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COGNITIVE VULNERABILITY
AND DEPRESSION IN ELDERLY PEOPLE

PhD Dissertation Summary

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Keywords: depression in elderly people; elderly beliefs; cognitive vulnerability; irrational cognitions; stressors in late life.

CHAPTER I. THEORETICAL FRAMEWORK¹

1.1. Introduction

Although many of the elderly people effectively go through the aging process (Rowe & Kahn, 1997), there still is a significant percentage of them suffering from medical or psychological disorders, and the co-morbidity between medical and psychological problems is frequently encountered in this part of the population (Lichtenberg, 1998). This, together with medical treatment and potential side effects, can lead to serious obstacles in terms of diagnosis, prevention and intervention. Depression in the elderly is often overlooked by specialists or the community, and when diagnosed, interventions are superficial or non-existent (Munk, 2007a).

It is also true that at old age many stressors such as changing the social role, the death of relatives, medical problems, deficiencies in cognitive abilities and a number of other changes that have an impact on personal well-being commonly occur (Baltes, 1997). Therefore, old age involves a variety of challenges when it comes to the quality of life (Chui et al., 2015), and depression is one of the most important emotional components related to the conceptualization of this term. These aspects can lead to the idea that depression at this age is more likely caused by the increasing number of unpleasant life situations. However, as Fiske, Wetherell and Gatz (2009) point out in their systematic analysis, not all elderly people are depressed, not even those who face many difficulties.

Although there has been a significant increase in the number of studies on depression in the elderly, there are still many controversies in the literature regarding the diagnosis and evaluation of depression, the etiological factors involved and the most effective methods of prevention and intervention at this age. These issues are all the more important as depression in the elderly brings additional costs to the social and medical sector and additional difficulties on both individual and family levels (Munk, 2007a).

The fact that depression appears to have some differences in presentation at older age than in other age groups (Blazer, 2003; Munk, 2007a) raises the question whether different etiopathogenetic mechanisms could be involved in elderly depression, an important aspect when discussing prevention and intervention. A clearer look at the factors involved in depression at this age helps the process of tailoring the intervention to prevent or treat depression in order to increase efficacy for this category of the population.

It appears that a stress-vulnerability explanatory model (such as a cognitive-behavioral model) can better explain the mechanisms of depression at this age.

1.2. Diagnosis and manifestation of depression in the elderly

Depression in the elderly is not considered to be a distinctive category in the current available diagnostic systems. It is regarded to be a sub-category rather than a distinctive diagnosis. Concerning major depression, the presentation appears to be largely similar throughout life, but subtle differences occur at older age, such as more frequent melancholic symptoms (Parker, Roy, Hadzi-Pavlovic, Wilhelm & Mitchell, 2001).

A major depression prototype as it is defined in the currently available diagnostic systems can be considered. This does not, however, lead to the constraint that the elements in the represented category meet all the prototype's characteristics. This idea is supported by the

¹ Part of the information presented in this chapter (revised text) was included in the following published article: Ștefan, A. M., Băban, A. (2015). Factori psihologici implicați în depresia la vârstnici - un review sistematic. *De la evaluare la intervenție: premise metodologice*. Editura Universitară București, 11-31 (chapter. 1). The authors contributed to the manuscript as follows: Ștefan, A. M. - study design, data collecting and data analysis, writing the manuscript; Băban, A. - interpretation of results, structure of the manuscript.

manner of determining the diagnosis recommended by the diagnostic systems. A major depression diagnosis can be given without all the symptoms of depression being present. This should also be taken into account in the case of depression in the elderly where the identification of depression is frequently influenced by the fact that none of the criteria for a clinical diagnosis as presented in the available diagnostic systems are met (see also Munk, 2007a). On the other hand, the decision whether an elderly person is depressed or not is often taken depending on a score on a depression scale designed for the general population where the symptoms are treated cumulatively and often do not fit to the age-specific context.

An instrument like CES-D (Radloff, 1977), which is not adapted to the elderly population and includes items like *I did not feel like eating; my appetite was poor, I felt that everything I did was an effort* or *My sleep was restless*, can lead to an overestimation of depression (see also Chui et al., 2015). Items such as those previously described would be taken into account as depressive symptoms. In the elderly, however, there are symptoms somewhat justified by the limitations that come with age. Although the presence of such manifestations can lead us to a depression diagnostic in younger adults, in elderly persons these could be merely age-related physical limitations and not a sign of depression.

Depression that appears for the first time after the age of 60 is also called late-life depression. It appears that about half of the elderly with depression have late-life depression (Fiske et al., 2009). This is also not a distinct diagnosis but a subcategory of depressive problems whose late onset is related to slightly different clinical characteristics compared to depression at younger ages. People with depression at old age have a higher degree of apathy (Krishnan, Tupler, George & Blazer, 1995) and a lower level of lifelong personality dysfunctions (Abrams, Rosendahl, Card & Alexopoulos, 1994). Cognitive deficiencies may be more prominent and accompanied by executive or mnemonic functions deficits (Salloway et al., 1996). There are also studies that have not identified differences in cognitive functioning in people with a late onset depression from depressed people at other ages (Holroyd & Duryee, 1997). The risk of recurrence of depression is relatively higher in people whose depression starts after the age of 60 years (Reynolds, 1998).

The idea that factors contributing to the etiology of the disorder at this age seem to vary according to the age of onset has generated research that promotes concepts of depression without sadness, vascular depression or executive dysfunction depressive syndrome (Blazer, 2003).

1.3. The prevalence of depression in the elderly

There are differences in the authors' views concerning age as a risk factor for depression and the higher or lower incidence of depression in the elderly. The percentages presented in published studies show a prevalence of between 0.86% and 48% (Dejernes, 2006; Andreas et al., 2017; Blazer, 2003; Sözeri-Varma, 2012).

The wide variation in prevalence data can be related to several factors. One of them is the type of depressive disorder that is measured. Apparently, when it comes to a diagnosis of major depression, the percentages are lower than in the case of minor depression, dysthymia or when we refer to a clinically significant level of depressive symptoms (Blazer, 2003, Djernes, 2006). Different results were obtained for elderly people addressing medical services, the prevalence of major depression being 5-10%, and 10-12% in the case of the hospitalized elderly. When the clinically significant level of depressive symptoms was measured, the prevalence increased by up to 23%, while in the elderly from specialized residential centers the percentages were higher, with 12.4% for major depression and up to 35% for clinically significant depressive symptoms (Blazer, 2003).

Another factor which can influence the prevalence of depression is the instrument that measures depression. When using instruments not adapted to the specific situation of the elderly, the percentages obtained in the results of the studies may be different from reality. Andreas et al. (2017) emphasize the importance of simple phrasing of items so that they can be easily understood by the elderly and the use of shorter evaluation methods. Elderly people can also deny the presence of psychological problems in order to avoid completing or participating in a time-consuming or tiring evaluation (Andreas et al., 2017).

According to some authors, the lower percentages found in some studies on the prevalence of psychiatric problems in the elderly are not due to shortcomings in the measurement process, but to the fact that, with age, some types of emotional regulation strategies or/and a certain wisdom development, and these act as protective factors against psychological problems (Baltes & Staudinger, 2000). There are studies showing an increase in depression in the elderly (Kessler et al., 1992; Zarit et al., 1999; Zhang et al., 2009), but there are also those suggesting a decrease in prevalence (Blazer et al. 1991; Weissman et al., 1991). Some authors argue for a possible underestimation of the presence of depression at old age due to the exclusion of medical problems from the studies (Chui et al., 2015).

1.4. Factors involved in elderly depression

When we discuss etiopathogenic mechanisms, the case of depression is similar to most health problems, in the sense that we are talking more about risk factors, the real causes being largely unknown even though the number of studies on depression in general and on elderly depression in particular have lately been increase (Lebowitz et al., 1997).

A series of systematic reviews and meta-analyses on the factors involved in depression in the elderly have been performed in recent years, a variety of factors being mentioned (e.g. Djernes, 2006; Munk, 2007a; Blazer, 2003). Biological factors include: medical problems such as diabetes, stroke and other cardiovascular problems, hip fractures, Parkinson's disease, arthritis, pain, urinary incontinence, alcohol dependence and head trauma, functional disability/limitation, disability, hearing or vision loss, medication, genetic factors (e.g. specific genetic markers) and other non-genetic factors such as vascular lesions in certain areas of the brain, changes in the structure of brain regions, or neurotransmitter activity, endocrine changes (Blazer, 2003; Fiske et al., 2009). In the context of frequent medical problems and increased disability at old age, the issue of how elderly depression differs compared to depression in younger adults has often been analyzed (Alexopoulos, 2003; Blazer, 2003).

There are several hypotheses connecting depression in the elderly to certain brain changes in old age. Three hypotheses can be mentioned within this framework: the "degenerative" hypothesis, the "vascular" hypothesis and the "inflammatory" hypothesis (Martínez-Cengotitabengoa et al., 2016).

Social factors include poor social support, loneliness and low social involvement (Blazer, 2003; Fiske et al., 2009). Spiritual and existential factors - such as religious practices - are also referred to as associates of depression in the elderly (Blazer, 2003; Fiske et al., 2009).

When psychological factors are considered, we may take into account a certain psychological vulnerability to depression in the elderly, which seems to be influenced by a series of life-long stressors, from emotional abuse and neglect in childhood to issues related to losses (including bereavement), a new medical problem, personal or partner disability, partner depression, lifetime financial problems, and the number or severity of the stressful events that the person has experienced, changes in lifestyle, daily stressors (Blazer, 2003; Fiske et al., 2009). Regarding the psychological factors involved in the mechanisms of depression at old

age, published research analyzed both the factors that we find in pathogenetic, biopsychosocial, stress-vulnerability models, as well as factors found in sanogenetic models that include protective factors (more details in studies 1 and 2).

Theoretical models, which lately have received a great deal of appreciation among researchers and practitioners, are the cognitive and behavioral models for depression.

The behavioral model links depression to loss, diminishment, absence of rewards (be it external or self-rewarding and rewarding activities) or the inability of the person to get rewards, increased number of adversities or stressful life events. These elements appear to be more common in age when an accumulation of irreversible changes and losses is present and a diminution of physical, material and social resources occurs (Seligman, 1975). However, researchers argue that the loss of resources at this age does not necessarily lead to increased depression, because the remaining resources can be searched, activated and used optimally within the personal domains of interest as suggested by the optimization and selective compensation model (Baltes & Baltes, 1990).

The cognitive models of depression support the assumption that symptoms specific to depression are determined or maintained by cognitive distortions (distorted automatic thoughts, disadaptive beliefs and dysfunctional cognitive schemes). People with major depressive disorder perceive a more negative impact of life events than those who do not have this disorder (Devanand et al., 2002). Interpretation of life events is considered an essential factor in the occurrence of depression according to this theory. Cognitions can be distorted so that the elderly have unrealistic expectations, over-generalize certain negative aspects, diminish the importance of certain positive aspects or resources and activities that can still bring personal satisfactions, see themselves as worthless, useless, unimportant or see their life (which is now approaching the end) as being without meaning.

As Zarit (1999) also points out, even when we talk about serious medical problems, it is not simply the presence of the disease and disability that leads to depression, but their impact is determined by the way the elderly assesses or interprets them. These findings are consistent with general stress theories such as the Lazarus' model (1976) (Lazarus & Folkman, 1984; Folkman et al., 1986) or the cognitive-behavioral models for depression (Beck et al., 1979).

As Blazer & Hybels (2005) emphasize, a biopsychosocial type of etiology is especially applicable to depression at old age due to its origins, as it is likely determined by life-long factors that are multiple and include variables related to all three areas: biological, psychological and social.

1.5. The consequences of elderly depression

In addition to the high costs of depression on the social system (Munk, 2007a), there is also a link between depression and mortality in older age (Saz & Dewey, 2001; Nemeroff & Goldschmidt-Clermont, 2012; Schulz, Drayer & Rollman, 2002). Depression can also lead to an increased risk for cardiovascular and metabolic problems, which are further related to mortality risk (Butnoriene et al., 2015).

The empirical data show evidence of inconsistencies in the etiology, assessment and diagnosis of depression in the elderly. The main purpose of the research described in this paper is to bring additional knowledge about depression in elderly people. This goal was pursued by analyzing the role played by psychological factors in depression in the elderly and, more specifically, the role that cognitive vulnerability - understood as irrationality in the interpretation of life situations - plays in depression at this age. The present research also brings methodological contributions by adapting, creating and validating psychometric instruments, useful both in research and in the psychological practice and specially designed

for depression at old age. The research directions and the design of the studies conducted were guided by the results obtained at each stage of the research presented in this paper.

CHAPTER II. RESEARCH OBJECTIVES

The main research directions established, following the preliminary analysis of the literature, were as follows:

- A. Investigating the psychological factors involved in depression in the elderly, more specifically, the cognitive factors and their comparison with other stressors
- B. Adaptation, development and validation of psychometric tools for screening, diagnosis and evaluation specific to the context of elderly depression
- C. Testing a stress-cognitive vulnerability model that highlights specific etiopathogenetic mechanisms behind depression at old age

The research questions to which the studies included in this paper proposed to respond, were the following:

- IC1: Which are the psychological factors involved in depression in the elderly according to the studies published on this topic?
- IC2: Which are the cognitive vulnerability factors that scientific literature has shown to be associated with depression in the elderly?
- IC3: What are the differences between the effect of cognitive vulnerability and the effect of stressors such as medical problems or stressful events on depression?
- IC4: Which instrument can be used to effectively measure depression in the elderly in Romania?
- IC5: Which instrument is suitable for measuring cognitive vulnerability in the elderly?
- IC6: How do stressors such as medical problems and stressful events interact with cognitive vulnerability and depression in the elderly?
- IC7: Is cognitive vulnerability a mediator in the relationship between stressors and depression in the elderly?
- IC8: What is the difference between the mediating effect of general cognitive vulnerability and the mediating effect of specific cognitive vulnerability?

Depending on the established research directions and the research questions, the specific objectives were set, and the studies followed an appropriate methodology. The objectives of the research and the studies carried out to achieve them will be presented below.

Objective 1: Highlighting psychological factors that are important in depression in the elderly as they appear in the published literature (Study 1)

Objective 2: Analyzing the magnitude of the effect on elderly depression of cognitive vulnerability factors compared to other factors commonly related to depression at old age across studies (health problems and stressful events) (Study 2)

Objective 3: Adaptation and validation of the Geriatric Depression Scale (GDS; Yesavage et al., 1983) on the Romanian population (Study 3)

Objective 4: Developing and validating the Elderly Attitudes and Beliefs Scale (EABS) (Study 4)

Objective 5: Analyzing the role of cognitive vulnerability in depression in the elderly, taking commonly encountered stressors at this age into account such as medical problems, pain, disability and stressful events (Study 5)

CHAPTER III. ORIGINAL RESEARCH

Study 1. Psychological factors involved in elderly depression - A systematic review²

3.1.1. Introduction

There has been a growing interest in psychological vulnerability to depression in recent years, and a more accurate view on the psychological factors involved in elderly depression may prove useful in many ways, including the adaptation of psychological intervention methods for this age group.

After a preliminary literature review, no systematic review regarding exclusively the psychological factors related to depression in the elderly was identified. Literature reviews that focused on depression in the elderly and the factors involved in this disorder treated other categories of factors more widely, such as biological factors, medical issues and social factors. On the other hand, very few psychological factors and even fewer cognitive vulnerabilities were mentioned in these studies.

The primary objective of the first study was to highlight the psychological factors involved in depression in the elderly as they are presented in published studies.

3.1.2. Method

The procedure consisted in carrying out a systematic literature review and selecting relevant studies that included an analysis of the relationship between psychological factors and depression in the elderly.

3.1.2.1. Search strategy and selection criteria for included studies

In the first step, a computerized search in ProQuest, Web of Science and Science Direct databases was conducted, using the following key-words in various combinations: *depression, old age, elderly, late life, risk factors, vulnerability, psychological factors, cognitive vulnerability*. A total number of 3159 study titles were scanned in order to decide whether to include them in the analysis, according to the following criteria: articles available in English or French as well as relevance to the study objective judging by title and abstract. A number of 48 articles were excluded because they were not available in English or French and 2650 were not considered relevant to the research objective. There were also 40 articles considered relevant from citations found in the selected articles, which were searched manually. A total number of 501 distinct studies were included in the review for a further analysis. A number of 448 articles were then excluded considering the following criteria: they did not analyze psychological factors among the variables included in the study, they did not use an acceptable conceptualization of depression or depressive symptoms, subjects were

² Partial results and information presented in this chapter (revised text) was included in the following published article: Stefan, A. M., Băban, A. (2015). Factori psihologici implicați în depresia la vârstnici - un review sistematic. *De la evaluare la intervenție: premise metodologice*. Editura Universitară București, 11-31 (chapter. 1). The authors contributed to the manuscript as follows: Stefan, A. M. - study design, data collecting and data analysis, writing the manuscript; Băban, A. - interpretation of results, structure of the manuscript.

under 55 years of age or the sample used was not representative. Studies on particularly specific populations or from very different cultures were also excluded. A total number of 53 studies were completely examined by extracting the data on the type of study, the characteristics of the sample used, the variables analyzed and the results obtained.

3.1.3. Results and discussion

The psychological factors identified in this review are variables related to both vulnerability and protective factors in relation to elderly depression.

In terms of personality factors, neuroticism seems to be the most commonly studied. Twelve of the articles included in this review analyze the effect of this factor on depression in elderly people (Lyness et al., 1998; Oldehinkel et al., 2001; Ormel et al., 2001; Grace & O'Brien, 2003; Eisses et al. et al., 2004; Steinenberg et al., 2006; Dubestein et al., 2008; Weiss et al., 2009; Wood & Joseph, 2010; Hayward et al., 2013; Koorevaar et al., 2013; Wongpakaran et al., 2012), five of them representing studies with a longitudinal design (Oldehinkel et al., 2001; Steunenberget al., 2006; Dubestein et al., 2008; Weiss et al., 2009; Wood & Stephen, 2010). In all studies, the level of neuroticism appears to be significantly associated with depression in the elderly. The results show that elderly people with a high level of neuroticism have an increased risk for depression, with one exception: although there was support in the longitudinal study of Oldehinkel et al. (2001) for the idea that a low level of neuroticism is associated with a low level of depression, no hypothesis regarding high neuroticism being a risk factor for depression in the elderly was proposed. In some of the included studies included, the neuroticism variable has both a direct and independent effect on depression as well as a moderating effect in the relationship between: medical problems and the onset of major depression (Lyness et al., 1998), perceived difficulties and depression (Oldehinkel et al., 2001), stressful events and depression, but not in the relationship between disability and depression, although data show a certain trend in that direction (Ormel et al., 2001). There are both longitudinal and cross-sectional studies showing the neuroticism's greater effect on depression than other variables considered important in depression in the elderly such as medical problems, social factors (Steuenberg et al., 2010) or stressful events. In the prospective study conducted by Ormel et al. (2001), the results show that in the absence of neuroticism, stressful events do not increase the risk of depression, but their effect on depression is substantial when a high level of neuroticism is present.

Neuroticism is viewed by some authors as both a psychological vulnerability and a genetic factor: the underlying idea is that neuroticism is an expression of genetic vulnerability to depression in old age (Kendler, Gatz, Gardner & Pedersen, 2006).

Other personality factors seem to be not as frequently examined and the results of those studies are somewhat contradictory. For example, the cross-sectional studies analyzed show a significant effect of extraversion as an independent factor on depression (Grace & O'Brien, 2003; Hayward et al., 2013; Koorevaar et al., 2013); however, longitudinal studies do not support the significant effect of extraversion on depression, at least not independently. There are also studies showing that elderly people with a low level on personality dimensions such as ego strength, dominance, impulsivity, boldness, ability to bind anxiety on the one side, and higher scores in personality factors like culpability, imagination and free-floating anxiety on the other side, are more prone to depression (Monopoli et al., 2000).

In studies that analyze the effect of psychological orientation on oneself (self-criticism, efficacy, autonomy) or on others (exaggerated need for others, connection with others) in elderly depression, arguments arise for the fact that dysfunctional, unhealthy tendencies such as exaggerated self-criticism or irrational dependence on others represent vulnerability factors for depression, and constructive, functional tendencies such as perceived

self-efficacy, autonomy and a healthy interest for personal relationships are protective factors. These factors seem to be more important than variables as for example health, perceived functionality or stressful events (Besser et al., 2005; Mazure et al., 2002). No significant direct effect of stressful events on depression was found, but the congruence between autonomy and negative events related to personal achievement and the congruence between sociotropy and negative relational events were significantly associated with depression, these results being consistent with the assumption that cognitive/personality styles can act as vulnerability factors for depression sensitizing the person to certain categories of stressful events (Beck, 1987).

In terms of cognitive vulnerability to depression in the elderly, the studies analyze factors related to structures, contents or cognitive processing as they are presented in Beck's cognitive model (1987), the model of learned helplessness (Seligman, 1975; Abramson, Seligman, & Teasdale, 1978) or other related models.

In the case of attributions, for example, the studies bring arguments for both an external locus of control and "negative" attributional style (Meyer et al., 2010) as vulnerability factors for depression (Beekman et al., 2000, 2001; Harris et al., 2003). A vulnerability to depression can be found in elderly people who perceive themselves as being helpless, not being able to control general aspects of their lives or what happens related to their health, and also in the case of elderly who make internal, global and stable attributions when it comes to adverse events, that is, they tend to always see themselves as the only ones responsible for "all the bad things" that are happening to them.

When it comes to optimism and pessimism, both predictive pessimism and optimism as an explanatory style in the presence of negative life events seem to represent an increased risk for depression (Isaacowitz & Seligman, 2001). These factors also appear to be related to how rational or functional the personal expectations or explanations are which the elderly use when faced with adverse events. Additionally, the concept of hopelessness has been positively associated with a high level of depressive symptoms (Hill et al., 1988; Crane et al., 2007).

Furthermore, older people with a higher level of negative automatic thoughts and dysfunctional attitudes (concepts from Beck's cognitive model, 1987) have a significantly higher level of depression (Vézina & Borque, 1984; Koenig et al., 1995). Dysfunctional cognitive schemas such as loss of individuality, refusal of assistance and vulnerability appear to be significantly associated with depression in the elderly (Kindynis et al., 2013). The frequent use of cognitive emotional regulation strategies such as *acceptance* (where it may be more a case of resignation), *catastrophizing*, *rumination*, *putting into perspective* and lower use of *positive reappraisal* have been associated with a high level of depression in the elderly (Garnefski et al., 2002; Garnefski & Kraaij, 2006).

A number of other factors from the sanogenetic perspective on psychological problems in the elderly appear in studies as having a significant influence on depression in this target group: sense of coherence (Helvik et al., 2013), the psychological well-being (the environmental mastery, self-acceptance, positive relationships with others, personal development) (Helvik et al., 2013; Wood & Stephen, 2010; Davison et al., 2012; Knight et al., 2011; Bisschop et al., 2004), aspects related to personal management, such as self-efficacy (generally and in interpersonal relationships or related to issues like pain management), initiative, resource management or the style in which goals are set (Cramm et al., 2012; Street et al. 2007; Turner et al., 2005; Horowitz et al., 2005; Quinn et al., 1996; Holahan & Holahan, 1987). Studies have repeatedly shown the influence of these psychological factors to be stronger than other types of factors considered important in research. The effect of psychological well-being, for example, appears to be more important than functional, medical or social support issues (Davison et al., 2012), and the effect of environmental mastery (a

factor frequently associated in research with elderly depression) more important than physical health and functional ability (Knight et al., 2011). A pattern of negative attitudes towards aging appears to be linked with an increased level of depression in the elderly (Chachamovich, 2008) and a "positive" attitude towards life (the freedom to choose and to be responsible for the choices made, to have a purpose, a sense of order, a reason to exist and an optimistic perspective) is presented as a protective factor (Reker, 1997).

Numerous studies have recently been conducted on the protective role of psychosocial factors in depression in the context of stressful life events or biological risk factors, which seem to be more common in the elderly. Authors underline the importance of an effective use of resources (socio-economic, cognitive and health-related), lifelong experience in the use of cognitive strategies and ways in which social support can be used to cope with age-specific difficulties and involvement in meaningful activities (Fiske et al., 2009).

3.1.4. Conclusions

The main objective of this study was to highlight the main research results regarding the psychological factors involved in elderly depression in a comprehensive manner. There are, however, some limitations of this study worth considering. Due to the fact that the search strategy focused exclusively on articles specifically addressing depression in the elderly, it might be the case that important data related to the effect of psychological factors, for example from studies with a more general theme, have been omitted. Another limit consists in the fact that, due to the diversity of the analyzed factors as well as the methods and instruments used in the examined studies, a larger meta-analytical study could not be carried out. This would have been useful for analyzing and comparing the different factors and drawing valid conclusions.

In general, the identified factors were found to have a significant impact on elderly and are consistent with a stress-vulnerability perspective. Adverse events that appear to be more common during this period of life take the form of stressors such as stressful events (death of relatives, loss of life partner, professional role and other roles), medical problems (pain, chronic illness, disability), socio-economic issues, and these along with biological or psychological vulnerabilities can lead to depressive disorders. In terms of psychological factors, it appears that adaptive or functional cognitions, mechanisms or strategies such as rational beliefs, "positive" attributional style, healthy attitudes (related to life in general, advanced age, illness or pain), cognitive schemas, emotional and behavioral coping mechanisms that lead to a better adaptation of the elderly person, compensating for age-related shortcomings and supporting psychological health. In contrast, an unhealthy, dysfunctional style predisposes the elderly person to the emergence of emotional problems such as depression. Although, from this point of view, the mechanisms involved in depression in the elderly are similar to those of other age groups, there are, however, factors that, as previously presented in this paper, appear to be more important at this age concerning pathogenetic and sanogenetic mechanisms. These aspects are worth considering when discussing psychological intervention in late life. Also, a more in-depth analysis of cognitive vulnerability from the perspective of cognitive and behavioral models of depression, barely represented in research performed on this age group, can bring further knowledge of the specific mechanisms involved in elderly depression. These issues are relevant for psychological prevention and intervention, especially in the case of cognitive and behavioral techniques that can be better adapted to this category of the population and are worthy of consideration in future research.

Study 2. Psychological vulnerability and depression in the elderly - Meta-analysis

3.2.1. Introduction

The objective of study 2 was to analyze cognitive vulnerability factors and the magnitude of their effect on depression compared to other well-established factors such as health problems and stressful events.

The meta-analysis included only those studies that performed an analysis of the relationship between cognitive vulnerability factors and depression in the elderly. Factors related to cognitive structures, contents or cognitive processes as presented in Beck's cognitive model (1987), the model of learned helplessness (Seligman, 1975; Abramson, Seligman, & Teasdale, 1978) or other related models were considered as cognitive vulnerability factors category.

Statistical data regarding the relationship between cognitive vulnerability and depression variables as well as the relationship between stressors/stressful life variables was extracted. The second category of factors was composed of two subcategories, namely external stressors such as stressful events and medical problems.

3.2.2. Method

All analyses were performed using the Comprehensive Meta-Analysis statistical software, version 2.2.050 (Biostat Inc., Englewood, NJ, USA). The Random-effects model was used, and Pearson's correlation coefficient calculated for each study was considered as the effect-size indicator. Since we were only interested in the magnitude of the relationship of stressors and cognitive vulnerabilities to depression, all correlations were incorporated into the analysis ignoring the direction of the relationship. Where the results referred to positive cognitive strategies (protective for depression) and the correlation with depression was negative, the correlation mark was changed so that the results could be naturally integrated under the category of cognitive vulnerability factors, using for functional strategies their dysfunctional variant (e.g. poor acceptance, poor planning, poor positive refocusing, etc.). For the analysis of the publication bias, Rosenthal's classic fail-safe N-test (1979, 1991) was applied.

3.2.3. Results

Table 1 presents studies included in the meta-analysis, the variables for which statistical data were extracted as well as the categories in which they were included.

Table 1. Studies included in the meta-analysis

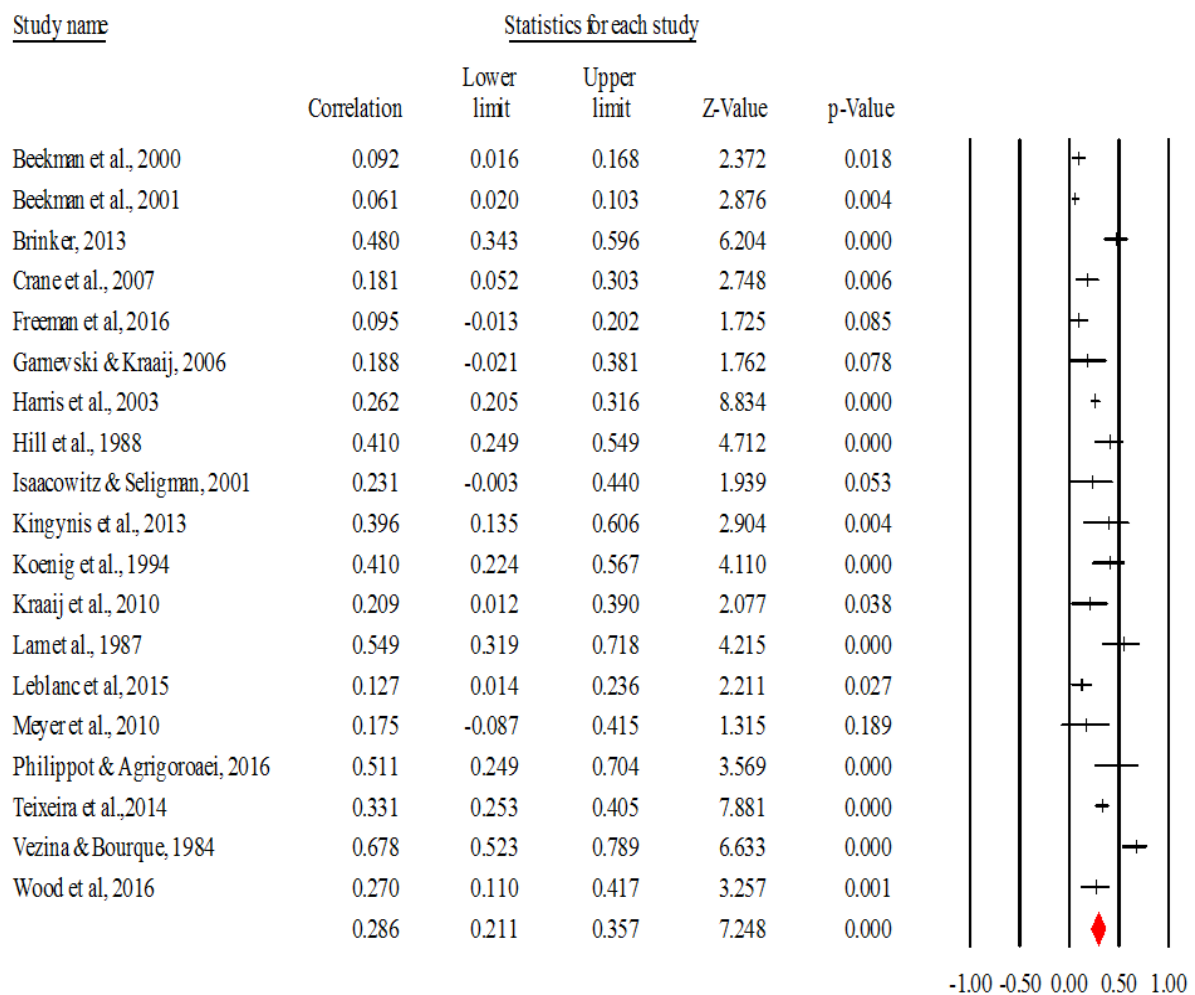
Study	Statistical data			Factor	Category
	Type of input data	r	N		
Beekman et al., 2000	p-value for correlation	0,091	659	Functional limitations	Stressors -medical problems
		0,085	659	Partner loss	Stressors - stressful events
		0,128	659	Other loss	Stressors - stressful events
		0,066	659	External LOC health	Cognitive vulnerability
Beekman et al., 2001	p-value for correlation	0,070	2200	Chronic physical illness	Stressors -medical problems
		0,071	2200	External LOC health	Cognitive vulnerability
		0,043	2200	Functional limitations	Stressors -medical problems
Brinker., 2013	Corr, N	0,339	144	Rumination	Cognitive vulnerability
		0,010	144	Rumination and reminiscence	Cognitive vulnerability
		0,835	144	Reminiscence	Cognitive vulnerability
Crane et al., 2007	p-value for correlation	0,216	299	Hopelessness	Cognitive vulnerability
	p-value for correlation	0,216	299	Wish to die	Cognitive vulnerability
	p-value for correlation	0,109	299	Low self-esteem	Cognitive vulnerability

Study	Statistical data			Factor	Category
	Type of input data	r	N		
Freeman et al., 2016	Odds ratio	0,091	6095	With or without medical problems	Stressors -medical problems
		0,085	6095	ADL disability	Stressors -medical problems
		0,128	6095	With or without chronic medical problems	Stressors -medical problems
	Independent groups (means, SD's)	0,206	6095	Negative aging perceptions	Cognitive vulnerability
Garnefski & Kraaij, 2006	Corr, N	0,270	89	Acceptance	Cognitive vulnerability
		0,420	89	Rumination	Cognitive vulnerability
		0,150	89	Positive refocusing	Cognitive vulnerability
		0,010	89	Planning	Cognitive vulnerability
		0,270	89	Positive reappraisal	Cognitive vulnerability
		0,070	89	Putting into perspective	Cognitive vulnerability
		0,460	89	Catastrophizing	Cognitive vulnerability
		0,030	89	Other blame	Cognitive vulnerability
		0,010	89	Self-blame	Cognitive vulnerability
Harris et al., 2003	Cohort 2x2 (rates)	0,350	1582	Perceived health	Stressors -medical problems
	Corr, N	0,430	1602	Chronic physical illness	Stressors -medical problems
		0,270	1540	Functional limitations	Stressors -medical problems
	Cohort 2x2 (rates)	0,215	1210	Hearing disability	Stressors -medical problems
	Corr, N	0,130	1558	Pain	Stressors -medical problems
	Cohort 2x2 (rates)	0,153	1487	Visual disability	Stressors -medical problems
Hill et al., 1988	Corr, N	0,410	120	Hopelessness	Cognitive vulnerability
Isaacowitz & Seligman, 2001	Corr, N	0,120	71	Pessimism on affiliation	Cognitive vulnerability
		0,260	71	Pessimism on achievement	Cognitive vulnerability
		0,280	71	Predictive pessimism	Cognitive vulnerability
		0,260	71	Pessimistic style	Cognitive vulnerability
		0,296	46	Severe life events	Stressors - stressful events
Lam et al., 1987	Cohort 2x2 (rates)	0,163	46	Major difficulties	Stressors - stressful events
		0,710	46	Automatic thoughts	Cognitive vulnerability
	Independent groups (means, SD's)	0,745	46	Hopelessness	Cognitive vulnerability
		0,644	46	Dysfunctional attitudes	Cognitive vulnerability
		0,008	2494	Sleep efficacy	Stressors - stressful events
Leblanc et al., 1987	Odds ratio	0,193	2494	Rumination - having a lot of worries	Cognitive vulnerability
		0,177	2494	Rumination - having a lot of thoughts	Cognitive vulnerability
		0,010	58	Life events	Stressors - stressful events
Meyer et al., 2010	Corr, N	0,280	58	Cognitive style	Cognitive vulnerability
		0,230	58	Cognitive style t2	Cognitive vulnerability
		0,600	43	Abstract repetitive thinking	Cognitive vulnerability
Philippot & Agrigoroaiei, 2016	Corr, N	0,410	43	Cognitive dysfunction	Cognitive vulnerability
		0,331	528	Pain related negative attitudes and beliefs	Cognitive vulnerability
Teixeira et al., 2014	Corr, N	0,331	528	Pain related negative attitudes and beliefs	Cognitive vulnerability
		0,752	50	Automatic thoughts	Cognitive vulnerability
Vezina & Bourque, 1984	Independent groups (means, SD's), N	0,752	50	Automatic thoughts	Cognitive vulnerability
	Independent groups (means, SD's) N	0,586	50	Dysfunctional attitudes	Cognitive vulnerability
Wood et al., 2016	Corr, N	0,220	141	Stressful events	Stressors - stressful events
		0,280	141	Cognitive style	Cognitive vulnerability
		0,310	141	Cognitive style t2	Cognitive vulnerability
Total number of subjects			14881		

3.2.3.1. Distribution of the effect sizes and total effect

Figure 1 shows results for the distribution of effects.

Figure 1. Distribution of the effect sizes (forest plot)



The effect size in the entire meta-analysis, calculated in the random effects model, is moderate, $r = 0.28$, $CI_{95\%} = [0.21, 0.35]$ and statistically significant, $Z = 7.24$, $p < 0.001$.

3.2.3.2. Publication bias analysis

For the publication bias analysis, the fail-safe N indicator was calculated, which represents the number of studies with null effects that should be entered in the meta-analysis so that the observed total effect becomes null (the value of p rises above 0.05). The analysis revealed a value of $Z = 16.36$, $p < .001$, with a fail-safe indicator $N = 1306$. In other words, 1306 studies with null effects would be needed for the effect observed in this meta-analysis in order to no longer be statistically significant (68.7 null studies/observed study). Virtually all these results prove the stability of the obtained effect and its reduced vulnerability to the publication bias.

3.2.3.3. Distribution heterogeneity analysis

The distribution heterogeneity analysis for the effect sizes in the study sample revealed a significant heterogeneity, $Q(19) = 137.48$, $p < 0.001$, meaning that it makes sense to identify/test some explanations of this heterogeneity in the form of moderators.

3.2.3.4. Moderation analysis

Table 2. Moderators of effect sizes

Moderators	Modalities	Nr. of studies	r	Li	Ls	QB	df	p
Factor type	Stressors	9	0.13	0.03	0.24	6.26	1	.010
	Cognitive vulnerability	18	0.30	0.23	0.37			
Stressor type	External stressors	4	0.15	0.01	0.28	0.14	1	.709
	Medical problems	6	0.12	0.03	0.21			

The moderation analysis (Table 2) revealed that the type of factor (stressors versus cognitive vulnerability) is a significant moderator of the magnitude of the effect, with cognitive vulnerability correlating 2.3 times more strongly with depression ($r = 0.30$) than adverse situations related to medical problems and stressful events ($r = 0.13$).

It can also be noticed that by analyzing the results obtained within the category of stressors separately, the difference between the effect of external stressors ($r = 0.15$) and the effect of medical problems ($r = 0.12$) is not statistically significant.

3.2.4. Discussions and conclusions

The results show that psychological factors such as cognitive vulnerability as well as stressors (medical problems and stressful events) have been significantly associated with depression in the elderly. Within the stressor category, no significant difference was observed between the effect of the type of medical problems (internal stressors) and stressful events (external stressors).

The fact that both cognitive vulnerability and adverse life situations have demonstrated a significant effect on depression in the elderly, is in line with other research suggesting that both the stressors and the way they are perceived are important factors in the etiopathogenetic mechanisms of depression (see also Ellis & Dryden, 1997; Beck, 1987). As depicted in the cognitive models of depression, depressive symptoms occur when increased vulnerability is present, especially when people face stressful life situations, events or contexts that activate certain dysfunctional cognitive schemas and this, in turn, leads to emotional problems (Beck, 1987, 2009). However, there is a significant difference between the two categories of factors when analyzing the magnitude of the relationship. The results show that there is an over two times stronger association between cognitive vulnerability and depression in the elderly than between the adverse situations and depression.

The study also features some limitations. One of them being that most of the studies and data included in the meta-analysis are derived from cross-sectional studies that do not allow clear conclusions about a causal relation between factors and depression and, thus, do not shed light on details concerning the processes involved in elderly depression. Furthermore, only data from studies that measured psychological variables of cognitive vulnerability type were included. This means that the meta-analysis did not include data on the effect of adverse situations (medical problems or life events) from studies which did not analyze cognitive vulnerability factors (studies that are, as mentioned before, quite numerous). An analysis including such data would be useful. Another limit is the heterogeneity of factors included in the cognitive vulnerability category and the diversity of measurement methods of analyzed variables across studies. The fact that cognitive vulnerability factors included are of many types and reflect almost as many psychological concepts can lead to problems in data analysis. In some cases, the factors represent concepts that might be partially or totally overlapped in terms of operationalization. In addition, various methods were used in the

studies for measuring depression: from clinical interview to depression or depressive screening tools and depressive symptom level assessment scales.

Despite these limitations, the results of the meta-analysis demonstrate the importance of the cognitive factors, meaning the subjective interpretations of the person related to the situations they are facing. It is not only insufficient to consider exclusively stressful events or medical problems when analyzing elderly depression - factors which appear to be more common at this age, and considered by some authors as responsible for an increase of elderly depression - but it is also pivotal to further analyze the effect of cognitive vulnerability factors in relation to depressive psychological problems in the elderly.

Study 3. Adaptation and validation of the Geriatric Depression Scale (GDS) on Romanian population³

3.3.1. Introduction

The Geriatric Depression Scale (GDS; Yesavage et al., 1983) is a psychometric instrument developed by Yesavage and his colleagues, specially designed for identifying and measuring depression in elderly. The first version consists of 30 items with a “yes/no” format which gives the instrument the advantage of being easier to administer than other scales with multiple choice items. The scale is considered to be a valid instrument for screening depression in elderly and it has been widely used in clinical settings and research on this specific part of the population (Montorio & Izal, 1996; Allen & Annels, 2009). In order to better adapt GDS for use in the elderly population, authors excluded the items corresponding to somatic symptoms that tend to be common in elderly with or without depression. Thus, they eliminated a problematic issue that was observed in situations when other instruments for screening depression in adults were used for the elderly (Brink et al., 1982).

The aim of the current study was to adapt and analyze the psychometric properties of the Romanian version of the GDS LF (30 items) and of the GDS SF (15 items).

3.3.2. General methodology of validation studies

In most recent studies on depression in the elderly, a short version of the scale of 15 items is used. This version also demonstrated very good psychometric properties in previous research (Brown et al., 2007). For the validation study, the initial 30-item GDS was selected to be administered in the assessment procedure, for it includes the 15 items of the short version and, thereby, an extensive scale analysis on both variants could be performed. After administering the GDS LF, the items corresponding to the GDS SF were extracted for analysis. This method was chosen considering the issues that could arise from administering scales which have many common items as part of the same assessment procedure. We also

³ The content of this chapter was included in two published studies (revised text):

- (1) Ștefan, A. M., Băban, A. (2015). Validarea variantei în limba română a Scalei pentru Depresia la Vârstnici (GDS) - un studiu pilot. *De la evaluare la intervenție: premise metodologice*. Editura Universitara Bucuresti. 32-39 (cap. 2). The authors contributed to the manuscript as follows: Ștefan, A. M. - study design, data collecting and data analysis, writing the manuscript; Băban, A. - interpretation of results, structure of the manuscript.
- (2) Ștefan, A. M., Băban, A. (2017). The Romanian version of the Geriatric Depression Scale: Reliability and validity. *Cognition, Brain, Behavior*, 21(3), 175. The authors contributed to the manuscript as follows: Ștefan, A. M. - study design, data collecting and data analysis, writing the manuscript; Băban, A. - interpretation of results, structure of the manuscript.

insisted on selecting assessment tools that are as brief as possible so that the overall duration of the evaluation process would not be excessively long and, for that matter, tiring, given the specifics of the target group.

Adaptation and validation of the Romanian version of the GDS scale have been achieved through a two-step procedure. The first step involved translating and adapting the scale from English to Romanian. Subsequently, a final version was obtained in Romanian, which was then applied during the second stage to a sample of 172 elderly people in order to obtain data on the psychometric characteristics of the scale.

The administration was conducted individually for each participant included in the study. Written approval was given for the conduct of evaluation procedures at the residential centers by the management and consent to attend the study was obtained from each of the persons included in the study, before the interview and the completion of the questionnaires. All evaluation procedures were performed by a single psychologist certified in clinical psychology.

3.3.3. Translation and adaptation of GDS

The first step of the scale validation process was carried out following the general recommendations for translation and adaptation procedures. Initially, the scale was translated from English into Romanian. The translation of the items was performed so that the phrases would maintain their meaning rather than by following a word-for-word translation procedure. Considering that the target group consists of elderly people, we insisted on a simple phrasing, one that would be understood regardless of the level of education. This first version was then analyzed and alternative variants for items were proposed. After the expert group agreed on an initial version of the GDS in Romanian, the retroversion was performed. Thereafter, the resultant variant was compared with the original version to verify whether the meaning of each item was maintained. Only one item needed modification. Thus, the final version in Romanian language was obtained.

3.3.4. Pilot study

3.3.4.1. Method

3.3.4.1.1. Participants

A sample of 50 people, 28 women (56%) and 22 men (44%) aged between 62 and 89 (75.5 years on average) was used in the pilot study. The participants were recruited from the community (inhabitants of Orăștie, Hunedoara County) and from a residential center for the elderly in this area. Twenty-five community participants and 25 residents of the residential center were selected. The participants were selected in order to exclude people with a dementia diagnosis (which was also verified through the clinical interview). In terms of marital status, 22 (44%) of the participants were married and lived with their spouse, 16 (32%) were widowed and 12 (24%) divorced. The sample was heterogeneous in terms of the educational level, participants having between 4 and 17 years of school attendance (from primary to higher education) with an average of 10 years.

3.3.4.1.2. Measurements

In order to analyze the psychometric qualities of the Romanian version of the GDS, the scale administration on the elderly sample described above was carried out together with a questionnaire which included socio-demographic data, lifestyle, medical problems, a number of other depression scales and a clinical interview following the DSM IV TR criteria. For a number of 31 participants, the application of the GDS scale was repeated after a period of approximately two weeks with the aim of collecting data for the test-retest fidelity analysis.

Applying GDS along with other depression scales aimed at obtaining data on the validity of the Romanian versions by analyzing the correlations between GDS scores and scores at these scales.

The authors of the scale as well as other specialists, who have used it or evaluated its qualities, consider the ease of its application as an important advantage of GDS. This is worth considering because elderly people may experience problems with fatigue or difficulty in choosing between highly complex alternatives to items. Therefore, another purpose of the study was to make observations on the advantages or problems that might arise in applying scales of different formats to this category of the population. The following scales were used:

1. *Center for Epidemiological Studies Depression Scale (CES-D; adapt. Stevens et al., 2013)* is a self-assessment tool designed to measure the level of depressive symptoms and contains 20 items with 0 to 3 responses, depending on the occurrence of each described symptom (Radloff, 1977). This scale has been selected for inclusion in GDS validation studies because research shows good efficacy in measuring depression in elderly people (Wancata, Alexandrowicz, Marquart, Weiss, & Friedrich, 2006).
2. *BDI-II (Beck, Steer & Brown, adapt. David & Dobrean, 2012)* is a depression self-evaluation scale of 21 items and was designed to measure the severity of depression in people aged over 13. The instrument is commonly used to measure depressive symptoms and was also used for the elderly population. In this study, the Romanian version of the scale, adapted and validated on the Romania population by David & Dobrean (2012), was used.
3. *PDSQ (Zimmerman, adapt. Ciucă & Albu, 2010) - depression scale.* PDSQ or the Psychiatric Diagnosis and Screening Questionnaire is a self-assessment tool designed to detect the most common mental disorders and has been built to fit the current psychiatric nomenclature. It includes 13 scales including that for major depressive disorder. The items describe symptoms specific to each disorder and the person is asked to check whether the symptom has been present within the last 2 weeks or not. The depression scale contains 21 items and the response variants are "yes/no".

3.3.4.2. Results

3.3.4.2.1. Fidelity

The internal consistency was calculated using the Cronbach alpha coefficient for both the 30-item and the 15-item variant. As shown in Table 3, for both variants, a high correlation coefficient was obtained. In case of the 30-item option the internal consistency is slightly higher. Both GDS variants in Romanian demonstrated a high internal consistency. Internal consistency was also analyzed for BDI-II, CES-D and PDSQ depression scale. A high internal consistency coefficient was obtained for all the other scales included in the study.

Table 3. Internal consistency for the scales included in the study

Scales	Alpha Cronbach Coef.	Nr. of items
GDS	.875	30
GDS short form	.836	15
BDI-II	.886	21
CES-D	.888	20
PDSQ -depression scale	.862	21

The test-retest stability was calculated for 31 of the study participants who were applied to the GDS variant in Romanian by two measurements taken after approximately two weeks. A TAT variant, in which the value of the Pearson correlation coefficient for item 30 and item 15 is high, indicating a high temporal stability of the two variants of the scores, was obtained for analysis ($r = .881$ $r = .819$, respectively).

3.3.4.2.2. Validity of GDS

The GDS scores were then compared with the scores obtained at other scales used to measure depression in the Romanian population, namely: CES-D, BDI-II and PDSQ - the depression scale. The results (Table 4) show that both GDS variants correlate positively, significantly with all depression scales included in the study.

Table 4. Pearson correlations

GDS version	CES-D	BDI-II	PDSQ - depression scale
GDS 30 items	,840**	,834**	,779**
GDS 15 items	,752**	,760**	,696**

**p>0.01

3.3.4.3. Conclusions

Being a pilot study, caution is needed in interpreting the results. One of the limitations consists in the characteristics of the sample, meaning the number of subjects being small. The analysis of the results showed a good internal consistency and test-retest stability for both variants of the GDS. Correlation of GDS scores to those obtained from the application of the BDI II, the CES-D and the PDSQ - depression scale showed that both variants have acceptable (convergent/concurrent) validity (see Table 4).

3.3.5. Extended validation study of GDS

In both versions of the GDS, each item is rated 1 point when the symptom is present or 0 points when the symptom is absent, with the total score ranging from 0 to 30 points for the long version and 0 to 15 points for the short version of GDS. Although different values for optimal cut-off points, sensitivity and specificity were obtained in previous research (Wancata, Alexandrowicz, Marquart, Weiss & Friedrich, 2006), for clinical purposes, a score of more than 10 points on GDS FL and scores higher than 5 points on GDS FS are considered suggestive of the presence of mild depression and a further clinical evaluation interview is warranted. Scores that exceed 20 points on GDS FL and 10 points on GDS FS are considered to indicate moderate to severe depression (Alden, Austin, & Sturgeon, 1989; Yesavage et al., 1983).

The purpose of the step presented in this subchapter was to further analyze the psychometric properties of the Romanian versions of GDS FL (30 items) and GDS FS (15 items). The main objectives were to analyze the following properties of the Romanian versions: (1) criterion validity and ease of administration of the questionnaire (aspect validity), (2) construct validity; sensitivity, specificity and optimal cut-off values for discriminating between clinical and non-clinical population with regards to major depression.

3.3.5.1. Method

3.3.5.1.1. Participants

The study included data from a group of 172 elderly adults in rural and urban areas of Romania (Hunedoara and Alba County), consisting of 103 women (60%) and 69 men (40%), aged 60 and 89 years (M = 74.49, SD = 6.71). Participants were recruited both from the community settings (N = 85; 49%) and from elderly residential facilities (N = 87; 51%). Within the convenience sample the participants were selected considering the following inclusion criteria: participants aged over 60 who did not have a diagnosis of dementia or another condition associated with cognitive impairment. The absence of cognitive degradation has been verified by examining existing medical records and through clinical interviews. A

number of 63 (36.60%) participants were married and lived together with their spouse, two of them (1.20%) were never married, 70 (40.70%) were widowed and 37 (21.50%) divorced or separated. Most participants were retired (N = 158; 91.90%). The sample was heterogeneous in terms of monthly average income and education level (from primary to upper secondary education, with an average of 10 years of school attendance).

3.3.5.1.2. Procedure

In the second phase of the validation study, data collection was continued for a more extensive analysis concerning the psychometric characteristics of the scale, and in the final study a total sample of 172 persons over the age of 60 was used.

To analyze the psychometric properties, GDS was administered with a questionnaire containing socio-demographic data, medical problems, an individual clinical interview following DSM IV TR criteria and a number of other scales: the BDI-II, CES-D, PDSQ - depression subscale and SWLS for assessment of well-being. BDI-II and CES-D were administered to 50 participants, SWLS on 122 participants and PDSQ was completed by all participants in the study.

3.3.5.1.3. Measurements

In addition to GDS (Yesavage, 1982), the following scales were used: (1) *Center for Epidemiological Studies Depression Scale* (CES-D, Radloff, 1977), (2) *Beck Depression Inventory* (BDI-II, Beck, Steer & Brown adapt. David & Dobrea, 2012), (3) *Psychiatric Diagnosis and Screening Questionnaire - depression scale* (PDSQ, Zimmerman, 2001). These scales have also been used in the pilot study, where more details can be found. In addition, we have used:

(4) *Satisfaction with Life Scale* (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), adapted in Romanian by Cazan (2014). It is composed of five items and is one of the most frequently used scales for measuring subjective well-being. The results of the validation studies conducted on the Romanian population showed good psychometric properties of the scale (Cazan, 2014).

(5) *Clinical interview*. A semi-structured clinical interview using DSM IV-TR criteria (American Psychiatric Association, 2000) was used to determine the presence or absence of clinical depression. The interview was conducted by a certified clinician psychologist.

3.3.5.2. Results

3.3.5.2.1. Construct validity

As shown in Table 5, Pearson correlation coefficients with statistically significant positive values were obtained for both variants of GDS compared with all other depression scales included in the study, as well as statistically significant negative correlations between the two versions of the scale and SWLS.

Table 5. Convergent and discriminatory validity for GDS versions. Pearson correlation coefficients with PDSQ, BDI-II, CES-D and SWLS

GDS version	PDSQ N = 172	BDI-II N = 50	CES-D N = 50	SWLS N = 122
GDS LF (30 items)	.80**	.83**	.84**	-.68**
GDS SF (15 items)	.55**	.76**	.75**	-.70**

** $P < .01$

3.3.5.2.2. Criterion validity

The criterion validity of the GDS was analyzed by examining the scale's capacity to discriminate between clinically depressed and non-clinical participants. The 172 participants were divided into two groups - a clinical depression group and a control group - according to the results of the clinical interviews conducted following the DSM IV TR diagnostic criteria for major depression. Based on these interviews, a total number of 24 out of 172 participants (13.95%) were included in the clinical sample. GDS score means were then compared using the t-test for independent samples. It was assumed that participants in the clinical sample would have significantly higher scores on the GDS than participants in the control group. Table 6 presents the obtained results when comparing means gathered in the clinical group with those received in the control group. The results show that for the participants in the clinical group a significantly higher value was obtained for both GDS FL ($t(53.11) = 16.78, p < .001$), and for GDS SF ($t(49.36) = 15.88, p < .001$). These results suggest that the Romanian versions of GDS have the ability to differentiate between clinically depressed elderly and those who do not have a clinical depression.

Table 6. Comparison of GDS scores in the clinical group versus the control group

Versions	Clinical group			Control group		t Test for independent samples		
	N	M	SD	M	SD	T	df	p
GDS FL	24	21.58	3.05	8.55	5.65	16.78	53.11	.001
GDS FS	24	11.45	1.87	4.07	3.25	15.88	49.36	.001

3.3.5.2.3. Sensitivity and specificity

ROC (Receiver Operating Characteristics) analysis has also been used to determine the effectiveness of tools for differentiating between clinically depressed and non-depressed clinical patients as well as for setting optimal cut-off points for identifying cases of major depression when considering DSM IV TR diagnostic criteria as being the "gold standard" (major depressive episode). Table 7 presents data corresponding to the sensitivity and specificity for different cut-off points of the Romanian versions of GDS FL and GDS FS.

Table 7. Indices of sensitivity and specificity. Positive and negative predictive values and false positives of GDS LF and SF GDS at different limit points (95% confidence limits)

Threshold values	GDS FL				
	Sensitivity (%)	Specificity (%)	Predictive Value (%)		False positives (%)
			positive	negative	
17	100	89	0.60	1	0.00
18	88	91	0.60	0.98	9.50
19	83	92	0.63	0.97	8.10

Threshold values	GDS FS				
	Sensitivity (%)	Specificity (%)	Predictive Value (%)		False positives (%)
			positive	negative	
9	96	89	0.58	0.99	11.50
10	79	92	0.63	0.96	7.40

The results showed that for the sample used in the present research a cut-off point of 17 on the GDS LF yielded a 100% sensitivity rate, meaning that all clinically depressed cases were correctly identified and an 89% specificity rate suggesting that a large percentage of participants without the disorder were correctly identified as not clinically depressed. A cut-

off point of 18 on the GDS LF yielded a sensitivity rate of 88% clinically depressed cases correctly identified and a specificity rate of 91% cases without clinical depression that also were correctly identified as not showing symptoms consistent with the disorder. Furthermore, a cut-off point of 19 on the GDS LF yielded a sensitivity rate of 83% clinically depressed cases correctly diagnosed and a specificity rate of 92% cases correctly identified as not having clinical depression. Conversely, for the GDS SF a cut-off point of 9 yielded a 96% sensitivity rate and 89% specificity rate, whereas a cut-off point of 10 yielded a 79% sensitivity rate and 93% specificity rate.

3.3.6. Discussions and conclusions

Analysis of the data obtained showed that both GDS FL and FS GDS had a high internal consistency. The results are congruent with other published data on this topic (Yesavage et al., 1983, Sheikh & Yesavage, 1986; Stiles & McGarrahan, 1998; Montorio & Izal, 1996). When GDS scores were compared with the results obtained at BDI II, CES-D, PDSQ - depression subscale and SWLS, the positive correlation coefficients with statistically significant values between the GDS and the depression scale as well as negative correlation with SWLS showed that both variants have an acceptable construct validity. Previous studies have also reported significant correlations between GDS and other tools measuring depression, with coefficients ranging from .58 to .89 (Stiles & McGarrahan, 1998).

Observations made during the application of the scale confirmed that GDS is easier to apply to this age group than other commonly used depression scales, primarily because of the low complexity of item response variants. Although there are studies showing similar effectiveness of CES-D for measuring depression in the elderly (e.g. Wancata et al., 2006), the scale's multiple response variants led to difficulties in applying it to the sample used in the validation studies presented here. As far as BDI II is concerned, this problem seems to be even more pronounced. As mentioned above, ease of application is an important aspect for several reasons. The scale can also be used by other health professionals or social workers who can help identify early depression at this age, especially considering that many of the elderly people seem to first address professionals other than health practitioners when they feel depression-specific symptoms. Another strong point for research is that ease of application does not overload measurement procedures, which is particularly important when depression has to be measured alongside a large number of other variables in this population category.

The results show that GDS differentiates efficiently between subjects with major depression and subjects who do not have this disorder. The Romanian versions of the GDS have also demonstrated good diagnostic accuracy. Different cut-off points for the two versions of the scale might be considered, depending on the purpose of the scale's use. Given that GDS is a clinical depression screening tool, we may consider sensitivity as more important than specificity and, therefore, select a lower cut-off point so that we do not have a high rate of false negatives and to obtain a maximum percentage of identified major depression cases. In addition, considering an acceptable positive and negative likelihood ratio or predictive value, cut-off point of 9 on the GDS SF and 17 on the GDS LF could be selected in clinical situations so that the shift in probability remains a high one and the scale can be considered an useful instrument. When using the GDS for research purposes, a lower cut-off point of 10 on the GDS SF and cut-off points of 19 or even 18 on the GDS LF could be selected, which would correspond to the lowest acceptable rates of false positives.

As described above, at least for the sample used in the present study, the cut-off points, the specificity and sensitivity of the GDS differ from those presented in other studies (see also Wancata et al., 2006). As noted by the authors, the different external "gold

standards" used in studies on the validity of GDSs identify different people as depressed, and this has a certain effect on the criterion validity. In the extended validation study presented here, only the criteria for major depressive episode (DSM IV TR) were regarded as the "gold standard", and this might be the main reason why the cut-off points that could be considered optimal are higher. Bae and Cho (2004), for example, found in their study of the Korean GDS versions higher threshold values. The authors discuss cultural differences as one of the possible explanations (e.g. how affect is expressed in different cultures) or differences in other characteristics of the sample or population (e.g. more depressed participants) that might interfere with the values obtained for the criterion validity (Bae & Cho, 2004). These possible explanations might also apply to the research presented here.

There are certain limitations of the study which need to be considered. One of these limits is the relatively small size of the sample used in the extended study for the needs of a validation analysis. Another limitation is that the sample represents a convenience sample. Inclusion in the study of a larger and more representative sample could be useful to confirm the results obtained in the present study. The validation study of the Romanian versions of the GDS on a larger sample, possibly using a representative clinical group, may also provide additional relevant data on the optimal cut-off points as well as on the factorial structure of the questionnaire. Nevertheless, the results show that the Romanian versions of the GDS (Long Form and Short Form) can be considered as valid tools for identifying and assessing depression among the elderly population in Romania.

Study 4. The development and psychometric properties of the Elderly Attitudes And Beliefs Scale (EABS)⁴

3.4.1. Introduction

Studies on depression show that cognitive vulnerability understood in terms of dysfunctional/irrational cognitions - the central constructs of cognitive theoretical and therapeutic models for depression - play a very important role in explaining depression in the general population (Haaga et al., 1991).

Although there is empirical evidence regarding the efficacy of cognitive and behavioral therapies in the elderly (Knight & Satre, 1999; Laidlaw et al., 2004), little attention has been paid to Ellis's model for psychopathology (Ellis & Dryden, 1997) in late life. According to Ellis (1999), elderly share the core irrational beliefs found in younger adults (demandingness - DEM, self-downing/global evaluation - SD/GE, low frustration tolerance - LFT and awfulizing - AWF) but have also specific self-defeating philosophies and assessing their unique irrationalities is an important part in the therapeutic process.

In the article regarding REBT adaptation for use with elderly people (Ellis, 1999), the author presents three major types of irrational beliefs specific in elders: self-downing irrational beliefs (e.g. "I must do as well as I previously did when I was younger and more able, else I am an inadequate person"), frustration creating irrational beliefs (e.g. "Other people must treat me kindly and fairly especially because of my age and the limitations and disabilities that go with it. When they treat me shabbily, they are rotten people") and hostility

⁴ Published study (revised text): Stefan, A. M., Băban, A., Pinteau, S. (2017), Development and psychometric properties of Elderly Attitudes and Beliefs Scale (EABS). *Romanian Journal of Experimental Applied Psychology*, 8, 1-7 - study presented at the PSIWORLD Conference 2016 and later published in the special issue of RJEAP dedicated to the conference proceedings. The authors contributed to the manuscript as follows: Stefan, A.M. - design, data collection and analysis, writing the manuscript; Băban, A. - data interpretation, manuscript structure; Pinteau, S. - data analysis and interpretation of results.

creating irrational beliefs (e.g. “The special problems and difficulties of old age should not exist and it's too hard to live with them”). The author argues that by dealing with the “special” irrational thoughts which elders have, we can increase the efficacy of the intervention and create a stronger therapeutic alliance. An important part in adapting REBT for use in elderly population is, therefore, assessing these specific irrational cognitions.

The objectives of the present study are the development and validation of a psychometric instrument (EABS - Elderly Attitudes and Beliefs Scale) that evaluates specific cognitive vulnerability in elderly in terms of irrational cognitions congruent with Ellis’s model for psychopathology (Ellis & Dryden, 1997).

3.4.2. Method

3.4.2.1. Scale development

The development of the Elderly Attitudes and Beliefs Scale was based on a previous systematic review of published literature on depression in elderly, performed using an electronic database search. Additional relevant studies were searched manually. Previously used and validated measures of cognitive vulnerability and similar scales were analyzed in the process of item development: Attitudes and Beliefs Scale 2 (ABS2; DiGiuseppe et al., 1988), Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978), Dysfunctional Attitudes Scale for Medically Ill Elders (DASMIE, Koenig et al., 1984), Attitudes to Aging Questionnaire (AAQ; Laidlaw et al., 2007).

Another important part in the item development process was the interviewing of 50 elders (from community and institutionalized) with and without depression symptoms. The interviews were performed by a certified clinical psychologist and relevant cognitive content was noted. Following this step, a preliminary list of 34 items was developed. The phrasing was carefully chosen so that items would be easily understood by the target group, regardless of their educational level. The list was then analyzed by a group of four experts (certified psychology practitioners and researchers). Corrections were made and redundant items were eliminated. The result was a 25 item scale (7 items scored in reverse) with answers ranging from 1 to 4 (1 - I strongly disagree, 2 - I disagree, 3 - I agree, 4 - I strongly agree) which reflects the main self-defeating philosophies of elderly with depression symptoms phrased consistent with Ellis’s cognitive model for psychopathology (the items reflect the concepts of DEM, GE/SD, AWF and LFT) and the author’s opinions on the most common specific irrational beliefs found in elderly clients (Ellis, 1999).

3.4.2.2. Validation study

The participants were 122 elders recruited from community settings (49%) and long-term care facilities (51%) from urban and rural areas located in Hunedoara and Alba counties, Romania. The inclusion criterion was a minimum age of 60 years. Respondents in the final sample were aged between 60 and 88 years (Mean=74.08; SD=0.627), 47 were men (39%) and 75 women (61%).

The Romanian version of Psychiatric Diagnostic Screening Questionnaire - depression subscale (PDSQ; Zimmerman adapt. Ciucă & Albu, 2010) was used for measuring depression. PDSQ - depression subscale consists in 21 items with “yes/no” answers that describe depressive symptoms congruent with DSM IV diagnostic criteria. Validation studies on Romanian population demonstrated good psychometric properties (Ciucă et al., 2011). The Romanian version of the Satisfaction with Life Scale (SWLS; Diener et al, adapt. Cazan, 2014) was also applied for validation purposes. SWLS is composed of 5 items and is one of the most widely used scales for the measurement of subjective well-being. Results from

validation studies conducted on the Romanian population also presented sound psychometric properties (Cazan, 2014). As a measure for general cognitions, the Attitudes and Beliefs Scale - short form (ABSs; David, 2002) was used. The scale consists in 8 items describing rational and irrational cognitions congruent with the main constructs presented in Ellis's model for psychopathology (Ellis & Dryden, 1997).

A certified clinical psychologist administered EABS along with PDSQ - depression subscale, SWLS and ABSs to the sample of 122 elders described above. After a medium period of two weeks EABS was applied again for test-retest reliability analysis. SPSS was used for data analysis regarding the scale's factor structure, reliability (internal consistency and test-retest reliability) and construct validity.

3.4.3. Results and discussions

3.4.3.1. Factorial analysis

An exploratory factor analysis was conducted using Direct Oblimin rotation method with extraction based on eigenvalues greater than 1. Results revealed a seven-factor structure of the scale. After exploring the factor loadings of the items and conducting a parallel analysis, a two-factor structure was retained. The two factors explained 40.25% of the variance in the data.

The first factor emerging from the factor analysis (30.38% of the total variance) represents a "self-downing cognitions" dimension of the scale and the items included in this component are congruent with the first irrational beliefs categories described by Ellis (1999) regarding specific cognitive vulnerability in elders. The second factor (9.87% of the total variance) denoted a "frustration or hostility creating cognitions" dimension. This factor is composed of items (cognitions) congruent with both of what Ellis (1999) labeled "frustration creating irrational beliefs" and "hostility creating irrational beliefs".

The self-downing cognitions (SD) subscale (mean = 29.33; SD = 8.34) is composed of 12 items with 5 items scored in reverse and frustration or hostility creating cognitions, (FH) subscale has 13 items with 2 items scored in reverse (mean = 34.37; SD = 7.33).

3.4.3.2. Fidelity and validity of the construct

EABS shows good internal consistency for the global scale ($\alpha = .89$) and also for the two subscales: $\alpha = .90$ for SD subscale and $\alpha = .76$ for FH subscale. The Pearson correlation values between the first and the second assessment scores (N=30) reveal acceptable test-retest reliability ($r = .78$, $p < 0.01$). The construct validity of the scale was tested by performing a correlational analysis between EABS scores and measures of depression, well-being and general cognitions (Table 8).

Table 8. Matrix of correlations between variables (MODEL)

Variable	M	SD	1.	2.	3.	4.
1. Specific attitudes and beliefs (EABS)	54.37	12.94		.682**	.710**	-.521**
2. General attitudes and beliefs (ABSs)	17.50	5.22	.682**		.612**	-.460**
3. Depression symptoms (PDSQ - depression)	3.72	4.03	.710**	.612**		-.642**
4. Satisfaction with life (SWLS)	25.27	6.34	-.521**	-.460**	-.642**	

** $p < 0.01$

A strong positive relationship was found between specific cognitive vulnerability in elders (EABS) and symptoms of depression (PDSQ - depression subscale) and a significant negative relationship between specific cognitive vulnerability in elders (EABS) and well-being (SWLS), the data suggesting that elders with a high level of specific irrational thoughts are more likely to be depressed ($r = .71, p < 0.01$) and have a low level of satisfaction with life ($r = -.52, p < 0.01$). Data also showed a significant positive correlation between scores to EABS and the general cognition scale (ABSs) scores ($r = .68, p < 0.01$), further supporting the instrument's construct validity.

3.4.4. Conclusions

Factor analysis supported a two-factor structure of the scale: self-downing cognitions and frustration or hostility creating cognitions. Although a three-factor structure corresponding to the three types of specific irrationalities presented by Ellis (1999) was not supported, the two components revealed through factor analysis partially match in terms of included cognitive themes: the first factor (SD) corresponds to the first category (self-downing irrational beliefs) presented by Ellis (1999) and the second factor (FH) to both "frustration creating irrational beliefs" and "hostility creating irrational beliefs" categories described by the author.

Results also show good reliability and construct validity of EABS. Although the data supports the scale's good psychometric properties, the study has its limitations and results should be treated with caution. It is important to note that the study used a rather small sample, especially for factor analysis, and it was a convenience sample. Additional validation studies with a larger and, preferably, randomized sample would be useful for further refinement of the scale. Furthermore, the development process considered mostly the Romanian population and relevant cognitive themes might be slightly different in other cultures.

The Elderly Attitudes and Beliefs Scale (EABS) is, however, a promising tool, useful in both psychotherapeutic and research practice, and the results of this study can be used in the investigation of specific cognitive vulnerability in elderly as it is presented in Ellis's cognitive model (Ellis & Dryden, 1997).

Study 5. Stressors and cognitive vulnerability in elderly depression ⁵

3.5.1. Introduction

Some of the most popular theoretical and psychotherapy models for depression are the cognitive vulnerability-stress models that conceptualize cognitive vulnerability in terms of irrational or dysfunctional cognitive content and processes. For instance, Ellis's (1997) and Beck's (1987) models for psychopathology consider emotional problems such as depression as a result of the interaction between stressful life situations and irrational cognitions (beliefs, attitudes, thoughts) associated with the stressors that we are facing. If our cognitions about negative events are rational, the emotions will be functional, but when we have a distorted,

⁵ Study submitted to *Journal of Affective Disorders* (text revizuit), accepted for *peer-review*; final decision is currently expected for the revised version (*minor revisions*): Stefan, A. M., Băban, A., Pinteș, S. (2019). Depression in elderly, adverse life situations and the mediating role of irrational cognitions. The authors contributed to the manuscript as follows: Stefan, A. M. - design and management of the study, data collection and analysis, writing the manuscript; Băban, A. - general coordination and management of the study, theoretical framework, data interpretation, structure of the manuscript; Pinteș, S. - data processing and interpretation of the results.

irrational interpretation of a stressful situation the resulting emotions will be dysfunctional, leading to psychological problems such as clinical depression (see also Ellis & Dryden, 1997; Beck, 1987).

The fact that depression in older age has some differences in presentation compared to depression found in other age groups may lead to the idea that different or at least specific etiological mechanisms might be involved (see also Munk, 2007a; Sözeri-Varma, 2012). There are studies that challenge the involvement of certain biological factors in depression which initially appear at this age. This can cause differences in presentation and could explain why some individuals experience depression only in late life (see Munk, 2007a). It is also true that most risk factors seem to occur more frequently in advanced ages and losses are more frequent. The loss of a close person is more common, we may find that social interactions and low activity levels, medical problems and associated physical dysfunctions, pain and complications related to medication are impaired (Hughes et al., 1988; Sözeri-Varma, 2012). This might lead to the conclusion that depression is a normal state in older age. However, as other authors note (Blazer, 2003; Munk, 2007a; Fiske et al., 2009), not all elderly people are depressed, not even those who face major difficulties specific to this age. In this sense, a stress-cognitive vulnerability model may be more appropriate for explaining underlying mechanisms of depression in old age.

Unfortunately, most research on depression in the elderly has so far focused on factors other than cognitive vulnerability (see also Blazer, 2003; Fiske et al., 2009) when analyzing depression at this age. Some studies suggest that there is an association between a higher level of stressful events and depressive symptoms in the elderly (Linn et al., 1980; Kraaij et al., 2002; Blazer & Hybels, 2005; Magnil et al., 2013). There are also studies that have not found a direct effect of stressful events on depression when testing a multivariate model but have rather concluded that the effect of stressful events is altered by certain psychological factors such as cognitive or personality style (Mazure et al., 2002).

Other studies additionally show an association between a number of medical problems and depression in older age (see Blazer & Hybels, 2005). Health status in general, the level of functionality as well as pain appear to have a significant impact on depressive symptoms in the elderly (Hale, 1982; Magni et al., 1985; Glass et al., 1997; Mazure et al., 2002; Kraaij et al., 2002; Street et al., 2007). However, there is evidence for a mediated effect through cognitive/personality type vulnerability factors or personality style (Steunenbergh et al., 2006; Street et al., 2007).

Chui et al. (2015) highlight the importance of evaluating depressive symptoms by taking important correlates for such disorders into account, including physical health and functionality to reveal individual differences in the trajectory of depressive symptoms in older age. An exclusion of medical problems from the studies conducted could lead to an underestimation of depression in elderly people (Chui et al., 2015).

When taking a closer look at the cognitive theories for depression, the causal role of cognition in depression has not sufficiently been supported or validated (Haaga et al., 1991). In fact, even Beck (1987) argued that cognitions act as “vulnerability markers for depression by sensitizing the individual to a certain type of negative life experiences” (Beck, 1987). Thus, it is important to consider both factors that act as stressors and also cognitive vulnerability factors when testing a model for explaining depression in old age.

As mentioned above, little attention has been paid to Ellis’s psychopathology model for depression in the elderly. In his article on REBT adaptation for elderly clients (Ellis, 1999), the author claims that we can identify the same basic irrational beliefs in the elderly as found in the general population (*demandingness, self-downing/global evaluation, low frustration tolerance and awfulizing*), but we also find specific self-defeating cognitions, and

addressing them contributes to the success of the therapeutic intervention (Ellis, 1999; Stefan et al., 2017). Similarly, studying the influence of more specific cognitive vulnerability type factors has the potential to provide a valuable insight on the particularities of depression among the elderly.

The aim of the present study was to analyze the role that specific and general cognitive vulnerability, conceptualized as irrational cognitions (Ellis, 1999), play in the underlying mechanisms of depression in late life. First, we analyze how these two variables relate to the depression symptoms taking into account stressors that literature identified as important risk factors for depression in the elderly: stressful events, medical problems, disability and perceived pain. Second, we test a model that is congruent with Ellis's theory for psychopathology (Ellis & Dryden, 1997) and the stress-vulnerability perspective for depression in which general and specific cognitive vulnerability act as mediators in the relationship between the stressors mentioned above that are often encountered at old age and depressive symptoms. Third, we analyze whether specific vulnerability has a more potent mediation effect in the relationship described above than general vulnerability and, therefore, can better explain depression among the elderly.

3.5.2. Method

3.5.2.1. Participants

A sample of 120 elderly from urban and rural areas of Romania was used in the present study. Participants were aged between 60 and 88 years (Mean = 74.05; SD = 0.693) and were selected both from community settings (50%) and residential facilities for elderly (50%). Besides age, an important selection criterion was the absence of dementia or any other disorder involving cognitive degradation. This aspect was verified through interviews and, where available, through medical documents analysis. The sample included 47 men (39%) and 73 women (61%) of whom 41 were married (34%), 22 unmarried or separated (22%) and 53 bereaved (44%). The sample was heterogeneous in terms of educational level as well as medium monthly income and most of the participants were retired (95%).

3.5.2.2. Procedure

A cross-sectional study design was applied. The participants were interviewed and evaluated individually by a single certified clinical psychologist. In the preliminary interview information concerning demographic data (including age, marital status, occupation and medium monthly income) was gathered. Each participant was then evaluated using a series of scales measuring current depressive symptoms, general and specific attitudes and beliefs, medical problems, disability and stressful events in the past year. The Romanian versions of the scales were used for all measurements included in the evaluation. Informed consent was obtained from all participants.

3.5.2.3. Measurements

(1) *Geriatric Depression Scale* (GDS; Yesavage et al., 1983) was used to measure depression in the elderly. In this study, the Romanian 30-items version of the scale was applied (Ștefan & Băban, 2017). The Cronbach alpha coefficient for GDS was .90.

(2) *Attitudes and Beliefs Scale - short form* (ABS, David, 2002) was used to measure general cognitive vulnerability in the elderly. In the present study, the Cronbach alpha coefficient for ABSs was .63.

(3) *The Elderly Attitudes and Beliefs Scale* (EABS, Ștefan et al., 2017) is a 25-item rating scale designed by the authors for measuring specific cognitive vulnerability among the elderly (see *Study 4*). The items describe the main self-defeating cognitions found in

depressed elderly and the phrasing is in line with Ellis's theory for psychopathology and the author's view on specific irrational beliefs found at this age (Ellis, 1999; Ștefan et al., 2017). The scale was also originally developed in Romanian. Cronbach's alpha coefficient for EABS in this study was .89.

(4) *Health Assessment Questionnaire* (HAQ-DI and visual scale for pain assessment of HAQ, originally developed by James F. Fries in 1978) was used for measuring physical functionality (see also Fries, 1980; Ramey et al., 1996; Bruce & Fries, 2005). The scale consists of 20 questions related to the following 8 sections: dressing, arising, eating, walking, hygiene, reach, grip and activities. Each item has a four-level response set with scores ranging from 0 to 3, with higher scores indicating more disability (0 = without any difficulty; 1 = with some difficulty; 2 = with much difficulty; 3 = unable to do). The category scores are then averaged into an overall disability index from zero to three (Bruce & Fries, 2005). The visual scale for pain assessment of HAQ was also included in the evaluation procedures.

(5) *The Cumulative Illness Rating Scale for Geriatrics* (CIRS-G; Miller et al, 1992) was applied for quantifying medical problems in the elderly. It consists in a list of 14 categories describing medical problems frequently encountered in elderly. Each category must be rated by the evaluator with a score of 0 to 4 depending on the severity of the medical condition. The scoring of CIRS-G results in a number of 5 indicators: the total number of categories endorsed, the total score, the ratio of total score/number of endorsed categories (yielding a severity index per category), and the number of categories at level 3 and 4 for a given patient (Miller et al, 1992; Miller & Towers, 1991). In the present study, Cronbach's alpha coefficient for CIRS-G was 0.66.

(6) *The Elders Life Stress Inventory - Modified* (ELSI-M; Aldwin, 1990) was applied for measuring stressful events. It contains 30 items with "yes/no" answers describing negative events and the participant is questioned whether the event did or did not occur in the past year. The adaptation of CIRS-G and ELSI-M for use on the Romanian population followed the same procedure described above for the HAQ. In this study, Cronbach's alpha coefficient for ELSI-M was 0.55.

The HAQ, CIRS-G and ELSI-M scales were adapted for use on Romanian population following general recommendations regarding translation and adaptation procedures of psychometric instruments.

3.5.2.4. Statistical analysis

As discussed above, from a stress-cognitive vulnerability perspective, the variables measured in the present study can be integrated in an explanatory model for depression in late life where medical problems, perceived pain, disability and negative events are the stressors and irrational attitudes and beliefs are vulnerability factors. Considering the fact that the variables of interest are not viewed as independent factors leading to depression but rather as part of underlying mechanisms of the disorder, a mediation model was considered suitable.

Following the method proposed by Baron and Kenny (1986), eight mediation models were used to test the mediation effect of specific and then general cognitive vulnerability in the relationship between each stressor and depression. Measured stressors (negative events, health problems, perceived pain and disability) constituted the independent variables, specific and general cognitive vulnerability (taken into account one at a time, in two different models for each stressor) the mediator variables and the level of depressive symptoms the dependent variable. The statistical significance of the indirect/mediated effect was tested using Sobel-Z-test. Also, we computed the mediated effect size (ME) as the percentage of the total effect expressed through the mediator ($ME = [(c-c')/c]*100$) according to MacKinnon (2008).

3.5.3. Results

Descriptive statistics and correlation analysis results are shown in Table 9.

Table 9. Means, standard deviations and Pearson correlation values for the variables of interest.

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.
1. Depression (GDS)	9.87	7.01							
2. General attitudes and beliefs (ABSs)	17.39	5.18	.544**						
3. Specific attitudes and beliefs (EABS)	54.12	12.86	.722**	.675**					
4. Medical problems (CIRS-G)	7.95	4.57	.234*	.181*	.214*				
5. Disability (HAQ)	0.52	0.70	.315**	.288**	.353**	.310**			
6. Perceived pain (visual scale of HAQ)	1.18	0.93	.373**	.218*	.197*	.261**	.487**		
7. Stressful events (ELSI)	4.17	2.04	.386**	.221*	.263**	.356**	.174	.168	

*p < 0.05; **p < 0.01

Results demonstrate that both variables describing cognitive vulnerability (specific irrational cognitive processes and general cognitive processes) are positively correlated to depressive symptoms in elderly, with specific attitudes and beliefs showing a higher correlation than general vulnerability (moderate correlation). Weak, but statistically significant, positive correlations were found between stressor type variables (medical problems, disability, perceived pain and stressful events) and depressive symptoms and also between stressors and cognitive vulnerability variables.

A statistically significant mediation effect was found for both general cognitive vulnerability ($a*b = .11$, Sobel $Z = 2.28$, $p < .05$) and specific cognitive vulnerability ($a*b = .18$, Sobel $Z = 2.88$, $p < .01$) in the relationship between stressful events and depression. Although the two variables demonstrate only a partial mediation, the effect of stressful events on depression significantly decreases when cognitive vulnerability is introduced into the model. Further, results show a stronger, almost double mediation effect size of specific attitudes and beliefs of elderly ($ME = 45.86\%$) compared to general cognitive vulnerability ($ME = 25.56\%$), meaning that almost half of the overall effect on depressive symptoms was due to the mediation effect of specific cognitive vulnerability while general cognitions explain only a quarter of the total effect.

In the next step, the mediation effect of general and specific cognitive vulnerability in the **relationship between health and depression** was analyzed. As results show, the mediation effect is only statistically significant when specific cognitive vulnerability is considered as a mediator ($a*b = .15$, Sobel $Z = 2.33$, $p < .05$). When specific attitudes and beliefs are added into the model, the effect of health problems on depression becomes statistically insignificant, demonstrating a high mediation effect ($ME = 63.89\%$). It is worth mentioning that the results show also a statistically significant but weak total correlation between health problems and depression symptoms ($c = 0.23$, $p < 0.01$). General cognitive

vulnerability had no statistically significant mediation effect in the relationship between the two variables.

The results show a partial mediation effect of both general ($a*b = .11$, Sobel $Z = 2.89$, $p < .001$) and specific cognitive vulnerability ($a*b = .14$, Sobel $Z = 2.15$, $p < .05$) in the **relationship between perceived present pain and depression**. The effect of perceived present pain on depression decreases when one of the variables describing cognitive vulnerability is introduced into the model. The mediation effect size is higher in the case of specific cognitive vulnerability (ME = 36.17%) compared to general cognitive vulnerability (ME = 28.37%).

When the disability index of HAQ was considered as an independent variable, a statistically significant mediation effect was found in the case of specific cognitive vulnerability as a mediator in the relationship with depression ($a*b = .25$, Sobel $Z = 3.78$, $p < .001$). The effect of disability on depression decreased significantly and became statistically insignificant when the variable measuring specific attitudes and beliefs of elderly was introduced into the model, demonstrating a high mediation effect size (ME = 79.37%). The general cognitive vulnerability variable also had a statistically significant mediation effect in the **relationship between disability and depression** ($a*b = .14$, Sobel $Z = 2.89$, $p < .01$), but a much smaller one compared to specific attitudes and beliefs (ME = 45.08%).

3.5.4. Discussions and conclusion

Results have shown that both specific and general cognitive vulnerability are positively correlated to depressive symptoms in elderly, with specific attitudes and beliefs showing a higher correlation than general vulnerability. Also, correlations between cognitive vulnerability factors and depressive symptoms were considerably higher than those between stressors (stressful events, disability, perceived pain and cumulative present health problems) and depression in elderly. It is important to note that even though cumulative health problems significantly correlated with depressive symptoms, a small correlation value was identified. These results suggest that cognitive vulnerability factors, especially specific attitudes and beliefs, play a significant role in elderly depression, perhaps a more important one than health problems. Our findings are consistent with other studies that found a higher effect of cognitive/personality style factors on depression than stressors such as medical related problems or stressful life events (Beekman et al., 2001; Mazure et al., 2002; Steunenberg et al., 2006).

To further analyze the complex contribution that specific stressors and cognitive vulnerability might have to depression in old age, we tested a cognitive vulnerability-stress model using a mediation analysis procedure where cognitive vulnerability was a mediator between the stressors mentioned above and depressive symptoms in the elderly. We found a significant mediation effect of both specific and general cognitive vulnerability in the relation between stressful events, perceived pain and functionality and depression, with specific irrational cognitions demonstrating a higher, almost double in some cases, mediation effect size. In the case of cumulative health problems, no significant mediation effect was found for general cognitive vulnerability, only specific attitudes and beliefs demonstrating a significant mediation effect.

The present study has some limitations, and results must be treated with caution. First, the characteristics of the sample must be noted. The sample was a convenience one and results found when analyzing a rather small sample from a specific area or culture might not be representative for the general population, especially considering that the focus in our study were attitudes and beliefs that are probably culture sensitive. Furthermore, the study had a cross-sectional design, and this might prove problematic given the type of hypothesis tested in

our study. A longitudinal approach might give a clearer view on the underlying relations between stressors, cognitive vulnerability and depression in elderly.

The results of the present study suggest that the effect which adverse life situations such as illness or negative events have on depressive symptoms in elderly is mediated by cognitive vulnerability. These results are in line with other published studies that show cognitive/personality style factors such as neuroticism (Lyness et al., 1998; Ormel et al., 2001), pessimism (Isaacowitz & Seligman, 2001), sociotropy and autonomy (Mazure et al., 2002), attributional style (Meyer et al., 2010) as modifying the relation between stressors and depression in old people. In other words, adverse events may only lead to depression in late life when accompanied by irrational thinking, especially self-defeating philosophies related to old age.

CHAPTER IV. GENERAL CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

4.1. Contributions for research, methodology and clinical practice

The presented studies bring important **theoretical contributions to research**. First, the systematic review in *Study 1* is among the few studies that synthesize the psychological factors involved in elderly depression in a broader and more exclusive way. To the best of the knowledge of the author, it (so far) represents the only systematic review of literature that focuses exclusively on this type of factors in the case of depression in late life. *Study 2* also makes similar contributions, being among the few which analyze the difference between the effects of factors related to cognitive vulnerability and the effects of adverse situations on elderly depression. The two studies additionally provide empirical evidence on cognitive theories of depression in late life. Although there are opinions that, unlike depression at other ages, depression in the elderly people would involve more factors than the psychological ones, the studies included in this paper argue in favor of a stress-psychological vulnerability theoretical explanatory model, where psychological factors are considered to be at least as important in the etiopathogenetic mechanisms of depression.

Furthermore, by creating or adapting and validating the GDS and EABS scales (*Study 3* and *Study 4*) - scales that are specially designed to measure depression and cognitive vulnerability in the elderly - the studies bring **important methodological contributions**, both for research and for clinical practice. Two scales have been made available to further research, which can be highly useful in testing models that include these constructs, with focus on the psychological problems of the elderly. As previously mentioned, the two scales are also developed in a manner by which they can easily be applied to this category of population, due to simple and meaningful phrasing of items and response alternatives. This quality is important because it does not overload the evaluation procedure, especially when several constructs must be measured by means of concomitant measurements.

Also, an important contribution brought by *Study 5*, is the conceptualization of depression in late life through theoretically grounded etiopathogenetic mechanisms. *Study 5* is among the few studies, if not the only one, that analyzes depression in the elderly through Ellis's cognitive theory of psychopathology (1997). Additionally, compared to other studies analyzing the simple association between certain factors, *Study 5* tests a complex model that refers rather to certain processes behind the occurrence of this disorder, the mechanisms by which irrationality mediates the relationship between a particular unfavorable context and depression in the elderly.

In terms of **clinical practice**, the studies conducted in this research empirically support the assumptions behind the mechanisms of change in cognitive behavioral therapies

(see Ellis & Dryden, 1977; Beck, 1987). The results provide evidence that irrational cognition factors play an important role in depression in the elderly people. It seems that cognitive vulnerability plays an at least as important role as other non-psychological factors, and the "good news" for depression therapy in the elderly is that while the weights of the third age are to a large extent unavoidable for each of us, unhealthy thoughts are - as they appear in one of the basic assumptions of cognitive behavioral therapy - modifiable through specific psychotherapeutic techniques. Therefore, late life with its problems is not synonymous with depression, even when accompanied by dysfunction, pain or increased number of medical problems.

As Ellis (1999) and others (e.g. Munk, 2007b) emphasize, elderly people are a particular category of clients in therapy, and the techniques used need to be adapted to their characteristics for psychological treatment to be effective. As far as adaptation is concerned, it is necessary to act at the level of each stage of the therapy process, one of the important steps being to evaluate depression and unhealthy cognitions as part of its conceptualization. The specialized scales developed in *studies 3* and *4* meet these requirements. The GDS provides an accurate assessment of the depressive symptoms level and it is easy to administer. It is also useful in evaluating the progress and effectiveness of therapy by making repeated measurements. EABS also has the same utility in measuring the level of specific irrational cognitions and, in addition, can provide valuable material for cognitive restructuring and other cognitive psychotherapeutic techniques by analyzing the answers to the items included. Furthermore, conceptualizing the elderly client's problems from a stress-cognitive vulnerability perspective (*Studies 2* and *5*) can favor the development of hope for healing in the first part of the therapy process.

The GDS is also a useful tool for screening depression in the elderly and can be easily applied by other employees from institutions dedicated to providing medical, social, residential or other services to elderly persons. As some studies show (e.g. Chui et al., 2015), depression in the elderly might be underdiagnosed, and an elderly person is more likely to address the symptoms of professionals in service areas other than mental health. Therefore, the instrument can further be useful for identifying depression on a large scale.

4.2. Limitations and future research directions

Part of the further development opportunities for the studies presented in this research come from the possibilities of improving the study design or sampling. Future research could use more representative, randomized samples and possibly use stratification procedures to achieve even more convincing results. It would be useful for future studies to take into account the mechanisms of depression in the elderly and the factors involved using age-stratified samples because, as mentioned above, some of the research revealed differences between the younger elderly and older elderly people (e.g. Chui et al., 2015).

In studies 3, 4 and 5 a cross-sectional study design was applied, which also brings some limitations. In a longitudinal study, the mechanisms seen from a stress-cognitive vulnerability perspective could be more accurately captured, for example by establishing a certain temporal precedent of cognitive schemes that predispose to depression as people age. As shown in the cognitive theories for depression (see Ellis & Dryden, 1997; Beck, 1987), certain dysfunctional cognitive schemas trigger adverse life situations and, consequently, dysfunctional emotions such as depression. In a longitudinal study focusing on depression in the elderly, this type of schema (representing a specific cognitive vulnerability) can be measured before senior age and then again after the person is considered to be old, in order to

see more clearly how the factors of stressor type and cognitive vulnerability type are associated in elderly depression.

Further, more extensive studies can be made to analyze the psychometric properties of the GDS and EABS scales in order to confirm their validity. With regard to scales used to measure certain factors such as HAQ, Health (CIRS-G) and stressful events (ELSI-M), validation studies on the Romanian population would be needed.

Given the fact that GDS is easy to administer, a wider depression screening program might be launched in the future, and the elderly identified as being depressed might be included in a CBT therapy program that is adapted to the elderly population and using the findings of the studies presented in this work. In this way, the efficacy of a CBT or REBT therapy protocol that is adapted for the elderly can also be evaluated.

Finally, the selection of the factors analyzed and included in the tested models is not exhaustive. Future studies might also take other factors, which are considered to be important within the literature on depression in the elderly, into account, such as social factors (Murphy, 1982; see also Blazer, 2003; Munk, 2007a; Fiske et al., 2009), in order to have a broader perspective following a bio-psycho-social model.

REFERENCES

- Abrams, R. C., Rosendahl, E., Card, C., & Alexopoulos, G. S. (1994). Personality disorder correlates of late and early onset depression. *Journal of the American Geriatrics Society*, 42, 727-731.
- Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: a theory based subtype of depression. *Psychological Review*, 96, 358-372.
- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. (1978). Learned helplessness in humans: critique and reformulation. *Journal of Abnormal Psychology*, 87, 49-74.
- Allen, J., & Annells, M. (2009). A literature review of the application of the Geriatric Depression Scale, Depression Anxiety Stress Scales and Post-traumatic Stress Disorder Checklist to community nursing cohorts. *Journal of clinical nursing*, 18(7), 949-959.
- Alden, D., Austin, C., & Sturgeon, R. (1989). A correlation between the Geriatric Depression Scale long and short forms. *Journal of gerontology*, 44(4), 124-125.
- Aldwin, C. M. (1990). The elders life stress inventory: Egocentric and nonegocentric stress. In M. A. P. Stephens, J. H. Crowther, S. E. Hobfoll, & D. L. Tennenbaum (Eds.), *Series in applied psychology. Stress and coping in later-life families*. Washington, DC: Hemisphere Publishing Corp, 49-69.
- Alexopoulos, G.S. (2003). Role of executive function in late-life depression. *Journal of Clinical Psychiatry*, 64, 18-23.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (4th ed., text rev.)*. Washington: American Psychiatric Publishing.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Arlington: American Psychiatric Publishing.
- Andreas, S., Schulz, H., Volkert, J., Dehoust, M., Sehner, S., Suling, A., ... & Grassi, L. (2017). Prevalence of mental disorders in elderly people: the European MentDis_ICF65+ study. *The British journal of psychiatry: the journal of mental science*, 210(2), 125-131.
- Bae, J. N., & Cho, M. J. (2004). Development of the Korean version of the Geriatric Depression Scale and its short form among elderly psychiatric patients. *Journal of Psychosomatic Research*, 57(3), 297-305.

- Baltes, P. B. (1997). On the incomplete architecture of human ontogeny: Selection, optimization, and compensation as foundation of developmental theory. *American Psychologist*, 52(4), 366-380.
- Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. *Successful aging: Perspectives from the behavioral sciences*, 1(1), 1-34.
- Baltes, P. B., & Staudinger, U. M. (2000). Wisdom: A metaheuristic (pragmatic) to orchestrate mind and virtue toward excellence. *American Psychologist*, 55, 122-136.
- Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Beck, A. (1987). Cognitive models of depression. *The Journal of Cognitive Psychotherapy: An International Quarterly*, 1, 5-37.
- Beck A.T., Rush A.J., Shaw B.F., & Emery, G. (1979). *Cognitive Therapy of Depression*. New York: Guilford Press.
- Beck, A., Steer, A. R., & Brown, G. K. (2012). Inventarul de depresie Beck - Ediția a doua (adaptat David, D. & Dobrean, A.). Editura RTS, Cluj-Napoca.
- Beekman, A. T., de Beurs, E., van Balkom, A. J., Deeg, D. J., van Dyck, R., & van Tilburg, W. (2000). Anxiety and depression in later life: Co-occurrence and communality of risk factors. *The American Journal of Psychiatry*, 157(1), 89-95.
- Beekman, A. T. F., Deeg, D. J. H., Geerlings, S. W., Schoevers, R. A., Smit, J. H., & van Tilburg, W. (2001). Emergence and persistence of late life depression: A 3-year follow-up of the longitudinal aging study amsterdam. *Journal of Affective Disorders*, 65(2), 131-138.
- Besser, A., & Priel, B. (2005). Interpersonal relatedness and self-definition in late adulthood depression: Personality predispositions, and protective factors. *Social Behavior and Personality: an international journal*, 33(4), 351-382.
- Bisschop, M. I., Kriegsman, D. M., Beekman, A. T., & Deeg, D. J. (2004). Chronic diseases and depression: the modifying role of psychosocial resources. *Social science & medicine*, 59(4), 721-733.
- Blazer, D., Burchett, B., Service, C. & George, L. (1991). The association of age and depression among the elderly: an epidemiologic exploration. *Journal of Gerontology: Medical Sciences*. 46, M210-215.
- Blazer, D. G. (2003). Depression in late life: Review and commentary. *Journals of Gerontology - Series A Biological Sciences and Medical Sciences*, 58(3), 249-265.
- Blazer, D. G., & Hybels, C. F. (2005). Origins of depression in later life. *Psychological medicine*, 35(9), 1241-1252.
- Brink, T. A., Yesavage, J. A., Lum, O., Heersema, P., Adey, M., & Rose, T. L. (1982) Screening tests for geriatric depression. *Clinical Gerontologist*, 17(1), 37-44.
- Brinker, J. K. (2013). Rumination and reminiscence in older adults: implications for clinical practice. *European journal of ageing*, 10(3), 223-227.
- Brown, P. J., Woods, C. M., & Storandt, M. (2007). Model stability of the 15-item Geriatric Depression Scale across cognitive impairment and severe depression. *Psychology and aging*, 22(2), 372.
- Bruce, B., & Fries, J. F. (2005). The health assessment questionnaire (HAQ). *Clinical and experimental rheumatology*, 23(5), S14.
- Butnorienė, J., Bunevicius, A., Saudargienė, A., Nemeroff, C. B., Norkus, A., Cicenienė, V., & Bunevicius, R. (2015). Metabolic syndrome, major depression, generalized anxiety

- disorder, and ten-year all-cause and cardiovascular mortality in middle aged and elderly patients. *International journal of cardiology*, 190, 360-366.
- Cazan, A. M. (2014). The Romanian version of the Satisfaction with Life Scale. *Romanian Journal of Experimental Applied Psychology*, 5(1), 42-47.
- Chachamovich, E., Fleck, M., Laidlaw, K., & Power, M. (2008). Impact of major depression and subsyndromal symptoms on quality of life and attitudes toward aging in an international sample of older adults. *The Gerontologist*, 48(5), 593-602.
- Chui, H., Gerstorf, D., Hoppmann, C. A., & Luszcz, M. A. (2015). Trajectories of Depressive Symptoms in Old Age: Integrating Age-, Pathology-, and Mortality-Related Changes. *Psychology and Aging*, 30(4): 940-951.
- Ciucă, A., Albu, M. (2010). Adaptarea și standardizarea PDSQ pe populația din România. În M. Zimmerman. *Manualul Chestionarului de screening și diagnostic psihiatric, ediția în limba română*, ASCR, Cluj-Napoca.
- Cramm, J. M., Hartgerink, J. M., de Vreede, P. L., Bakker, T. J., Steyerberg, E. W., Mackenbach, J. P., & Nieboer, A. P. (2012). The relationship between older adults' self-management abilities, well-being and depression. *European Journal of Ageing*, 9(4), 353-360.
- Crane, M. K., Bogner, H. R., Brown, G. K., & Gallo, J. J. (2007). The link between depressive symptoms, negative cognitive bias and memory complaints in older adults. *Aging & mental health*, 11(6), 708-715.
- Davison, T. E., McCabe, M. P., Knight, T., & Mellor, D. (2012). Biopsychosocial factors related to depression in aged care residents. *Journal of Affective Disorders*, 142(1-3), 290-296.
- Devanand, D. P., Kim, M. K., Paykina, N., & Sackeim, H. A. (2002). Adverse events in elderly patients with major depression or dysthymic disorder and in healthy-control subjects. *The American Journal of Geriatric Psychiatry*, 10(3), 265.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71-75.
- DiGiuseppe, R., Leaf, R., Exner, T., & Robin, M.V. (1988). The development of a measure of rational / irrational thinking. Paper presented at the World Congress of Behavior Therapy, Edinburg, Scotland.
- Djernes, J. K. (2006). Prevalence and predictors of depression in populations of elderly: a review. *Acta Psychiatrica Scandinavica*, 113(5), 372-387.
- Eisses, A. M. H., Kluiters, H., Jongenelis, K., Pot, A. M., Beekman, A. T. F., & Ormel, J. (2004). Risk indicators of depression in residential homes. *International Journal of Geriatric Psychiatry*, 19(7), 634-640.
- Ellis, A. (1999). Rational emotive behavior therapy and cognitive behavior therapy for elderly people. *Journal of rational-emotive and cognitive-behavior therapy*, 17(1), 5-18.
- Ellis, A., & Dryden, W. (1997). *The practice of rational emotive behavior therapy* (2nd ed.). New York: Springer Publishing.
- Fiske, A., Wetherell, J. L., & Gatz, M. (2009). Depression in older adults. *Annual review of clinical psychology*, 5, 363-389.
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of personality and social psychology*, 50(5), 992.
- Freeman, A. T., Santini, Z. I., Tyrovolas, S., Rummel-Kluge, C., Haro, J. M., & Koyanagi, A. (2016). Negative perceptions of ageing predict the onset and persistence of depression and anxiety: Findings from a prospective analysis of the Irish Longitudinal Study on Ageing (TILDA). *Journal of Affective Disorders*, 199, 132-138.

- Fries, J. F., Spitz, P., Kraines, R. G., & Holman, H. R. (1980). Measurement of patient outcome in arthritis. *Arthritis & Rheumatology*, 23(2), 137-145.
- Garnefski, N., Pruymboom, E. & Kraaij, V. (2002). Cognitive coping and depressive symptoms in the elderly: A longitudinal study. *Aging & Mental Health*, 6(3), 275-281.
- Garnefski, N. & Kraaij, V. (2006). Relationships between cognitive emotion regulation strategies and depressive symptoms: A comparative study of five specific samples. *Personality and Individual Differences*, 40(8), 1659-1669.
- Glass, TA, Kasl, SV, Berkman, LF (1997). Stressful life events and depressive symptoms among the elderly. *Journal of Aging and Health*. 9:70-89.
- Grace, J., O'Brien, J. T. (2003), Association of life events and psychosocial factors with early but not late onset depression in the elderly: implications for possible differences in aetiology. *International Journal of Geriatric Psychiatry*, 18: 473-478.
- Haaga, D.A.F., Dyck, M.J. and Ernst, D. (1991) Empirical status of cognitive theory of depression, *Psychological Bulletin*, 110(2), 215-236.
- Hale, W. D. (1982). Correlates of depression in the elderly: Sex differences and similarities. *Journal of Clinical Psychology*, 38(2), 253-257.
- Harris, T., Cook, D. G., Victor, C., Rink, E., Mann, A. H., Shah, S., Dewilde, S., Beighton, C. (2003). Predictors of depressive symptoms in older people - A survey of two general practice populations. *Age and Ageing*, 32(5), 510-518.
- Hayward, R. D., Taylor, W. D., Smoski, M. J., Steffens, D. C., & Payne, M. E. (2013). Association of five-factor model personality domains and facets with presence, onset, and treatment outcomes of major depression in older adults. *The American Journal of Geriatric Psychiatry*, 21(1), 88-96.
- Helvik, A., Engedal, K., & Selbæk, G. (2013). Change in sense of coherence (SOC) and symptoms of depression among old non-demented persons 12 months after hospitalization. *Archives of Gerontology and Geriatrics*, 56(2), 314-320.
- Hill, R. D., Gallagher, D., Thompson, L. W., & Ishida, T. (1988). Hopelessness as a measure of suicidal intent in the depressed elderly. *Psychology and Aging*, 3(3), 230.
- Holahan, C. K., & Holahan, C. J. (1987). Self-efficacy, social support, and depression in aging: A longitudinal analysis. *Journals of Gerontology*, 42(1), 65-68.
- Holroyd, S., & Duryee, J. J. (1997). Differences in geriatric psychiatry outpatients with early- vs late-onset depression. *International Journal of Geriatric Psychiatry*, 12, 1100-1106.
- Horowitz, A., Reinhardt, J. P., & Kennedy, G. J. (2005). Major and subthreshold depression among older adults seeking vision rehabilitation services. *The American Journal of Geriatric Psychiatry*, 13(3), 180-187.
- Hughes, D. C., George, L. K., & Blazer, D. G. (1988). Age differences in life event qualities: Multivariate controlled analyses. *Journal of Community Psychology*, 16(2), 161-174.
- Hyer, L., & Blount, J. (1984). Concurrent and discriminant validities of the Geriatric Depression Scale with older psychiatric inpatients. *Psychological Reports*, 54(2), 611-616.
- Isaacowitz, D. M., & Seligman, M. E. P. (2001). Is pessimism a risk factor for depressive mood among community-dwelling older adults? *Behaviour Research and Therapy*, 39(3), 255-272.
- Kendler K. S., Gatz M., Gardner C. O., Pedersen N. L. (2006). Personality and major depression: A Swedish longitudinal population-based twin study. *Arch. Gen. Psychiatry*. 63:1113-20.
- Kessler, R. C., Foster, C., Webster, P. S., & House, J. S. (1992). The relationship between age and depressive symptoms in two national surveys. *Psychology and Aging*, 7, 119-126.

- Kindynis, S., Burtacu, S., Louville, P., & Limosin, F. (2013). Effect of schema-focused therapy on depression, anxiety and maladaptive cognitive schemas in the elderly. *Encephale-Revue De Psychiatrie Clinique Biologique Et Therapeutique*, 39(6), 393-400.
- Knight, T., Davison, T. E., McCabe, M. P., & Mellor, D. (2011). Environmental mastery and depression in older adults in residential care. *Ageing and Society*, 31(5), 870-884.
- Knight, B. G. & Satre, D. D. (1999): Cognitive Behavioral Psychotherapy with Older Adults. *Clinical Psychology Science and Practice*, 6, 188-203.
- Koenig, H. G., George, L. K., Robins, C. J., Stangl, D., & Tweed, D. L. (1995). The development of a dysfunctional attitudes scale for medically ill elders (DASMIE). *Clinical Gerontologist*, 15(2), 3-22.
- Koorevaar, A. M. L., Comijs, H. C., Dhondt, A. D. F., van Marwijk, H. W. J., van der Mast, R. C., Naarding, P., Stek, M. L. (2013). Big five personality and depression diagnosis, severity and age of onset in older adults. *Journal of Affective Disorders*, 151(1), 178.
- Kraaij, V., Arensman, E., & Spinhoven, P. (2002). Negative life events and depression in elderly persons: A meta-analysis. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences*, 57(1), P87-P94.
- Krishnan, K. R., Hays, J. C., Tupler, L. A., George, L. K., & Blazer, D. G. (1995). Clinical and phenomenological comparisons of late-onset and early-onset depression. *American Journal of Psychiatry*, 152, 785-788.
- Laidlaw, K., Power, M. J., Schmidt, S. & the WHOQOL Group (2007). The attitudes to ageing questionnaire (AAQ): Development and psychometric properties, *International Journal of Geriatric Psychiatry*, 22: 367-379.
- Laidlaw, K., Thompson, LW., Dick-Siskin, L. & Gallagher-Thompson D. (2004). Cognitive Behaviour Therapy with Older People. Wiley & Sons, Chichester.
- Lam, D. H., Brewin, C. R., Woods, R. T., & Bebbington, P. E. (1987). Cognition and social adversity in the depressed elderly. *Journal of Abnormal Psychology*, 96(1), 23.
- Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer
- Leblanc, M. F., Desjardins, S., & Desgagné, A. (2015). Sleep cognitions associated with anxiety and depression in the elderly. *Clinical interventions in aging*, 10, 575.
- Lebowitz, B. D., Pearson, J. L., Schneider, L. S., Reynolds, C. F., Alexopoulos, G. S., Bruce, M. L., ... & Mossey, J. (1997). Diagnosis and treatment of depression in late life: consensus statement update. *Jama Journal of the American Medical Association*, 278(14), 1186-1190.
- Lichtenberg, P. A. (1998). Mental health practice in geriatric health care settings. New York: Haworth Press.
- Linn, M. W., Hunter, K., & Harris, R. (1980). Symptoms of depression and recent life events in the community elderly. *Journal of Clinical Psychology*, 36(3), 675-682.
- Linn, B. S., Linn, M. W., & Gurel, L. E. E. (1968). Cumulative illness rating scale. *Journal of the American Geriatrics Society*, 16(5), 622-626.
- Lyness, J. M., Duberstein, P. R., King, D. A., Cox, C., & Caine, E. D. (1998). Medical illness burden, trait neuroticism, and depression in older primary care patients. *American Journal of Psychiatry*, 155(7), 969-971.
- MacKinnon, D. P. (2008). Multivariate applications series. *Introduction to statistical mediation analysis*. New York, NY: Taylor & Francis Group/Lawrence Erlbaum Associates.
- Magni, G., De Leo, D., & Schifano, F. (1985). Depression in geriatric and adult medical inpatients. *Journal of Clinical Psychology*, 41(3), 337-344.

- Magnil, M., Janmarker, L., Gunnarsson, R., & Björkelund, C. (2013). Course, risk factors, and prognostic factors in elderly primary care patients with mild depression: a two-year observational study. *Scandinavian journal of primary health care*, 31(1), 20-25.
- Martínez-Cengotitabengoa, M., Carrascón, L., O'Brien, J. T., Díaz-Gutiérrez, M. J., Bermúdez-Ampudia, C., Sanada, K., ... & González-Pinto, A. (2016). Peripheral inflammatory parameters in late-life depression: a systematic review. *International journal of molecular sciences*, 17(12), 2022.
- Mazure, C. M., Maciejewski, P. K., Jacobs, S. C., & Bruce, M. L. (2002). Stressful life events interacting with cognitive/personality styles to predict late-onset major depression. *The American journal of geriatric psychiatry*, 10(3), 297-304.
- Meyer, T. D., Gudgeon, E., Thomas, A. J., & Collerton, D. (2010). Cognitive style and depressive symptoms in elderly people-Extending the empirical evidence for the cognitive vulnerability-stress hypothesis. *Behaviour research and therapy*, 48(10), 1053-1057.
- Miller, M. D., Paradis, C. F., Houck, P. R., Mazumdar, S., Stack, J. A., Rifai, A. H, Mulsant, B. & Reynolds, C. F. (1992). Rating chronic medical illness burden in geropsychiatric practice and research: application of the Cumulative Illness Rating Scale. *Psychiatry Research*, 41(3), 237-248.
- Miller, M. D., & Towers, A. (1991). A manual of guidelines for scoring the Cumulative Illness Rating Scale for Geriatrics (CIRS-G). Pittsburgh, PA: University of Pittsburgh.
- Monopoli, J., Vaccaro, F., Christmann, E., & Badgett, J. (2000). Personality as a predictor of depression among the elderly. *Clinical gerontologist*, 21(3), 49-63.
- Montorio, I., & Izal, M. (1996). The Geriatric Depression Scale: A review of it's development and utility. *International Psychogeriatrics*, 8, 103-112.
- Munk, K. (2007a). Late-life depression: Also a field for psychotherapists! Part one. *Nordic Psychology*, 59(1), 7-26.
- Munk, K. (2007b). Late-life depression: Also a field for psychotherapists! Part two. *Nordic Psychology*, 59(1), 27-44.
- Murphy, E. (1982). Social origins of depression in old age. *British Journal of Psychiatry*. 141, 135-142.
- Nemeroff, C. B., & Goldschmidt-Clermont, P. J. (2012). Heartache and heartbreak—the link between depression and cardiovascular disease. *Nature Reviews Cardiology*, 9(9), 526.
- Oldehinkel, A. J., Bouhuys, A. L., Brilman, E. I., & Ormel, J. (2001). Functional disability and neuroticism as predictors of late-life depression. *The American Journal of Geriatric Psychiatry*, 9(3), 241-248
- Ormel, J., Oldehinkel, A. J., & Brilman, E. I. (2001). The interplay and etiological continuity of neuroticism, difficulties, and life events in the etiology of major and subsyndromal, first and recurrent depressive episodes in later life. *The American Journal of Psychiatry*, 158(6), 885-891.
- Parker, G., Roy, K., Hadzi-Pavlovic, D., Wilhelm, K., & Mitchell, P. (2001). The differential impact of age on the phenomenology of melancholia. *Psychological Medicine*, 31(7), 1231-1236.
- Philippot, P., & Agrigoroaei, S. (2017). Repetitive thinking, executive functioning, and depressive mood in the elderly. *Aging & mental health*, 21(11), 1192-1196.
- Quinn, W. H., Hazen, P. J., & Martin, P. (1996). The influence of religiosity, family-of-origin, and self-efficacy on depression in older adults. *Journal of Religious Gerontology*, 9(4), 57-77.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.

- Ramey, D. R., Fries, J. F., Singh, G.(1996). The Health Assessment Questionnaire 1995-status and review. In: Quality of Life and pharmacoeconomics in clinical trials. Second edition. Edited by B Spilker. Lippincott-Raven Publishers, Philadelphia.
- Reker, G. T. (1997). Personal meaning, optimism, and choice: Existential predictors of depression in community and institutional elderly. *The Gerontologist*, 37(6), 709-716.
- Reynolds, C. F., III. (1998). The challenge of treatment in 70+ year olds with recurrent major depression: Excellent short-term but brittle long-term response. *Annual meeting of the American Association for Geriatric Psychiatry*, San Diego, CA.
- Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The Gerontologist*, 37(4), 433-440.
- Salloway, S., Malloy, P., Kohn, R., Gillard, E., Duffy, J., Rogg, J., Tung, G., Richardson, E., Thomas, C., & Westlake, R. (1996). MRI and neuropsychological differences in early- and late-life-onset geriatric depression. *Neurology*, 46, 1567-1574.
- Saz, P., & Dewey, M. E. (2001). Depression, depressive symptoms and mortality in persons aged 65 and over living in the community: A systematic review of the literature. *International Journal of Geriatric Psychiatry*, 16, 622-630.
- Schulz, R., Drayer, R. A., & Rollman, B. L. (2002). Depression as a risk factor for non-suicide mortality in the elderly. *Biological psychiatry*, 52(3), 205-225.
- Seligman, M. E. (1975). Helplessness: On depression, development, and death. A series of books in psychology. New York, NY: WH Freeman/Times Books/Henry Holt & Co..
- Sheikh, J. I., & Yesavage, J. A. (1986). Geriatric Depression Scale (GDS): Recent evidence and development of a shorter version. *Clinical Gerontologist*, 5, 165-173.
- Steunenbergh, B., Beekman, A. T. F., Deeg, D. J. H., & Kerkhof, A. J. F. M. (2006). Personality and the onset of depression in late life. *Journal of Affective Disorders*, 92(2), 243-251.
- Stevens, M. J., Uscătescu, L., Butucescu, A., Constantinescu, P., Ion, B. C., & Sandu, C. G. (2013). The romanian ces-d scale: a promising instrument for clinical and non-clinical use. *International Journal of Education and Psychology in the Community*, 3(1), 7.
- Stiles, P. G., & McGarrahan, J. F. (1998). The Geriatric Depression Scale: A comprehensive review. *Journal of Clinical Geropsychology*, 4, 89-110.
- Street, H., O'Connor, M., & Robinson, H. (2007). Depression in older adults: Exploring the relationship between goal setting and physical health. *International Journal of Geriatric Psychiatry*, 22(11), 1115-1119.
- Sözeri-Varma, G. (2012). Depression in the elderly: clinical features and risk factors. *Aging and disease*, 3(6), 465.
- Stefan, A. M., Băban, A. (2015). Factori psihologici implicați în depresia la vârstnici - un review sistematic. *De la evaluare la intervenție: premise metodologice*, Editura Universitara Bucuresti, 11-31.
- Stefan, A. M., Băban, A. (2015). Validarea variantei în limba română a Scalei pentru Depresia la Vârstnici (GDS) - un studiu pilot, *De la evaluare la intervenție: premise metodologice*, Editura Universitara Bucuresti, 32-39.
- Stefan, A. M. & Băban, A. (2017). The Romanian Version of the Geriatric Depression Scale: Reliability and validity. *Cognition, Brain, Behavior. An Interdisciplinary Journal*, 21(3), 175-187.
- Stefan, A. M., Baban, A. & Pinte S. (2017). Development and Psychometric Properties of Elderly Attitudes and Beliefs Scale (EABS). *Romanian Journal of Experimental Applied Psychology*, Volume 8, Special Issue 1 (Psiworld 2016 Proceedings), 356-362.
- Stefan, A. M., Băban, A., Pinte, S. (2019). Depression in elderly, adverse life situations and the mediating role of irrational cognitions. Studiu trimis pentru publicare la *Journal of*

- Affective Disorders* (text revizuit), acceptat pentru *peer-review*; în prezent se așteaptă decizia finală pentru varianta revizuită (*minor revisions*).
- Teixeira, L. F., Pereira, L. S., Silva, S. L., Dias, J., & Dias, R. C. (2016). Factors associated with attitudes and beliefs of elders with acute low back pain: data from the study Back Complaints in the Elders (BACE). *Brazilian journal of physical therapy*, (AHEAD), 0-0.
- Turner, J. A., Ersek, M., & Kemp, C. (2005). Self-efficacy for managing pain is associated with disability, depression, and pain coping among retirement community residents with chronic pain. *Journal of Pain*, 6(7), 471-479.
- Vézina, J., Bourque, P. (1984). The relationship between cognitive structure and symptoms of depression in the elderly. *Cognitive therapy and research*, 8.1 (1984): 29-35.
- Wancata, J., Alexandrowicz, R., Marquart, B., Weiss, M., & Friedrich, F. (2006). The criterion validity of the geriatric depression scale: A systematic review. *Acta Psychiatrica Scandinavica*, 114(6), 398-410.
- Weiss, A., Sutin, A. R., Duberstein, P. R., Friedman, B., Bagby, R. M., & Costa, P. T. (2009). The personality domains and styles of the five-factor model are related to incident depression in medicare recipients aged 65 to 100. *The American Journal of Geriatric Psychiatry*, 17(7), 591-601.
- Weissman, A.N., & Beck, A.T. (1978). Development and validation of the Dysfunctional Attitude Scale: A preliminary investigation. Paper presented at the Annual Meeting of the American Educational Research Association, Toronto, Canada.
- Weissman, M., Bruce, M., Leaf, P., Florio, L. & Holzer III, C. (1991). Affective Disorders. In *Psychiatric Disorders in America* (ed. D. A. Regier and L. N. Robins), pp. 53-80. The Free Press: New York.
- Wongpakaran, N., Wongpakaran, T., & van Reekum, R. (2012). Social inhibition as a mediator of neuroticism and depression in the elderly. *BMC Geriatrics*, 12(1), 41-41.
- Wood, A. M., & Joseph, S. (2010). The absence of positive psychological (eudemonic) well-being as a risk factor for depression: A ten year cohort study. *Journal of Affective Disorders*, 122(3), 213-217.
- Wood, B. M., Nicholas, M. K., Blyth, F., Asghari, A., & Gibson, S. (2016). The mediating role of catastrophizing in the relationship between pain intensity and depressed mood in older adults with persistent pain: A longitudinal analysis. *Scandinavian Journal of Pain*, 11, 157-162.
- Yesavage, J. A., Brink, T. L., & Rose, T. L., Lum, O., Huang, V., Adey, M. B., & Leirer, V. O. (1983). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*, 17, 37-49.
- Zarit, S. H., Femia, E. E., Gatz, M., & Johansson, B. (1999). Prevalence, incidence and correlates of depression in the oldest old: the OCTO study. *Aging and Mental Health*, 3, 119-128.
- Zhang, J.-P., Kahana, B., Kahana, E., Hu, B., & Pozuelo, L. (2009). Joint modeling of longitudinal changes in depressive symptoms and mortality in a sample of community-dwelling elderly people. *Psychosomatic Medicine*, 71, 704-714.
- Zimmerman, M. (2010). *PDSQ: Chestionarul de screening și diagnostic psihiatric: manual: adaptarea și standardizarea PDSQ pe populația din România* / Zimmerman, M., Ciucă, A., Albu, M. Cluj-Napoca: Editura ASCR.