the marital status into our analysis and from the lower number of male participants. Therefore, future research should further investigate depression in men suffering from cardiovascular diseases, especially as the literature highlights possible differences between men and women regarding the manifestations of depressive symptomatology.

VI. Conclusions

In cardiovascular pathology, women are more prone than men to experience depressive symptomatology. The age alone does not appear to be an important factor which could affect the experience of depression, but when age and gender are considered together as factors, there can be noticed that women under the age of 65 are most likely to experience higher levels of depression. Sometimes, psychological factors can even enable a heart disease, as in broken heart syndrome. The case studies identified pre-existing psychopathological tendencies, such as high persistent anxiety, a personality configuration characterized by high perfectionism, associated with histrionic tendencies and desirability, as well as alcoholism antecedents. These factors, together with chronic stress factors can represent a base for psychosomatic diseases, such as broken heart syndrome, especially when patients are faced with acute stress. Therefore, psychological assessment and intervention in cardiovascular diseases are needed and prevention programs regarding

depression and healthy coping mechanisms with stressful situations should to be implemented from an early stage, in non-clinical populations, in order to diminish the degree in which psychological difficulties would eventually impact the mental and somatic health.

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