SOFIA UNIVERSITY "St. Kliment Ohridski"

Department of Clinical Psychology

Autoreview of a dissertation work

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Specifics of the cognitive model in social anxiety

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The dissertation work on the topic "Specifics of the cognitive model in social anxiety" is designed in 4 chapters. It consists of 232 pages from which 200 main text and tables and the rest represent the used literature sources and appendices. The results of the conducted study are presented in 12 tables and 1 appendix with graphics and table from the factor analysis. The list of used literature includes 6 Bulgarian sources and 136 English sources. On the topic of the dissertation there have been 3 publications in scientific journals approved by NACID (National Center for Information and Documentation):

Scientific jury:

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The defense of the dissertation work will take place on January 12th, 2022, from 11am at an open meeting of the appointed jury. The materials for the defense are available at the Secretariat for Department of Psychology, School of Philosophy, room 60, 3rd floor, South wing, the main building of Sofia University "St. Kliment Ohridski" as well as on the website of the University www.uni-sofia.bg.

Introduction

Every year almost 20% of the population worldwide suffers from a mental disorder like depression or anxiety. These conditions cause suffering not only to the patients and their families but also lead to huge economic losses due to diminished efficiency and health care expenses (Whiteford et al., 2010). According to the latest data 6.2% of the Bulgarian population suffers from depression but most common remain the percentage of people suffering from anxiety disorders - 11.4%. In the period January-September 2020 the levels of anxiety as a consequence of the pandemia from COVID-19 have increased 634% according to the WHO.

Social anxiety is a problem that often remains underestimated probably due to its common prevalence among the population - 6.8% of the citizens of the USA are affected by it. Often socially anxious people are called shy and are perceived as introverts. Such individuals experience failures in interpersonal relationships both because of the symptoms and maintaining mechanisms of the disorder and due to victimization and stigmatization of society. It is interesting to research the areas in which social adaptation among people with social anxiety disorder has been compromised and to track its impact on the basic areas of mental functioning according to the cognitive model - thoughts, emotions, behavior.

The current work investigates the manifestations of social anxiety within the framework of the cognitive model as well as the influence of anxiety on the development of the ability for mentalization. Indicative for high metacognitive functioning it has been chosen as the attitude towards humor - one of the evolutionary-based mechanisms for coping and adaptation. This relationship was chosen because of the lack of in-depth research in this area and due to the underestimation of such types of coping mechanisms among people with social anxiety disorder. The research aims at completing the knowledge and understanding of the nature and deficits of social anxiety disorder, of the overall functioning of the individual with this kind of pathology and of contributing to specification of an appropriate therapeutic model.

- **Etiological factors for the emergence of social anxiety**

Genetic and neurological factors

Social anxiety is not uncommon among the population. Recent studies have shown that between 7 and 13% of people in the western world suffer from social anxiety or extreme shyness at some period in their lives (Furmark, 2002). The development of social anxiety contributes to genetic as well as environmental factors. Kagan et al. (1999) concludes that the genetic specific predisposition contributes to the development of social anxiety since similar behaviors can be observed even among babies. According to his research 20% of babies at 4-months of age show signs of shyness - for example, they start moving their limbs incessantly or crying when they are presented with a new object or a person - an observation that can be interpreted as behavioral inhibition.

Observing the sample of babies in the following years, Kagan discovered that most of them continued to show signs of shyness as older children as well. For instance, when playing they often did not dare to stray away from the parent and held his hand tightly when a new kid showed up at the playground. Following these children in the years, the researcher discovered that half of them undergo transformation and discontinue exerting this personality trait in late childhood and teenage years. Comparing the parenting practices, he found out that the parents of children who encouraged them to socialize - they often included them in different groups, encouraged them to talk to other children and expressed their praise when that happened. Parents of children who kept showing symptoms of shyness had surrendered to the lack of desire of their children to join different groups. As a result of that their children did not learn to overcome their doubts and lack of confidence. Other research shows that parents who are overly controlling and protective often have shy and anxious children (Wood et al., 2003). This research demonstrates that the genetic predisposition is important but on the other hand a decisive role has the attitude of the parent toward the child's behavior.

Psychologists who research the human brain believe that socially anxious people have a more reactive amygdala - a structure part of the limbic system responsible for the experience of emotion, especially the basic emotion of fear. Kagan and colleagues conducted longitudinal research of a group of people from the age of 2. They discovered that the adults who showed symptoms of shyness have a more reactive amygdala using fMRI compared to a control group (Schwartz et al., 2003). In a different study researchers measured the levels of the stress hormone cortisol on the first and fifth day of the beginning of the new academic year among 35 first-graders (Bruce et al., 2002). They discovered that all children show increased levels of cortisol on the first school day. Children, who are shy, however, show such tendencies on the fifth day as well.

Behavioral factors

The behavioral perspective on the reasons that contribute to the formation of social anxiety is based on the two-factor conditioning model by Mowrer. On the one hand a person can have a negative social experience (directly, by modeling or by verbal instruction) and due to classical conditioning can begin to fear such situations and as a result to start avoiding them. Following the principles of operant conditioning the avoidant behavior is maintained by negative stimulation - since the avoidance of the situation decreases the experience of anxiety and fear. As a result of that the possibilities for the conditioned fear to be overcome remain slim. A person may show avoidant behavior in a conversation even in small things like avoiding eye-contact, remaining silent, keeping his distance. Although such "safe behaviors" help the person avoid a negative evaluation, they tend to intensify the problem.

Safety behaviors used by individuals with social anxiety disorder help them diminish the possibility and fear of the negative evaluation by others. These behaviors vary from person to person but usually are related to this fear. They may include overthinking of their speech, fewer gestures,

keeping hands in pockets, for instance. Often people with social anxiety disorder believe that these safety behaviors constitute a successful way for overcoming anxiety but in fact they could lead to many negative consequences. For example, because of using them socially anxious individuals might be perceived as less competent or spontaneous. More importantly, safety behaviors hinder cognitive restructuring of negative beliefs related to communication and social interactions since the patient believes that the negative consequences that he fears can be avoided as long as he executes the safety behaviors. In a study by Wells et al. (1995) the response prevention of safety behaviors increases the efficacy of the therapeutic technique 'exposure'.

Cognitive factors

The cognitive paradigm looks at social anxiety from the point of view of being a consequence of unrealistic negative beliefs about the results of social behavior, intense negative emotions and avoidance. Socially anxious people pay more attention to how they behave in social situations, as well as to their internal sensations and emotions, rather than to other people. Often, they formulate powerful visual negative cognitions about how others will react to them and wonder how they are perceived by others. When they are overwhelmed by such images in a conversation, they may seem uninterested in the other party which in turn may cause a negative reaction, social isolation and increased anxiety that may play the role of a self-fulfilling prophecy and confirm their fears.

Most researchers believe that socially anxious people have learned to put too much importance on how other people evaluate them as well as to ruminate about their doubts. These symptoms are called fear of evaluation. For instance, patients believe that the person they are speaking to thinks they are stupid and immature. Such automatic thoughts reflecting dysfunctional beliefs about others, result in fear that others will judge them negatively. Then, only the thought of being on a stage or presenting in front of a group makes them fearful and anxious and they avoid such situations at all costs. When inevitably they have to participate in a social interaction, they try to limit or stop it. Another strategy they use is to maintain the conversation non-personal and therefore non-threatening. They avoid eye-contact which is often interpreted by the other participants in the conversation as a desire to leave it. They use gestures that show they acquiesce like nodding without having to be too involved in the conversation. They try not to share their personal opinion and information that might be evaluated by others. Goldfried et al. (1984) uses a multifactor scale with a sample of socially anxious male students and discovers that they evaluate the dimension "risk of being evaluated" as the one that causes the highest levels of anxiety whilst embracing as less important concepts like "intimacy" and "related to studying". The control group on the other hand rated "intimacy" twice as more strongly compared to "risk of being evaluated" which suggests a general difference between the motives that direct those two groups in case of a possibility of a contact with a person of interest. As a whole researchers believe that the origin of social anxiety remains fear of evaluation by others (Leary & Kowalsky, 1995), which takes different transformations like lack of confidence in social situations or perception for lack of social skills required for

successfully managing social situations (Cheek & Melchior, 1990).

Besides fear of evaluation by others, some results show that people with social anxiety disorder are extremely negative in their evaluation of their own performance even when they do not lack social skills. For instance, in one study (Gerlach et al., 2001) the researchers discovered that participants with social anxiety overestimated how much they will blush during performing different tasks like singing. In another experiment socially anxious people had to evaluate their own performance - giving a short public speech. Individuals with social anxiety evaluated themselves significantly more negatively compared to objective observers as opposed to the rest of the participants who were not exhibiting signs of intense self-criticism (Ashbaugh et al., 2005). Therefore, it can be concluded that people with social anxiety are very critical in their evaluation of themselves and their performance, a fact that most likely reflects the activation of dysfunctional beliefs about the self and the subsequent negative emotions in social situations.

In addition, according to an approach focused more on self-reflection and metacognition beliefs not about the self or others but about deficits in social skills directly influence the levels of social anxiety and make people doubt they possess the interpersonal skills required to be perceived the way they want to by others (Leary & Kowalski, 1995). The belief that a person does not possess important social skills like a sense of humor, ability to lead a conversation without hesitation or public speaking may force an individual to conclude that it is unlikely for him to make a good impression or to be evaluated positively in social situations that require such skills.

According to this perspective the central factor is not lack of social skills but rather the idea of one's own inadequacy. Even very socially unskillful people would not feel anxious if they are unable to recognize their own limitations. On the other hand, some socially adept individuals may become socially anxious when they doubt, they can cope with a certain social situation. People with low self-esteem, for example, may undermine their ability to communicate effectively with others and may experience social anxiety even if they possess relevant social skills. Individuals with low and high social anxiety differ in their perception of their own social skills in the sense that socially anxious people with good social skills tend to underestimate their abilities compared to the evaluation of observers. Moreover, socially anxious individuals are more inclined to believe that even a well-performed behavior may not lead to achieving the desired result in a situation. The conclusion is that the actual skills in social situations influence the emergence of anxiety to a much lower degree compared to the idea of the individual of his own social skills.

There is evidence that social anxiety is related to selective attention and more specifically to the internal rather than to the external (social) signals. For example, people with social anxiety seem to spend more time compared to other people in monitoring the signs of their own anxiety. In a study that gives an opportunity to the participants to choose between watching their heart beat on a computer screen and a different video material, individuals with high social anxiety prefer observing

more intently their heart beat (Pineles & Mineka, 2005). Instead of focusing on external stimuli, people with that disorder are busy monitoring their own levels of anxiety which interferes with communication to one degree or another.

Several paradigms confirm that people with anxiety disorders show selective information processing regarding threatening information and signs (Mathews & MacLeod, 1994; McNally, 1998). For instance, Mathews suggests that the activation of the dysfunctional information processing schema regarding threatening the personality of the individual or another alarming signal is inherent to all anxiety conditions. Mathews & MacLeod (1985) use the Stroop Color Naming Task and discover that anxious participants need more time compared to a control group when naming colors of words with threatening content ("disease", "coffin") compared to those with neutral content ("welcome", "vacation").

Studies that use other tests that belong to cognitive science like the level of visual perception related to a stimulus (Macleod et al., 1986), report similar findings namely that anxious participants are more alert about or are more easily distracted by threatening material compared to individuals from the control group. The authors interpret these results as supporting the existence of a "dangerous" cognitive schema which once activated distorts the information processing on a preattentive level. Regardless of whether the distortion is due to perception or attention in terms of its origin, it is believed to play an important role in maintaining anxiety disorders since it influences the interpretations the individual makes later in the information processing.

So far, the mentioned explanations for the emergence and maintenance of social anxiety concentrate mainly on incorrectly perceived, recognized and interpreted signals both external - from the environment, and internal - from the individual himself. From the above-mentioned literature, it can be concluded that socially anxious people show selective attention towards threatening stimuli as well as towards bodily changes, demonstrate selective information processing and cognitive distortions, they have strong dysfunctional beliefs about the world and themselves that usually manifest as negative automatic thoughts, as well as a wide range of negative emotions.

Although there exist specific genetic and neurobiological characteristics among people with social anxiety that to one degree or another condition the formation of such a disorder, it is still very important whether the ability of the individual to adequately analyze the feedback for his actions from the environment, his body and cognition is intact. According to the mentioned studies and their results people with social anxiety disorder experience difficulties in guessing the real attitude of other people towards them and the real reasons behind their actions. These facts made us believe that socially anxious individuals may have a hardship in other areas as well, for instance, in mentalization - a metacognitive function that mediates the adequate bonding with the world, increases self-awareness and self-regulation.

- **Mentalization**

Reasons for impairment of the ability for mentalization

The main reason for disruption of the ability for mentalization is psychological trauma in early or late childhood that undermines the ability to think about the mental states of others or the skill to talk about past relationships. The nature of the trauma can be related to negligence (Battle et al. 2004), especially in cases when the mirroring of the main caregiver does not match the emotional state of the baby (Crandell et al., 2003). There is evidence that a history of insecure attachment or attachment disorder may lead to problems with affect regulation, attention and self-control (Sroufe et al., 2005; Lyons-Ruth et al., 2005). Bateman and Fonagy (2010) suggest that these problems are mediated by the hindered ability for a strong and well-developed mentalization. In its extreme form, it represents patients with borderline personality disorder who possess an overly sensitive attachment system, low capability to control their effects and low levels of control over their attention capacity (Posner et al., 2002).

Undoubtedly, the ability for mentalization develops in an interpersonal framework and the presence of a non-responsive caregiver, unable to think about the child in terms of mental states leads to a weak integration of the two modes of experiencing the psychological reality which in turn leads to an underdeveloped ability for mentalization. In cases when the child is maltreated or traumatized, he protects himself from the idea of his parents that he is bad and they want to hurt him by inhibiting the development of his innate ability for mentalization. In these cases, the child stops thinking about others in terms of intentions, beliefs and desires since they contain the danger of becoming real and harm him. Frustration avoidance at times of mental pain and need makes him attack and hinder his own internal apparatus for acquiring a better consciousness and understanding about the psyche of others and the external reality.

The inhibition of mental self-awareness aims at ensuring protection through misinformation or lack of knowledge regarding the mental image of the parents. Moreover, when physical violence is a way of communication between a parent and a child, the body becomes the means for managing ideas, emotions and thoughts. The inability of the child to keep ideas in his mind or to assign meaning to his actions will contribute to an increase in impulsivity and violence towards one's own body as well as towards other people. The failure to find another mind in which his own mind is represented will lead to incessant attempts at finding alternative ways for self-control - increased use of projection, inability to separate, dependency etc. (Fonagy & Target, 1995, 1997, 1998).

The clinical support for Fonagy's model can be divided into 3 groups: related to the psychoanalysis of children, of patients with borderline personality disorder, and of aggressive individuals. Among children living in an insecure and traumatizing environment it is observed developmental arrest and inhibition of the ability for mentalization with defensive purpose against the image the parents have of them. In those cases, the problem is not an unbearable image in the mind of the child but rather having a mind at all that is capable of producing different images (Fonagy

et al., 1993). The inability for mentalization is often encountered among patients with borderline personality disorder (Fonagy, 1991). In their childhood an inadequate caregiver usually reacts defensively or aggressively towards the child and thus creates a distorted image of the child which he in turn internalizes and most likely feels external to himself. These patients later desperately try to remove this part of themselves by projecting it to another person by hating, humiliating or scaring. These people are very unstable which signals to their underdeveloped ability for self-reflection and the lack of complex flexible mental images. They view reality from only one perspective and that makes them inclined to experience intolerance and anxiety. The constant use of defense mechanisms like splitting shows the inability to reach an integrated image of themselves and others. In case of people with violent tendencies similar symptoms of hindered mentalization are observed. Through their aggressive acts they try to kill this 'external' to them but internalized at a very early age part of their self.

In the current study the level of metacognitive maturity and the ability for mentalization will be investigated with the concept of sense of humor. It is an important multifaceted phenomenon that has occupied the mind of many thinkers over the centuries including the pillars of the psychological and psychotherapeutic science. Regardless of the ideas of its origin, meaning and usage, without contradiction remains the fact that the understanding and use of humor in social situations requires certain metacognitive potential and expects from the individual to keep more than one image in his mind, to think simultaneously about one's own personal state and that of others.

- **Sense of humor**

Humor is a common term referring either to something that aims at bringing fun or to a quality that makes something entertaining. Humor is the common denominator between satire, farce, comedy and joke. Humor is universal in terms of human culture. Many historic figures related to philosophy have suggested an enormous variety of theories about the origins of humor, its nature and main goal. Monro groups these individual theories into 3 categories: Superiority theory, Incongruity theory and Relief theory.

Humor is a complex multifaceted phenomenon whose function and beginning are hard to be contained solely in the framework of one theory. All theories, however, conclude that it is ubiquitous and therefore implements an important role in individual and interpersonal planning. While the purpose of humor in different situations is open to debate, the need for a well-developed metacognitive ability for the understanding and use of humor is invariable and necessary. Considering the long existence of the sense of humor in human evolution throughout the years, it can be concluded that apart from playing an adaptive role for the human kind, it also becomes more and more sophisticated and refined with the evolution of human society.

This means that humor is a high-order metacognitive function whose content can be understood and used only in the case of a respective neurobiological and mental development. In other words,

the ability to use and understand humor is directly related to mentalization - the ability to simultaneously integrate two or more points of view, to reflect on oneself and to discern between the internal and external reality. In that reference, it is of extraordinary clinical and empirical interest to investigate in what way the metacognitive functions like sense of humor are hindered in case of individuals with social anxiety disorder with an established deficit in that area more specifically in the ability for mentalization.

- **Empirical data supporting the relationship between social anxiety and sense of humor**

In a study about how the perception of the mental states of others influences sense of humor in 56 individuals with non-clinical social anxiety, Samson et al. (2012) investigates the connection between social anxiety and the ability to understand different types of humor - semantic burlesque, visual word game and cartoon TOM (Theory of Mind). The researchers expected that social anxiety will hinder the experience of pleasure from the funny stories especially if the resolution of the incongruity requires processing of social signs and evaluation of false mental states of others. In accordance with those expectations the research team discovers that social anxiety is related to a lowered sense of pleasure from the cartoons which includes the interpretation of the mental states of others (TOM) but not in the case of the semantic burlesque and visual word game.

Moreover, the high level of social anxiety is linked to a slower reaction time when evaluating the funny stories, especially the TOM cartoons. The results show that people who score high on social anxiety have no gaps regarding the common sense of humor but may feel threatened by activities that include the mental state of other people. The negative effect provoked by TOM cartoons may hamper the entertaining and pleasurable experience for those individuals and it could also overwhelm them when scoring their own amusement. This data supports the ideas by Fonagy that due to traumatic experiences in early childhood the individuals attack their own apparatus equipped to understand others in order to protect themselves which results in a limited capability for understanding the mental states of other people, enjoying humor and using it as a coping mechanism.

- **Cognitive Model**

The relationship between cognition and emotion

The revolution in technology in recent decades led to the opportunity to investigate cognitive processes related to the neurological functioning of the individual. The cognitive neuroscientific approach relies to a great degree on the studies with animal samples that show that emotions and cognitions begin to interact from the very moment of perception. It is of great importance for the understanding of cognitive functioning and the importance of emotions (Ledoux, 1996). Models based on animal samples point out that there exist specific brain structures related mainly to emotional processes that simultaneously interact with the brain systems and structures dedicated to

cognitive functioning.

One of the most important structures is an almond-shaped formation called amygdala which is situated in front of the hippocampus. The knowledge that the amygdala is tightly related and responsible for the experience of emotions, mainly fear, has been established in the 30's of the last century. More recent studies also show its connections to other brain areas that are responsible for the cognitive functioning like the prefrontal and sensory cortices (Young et al., 1994). Because of its relation to both processes it is believed that the amygdala most likely influences cognitive functioning in response to emotional stimuli. To support that notion Anderson et al. (2000) conducts a study and the results he obtains suggest that the main function of the human amygdala is the modulation of neuron systems, the underlying cognitive and social behaviors as a result of emotional signals. The limitations of the neuroscientific approach often confine studies only to separate neurological structures but it becomes more and more evident that complex chains and neurological mechanisms are responsible for the aspects of human emotion and cognition.

The areas that investigate the relationship between cognition and emotion on a neurological level can be divided according to 5 subareas: emotional learning, emotion and memory, the influence of emotions on perception and attention, emotion processing of social stimuli and change of emotional responses.

Emotional learning focuses mainly on researching and understanding how a given stimulus acquires emotional qualities and value. Studies on classical conditioning conclude that the amygdala directly influences the acquisition, storage and retrieval/expression of the conditioned fearful response (Maren, 2001). The results are confirmed by images of increased levels of oxygen in the blood circulating in that area as well as by the relation between the conditioned stimulus, skin productivity and amygdala activation (LaBar et al., 1998). The conclusion that the amygdala is related to the conditioning of the emotion fear in humans is supported also by studies of individuals who have lesions in that area and such conditioning is impossible. Additional studies on the topic show that patients with lesions only to the amygdala are capable of cognitively understanding the reasons why they should experience fear but without showing or experiencing any bodily o emotional symptoms of arousal, while patients with lesions in the hippocampus manifest the opposite symptomatology - cognitively they are unable to understand the reasons why they fear a certain stimulus but show physiological signs of emotional arousal. This data confirms that there are different forms of emotional learning and they depend on the neural substrates (Phelps, 2006). While the hippocampus is responsible most likely for the cognitive understanding and awareness of the causality of a phenomenon, the amygdala directs the emotional or physiological response.

More in-depth research about the amygdala and its function are concentrated on the paradigm called instructed fear which aims at understanding the level of participation of the amygdala in expressing an indirectly acquired fearful responses - the ones stemming from

imagination or expectation but have never been experienced. Results are definitive supporting the intense physiological reaction and activation of the left amygdala in response to a dangerous stimulus. In a different study, Funayama et al. (2001) proves that people with lesions in the left amygdala also show an inability to physiologically express instructed fear. This data clearly demonstrates that the left amygdala is the part of the structure responsible for the expression and experience of indirectly acquired fears. The above-mentioned studies show that there might exist hard to detect differences in the structures and neurological chains responsible for the conditioned and instructed fear. Precisely because of that reason scientists continue their research on the topic concentrating on the expression of an acquired fearful response in subthreshold stimuli.

Another type of fear is the one following an observation and indirectly learning the emotional characteristics of stimuli via an observation of the reaction of other humans (Ohman & Mineka, 2001). The results from the study are extremely interesting. It is established that in the case of conditioned fear and the fear caused by observation (vicariously) the participants demonstrate physiological response of arousal both when the stimulus is presented above the threshold as well as under the threshold while the instructed fear requires conscious awareness and therefore an above the threshold presentation in order for a fearful reaction to be observed afterwards. The latter type of fear is not observed when the dangerous stimulus is under the threshold. Although at first glance the instructed fear and that as a result of observation have more in common - both are related to social functioning, it seems that the fear caused by observation neurologically is more similar to the one formed by classical conditioning which is an interesting information regarding individuals with social anxiety who are often exposed to their parents fears vicariously. This could be the reason why they experience the internalized fears so strongly and show hypersensitivity towards 'dangerous' stimuli.

Instructed fear relies not only on the amygdala but also on the hippocampal complex of structures for acquiring episodic meaning and connecting the neutral with the negative event. Meanwhile data from fMRI research (Olsson et al., 2004) shows that when conditioning fear through observation the amygdala activation is bilateral suggesting that this process just like the classical conditioning depends more on the work of the amygdala and includes to a lesser degree other brain structures. A summary of the data from similar research shows that the amygdala plays an essential role when expressing the emotion of fear and in many cases in its learning. Of course, the learning is influenced by the social and cultural norms an individual belongs to. The mechanisms described above to a great degree explain on a neurological level the meaning and influence of the evaluation people with social anxiety are afraid of especially when performing in front of a public when there is an element of observation.

According to a widely renowned conception supported by recent findings emotion influences three components in the episodic memory: coding, retention and reproduction. It is believed that emotions influence coding through modulating the attention and perception (Craik et al., 1996).

Researchers suggest the amygdala is responsible for narrowing the attention concerning the details about emotionally meaningful events which leads to better retention. There is an ongoing debate on whether the better recall and reproduction of emotional stimuli is due to attention or information storage/retention. Other studies in this area give information about the relationship between emotions and more specifically the physiological arousal related to them and the activation of receptors of the amygdala that improve the consolidation and storage of information in the hippocampus (McGaugh, 2000).

Evolutionary psychologists believe that a slower process of consolidation allows for an emotional reaction to a given stimulus to influence the strength of the memory and thus events that are essential to survival are not to be forgotten. The level to which physiological arousal influences episodic memory is different. There is proof that higher stress levels might have an adverse effect and impair the functioning of the hippocampus and its ability to retain, store and reproduce information (Mcewen & Sapolsky, 1995). Other researchers focus on a different but very interesting area, mainly the relationship between emotions and the subjective feeling for veracity of the memories.

Back in 1992 Neisser & Harsh proved that intense emotional experiences lead to a greater certainty in one's memory accuracy although most of the remembered information turns out to be inaccurate. All studies done after public events or in lab experiments that use the neurological techniques of "flashbulb" memories suggest that emotions have an independent effect on improving the subjective feeling for veracity and completeness of memories (Phelps, 2006) - a circumstance that gives a physiological explanation for the highly distorted perception of people with social anxiety about their performance.

Another way in which emotions influence memory about a certain event is through the first stages of information processing - attention and perception. Many studies have documented that the presence of emotions facilitates self-consciousness about certain emotionally charged stimuli even in situations in which attention resources are limited (for instance noisy places etc.). In such cases the amygdala plays a critical role. Scientists offer two ways that allow for this phenomenon. One suggests a continuous change in processing of perceived stimuli that have acquired emotional characteristics through learning. The second one focuses on the short change in the threshold levels of attention in the presence of emotional stimuli. The reciprocal connection between the amygdala and the brain cortex processing sensory information like the primary visual cortex are well established. This is the reason why it is so important to investigate and challenge the attention focus of people with social anxiety disorder during communication from internal to external stimuli.

Many studies prove that the amygdala receives data about how meaningful an emotional stimulus is fast before this information has reached the frontal lobes responsible for its realization and awareness (Whalen et al., 1998). Moreover, Anderson et al. (2003) shows in his research that

attention and realization in fact have little impact on the response of the amygdala to threatening stimuli. On the contrary, precisely this automatic reaction of the amygdala to threatening stimuli in the environment is an important factor in its ability to modulate attention and the reaction to a potential danger through the modulation of the sensory brain cortices (Davis & Whalen, 2001). A proof for this notion is the numerous studies done with fMRI scan that show that the level of activation of the visual cortex is proportional to that of the amygdala when exposed to the same stimuli. Also, patients with a neurological damage to the amygdala do not show an activation of the visual cortex as is observed in the control group (Morris et al., 1998a). This is a proof about the important role of the amygdala in mediating these changes. The amygdala plays an important role not only in terms of attention but also of perception. Phelps et al. (2005) develops a study in which the participants need to find the difference between a scared and a neutral face. Difference recognition is believed to be an early stage of perception. Her discoveries support what has been expected - the signs of fear improve difference recognition and enhance attention. These results confirm that emotions modulate the information processing in the primary visual cortex through the amygdala. Another effect that emotions have on attention is they "grab" it. Many studies show that in emotionally intense moments the information processing of weak emotional stimuli is impaired because the redirection of the attention from one emotional stimulus to another is hard (Fox et al., 2001). There is some speculation what facilitates attention grabbing. For some physiological arousal plays a critical role, while for others - the presence of negative or threatening stimuli. From an evolutionary point of view finding such stimuli by the amygdala has an adaptive role changing the level of awareness in their presence.

There is debate among scientists whether there are specialized neuron mechanisms that are responsible for certain stimuli coming from the environment. There is some evidence that some structures are responsible for the perception of specific emotions while others show that similar emotions can be confused if they are not put in context. To support the former claim some studies point to the existence of specific brain areas like the fusiform gyrus that are responsible for the differentiation and recognition of faces. Although the discussion remains open there is no doubt that complex mechanisms contribute to the fast differentiation of a familiar versus unfamiliar face. Studies concentrated on facial expression prove that different neurological mechanisms are responsible for the recognition of different emotions.

According to Calder et al. (2001) and Lawrence et al. (2002) the insular cortex is important when recognizing disgust, while the basal ganglia in anger recognition. Of course, many studies show that the amygdala plays a critical role in perception of fear. And while even people with a neurological damage to their amygdala can express fear, they perceive this emotion in others to a lesser degree compared to a control group (Breiter et al., 1996). Scientists investigating how the configuration of facial traits influences the perception of the emotion it expresses discover that when recognizing fear the amygdala relies solely on one characteristic - the eyes. The level of activation

of the amygdala regarding the entire face or only the eyes do not differ. This process seems well-understood but in fact is very complex and could be influenced by many other factors. One of them is the context in which the emotion is perceived. For instance, fear and surprise are two facial expressions that are highly likely to be confused due to the similarities in facial trait configurations. A recent study in this area discovers that the amygdala reacts less intensively when there was a verbal instruction about it being a surprise beforehand. In addition, de Gelder et al., (2004) shows that other signs like body movements that correspond to the expression of fear lead to the activation of the amygdala. It can be argued that the internal as well as external context of perceiving one's own emotions and those of others is crucial to the chosen behavior. Therefore, it is of paramount importance the interpretation of internal and external stimuli among people with social anxiety disorder since they are the ones putting a social situation into perspective.

The abundance of scientific research about the close and integral relationship between cognition and emotion undoubtedly gives neurological and biological proof in support of the cognitive model presented by Aaron Beck more than 50 years ago. The interaction between cognition and emotion is seen in the physiological symptoms of arousal and thoughts that directly influence the evaluation of the individual of a specific situation and his behavior in response to it. This gives grounds to the various therapeutic techniques aiming at resisting dysfunctional thoughts and the physiological reaction which may be experienced as very unpleasant for the individual. Not only neurobiological studies but also the ones directed at completing and establishing the cognitive model using clinical and control groups contribute to the importance and the scientific grounds for this model and the therapeutic approaches stemming from it. This is one of the reasons why the current empirical study is concentrated on the three pillars of the cognitive model - thoughts, emotions and behavior and how they change to reflect one of the most common psychopathologies - social anxiety.

Relationship between cognition and behavior

Authors investigating coping mechanisms distinguish between three phases of the theoretical development of this construct (Suls, David, & Harvey, 1996). The first period belongs to the psychoanalytic school and ego psychology and focuses mainly on the function and nature of defense mechanisms and coping as a stable personality trait. The most important authors of this period are Sigmund and Anna Freud, Haan and Vaillant. The second period develops in the 60's and concentrates on the transactional perspective about coping and insists that the latter reflects a dynamic process that is influenced by both cognitive and environmental/situational factors. Researchers that have contributed to the development of this formulation are Lazarus, Folkman, Moos and others. The third period starts in the 80's and is characterized by the efforts to better understand the role of personality for generating, maintaining and directing coping.

The initial ideas about coping stem from the work of Sigmund and Anna Freud related to

defense mechanisms as part of the ego processes. In their studies from the 20' and 30's of the last century Freud identifies 4 processes that help relieve the suffering of an individual and enhance the experience of pleasure:

1) Intoxication - using chemical substances

2) Sublimation of libidinal impulses that serve to avoid frustration from the environment

3) Use of illusions and imagination at the expense of connection to reality

4) Complete withdrawal from reality in the face of painful events

Sigmund Freud describes defense mechanisms as mental operations that keep painful thoughts and emotions away from consciousness. The psychoanalytic theory looks at defense mechanisms as a way of counteracting the expression of instincts. Freud is the first scientist to speak about the resources of the ego and how they often are overwhelmed by stressors from the world as well as by the pressure and requirements of the psyche of the individual. His daughter Anna Freud develops these ideas and distinguishes different mechanisms through which the ego seeks defense against anxiety and a way to control negative emotions. Defense mechanisms are arranged according to the level of adjustment and maturity.

1) Immature, primitive and psychotic defenses - dissociation, projection, denial, depersonalization, projective identification

2) Neurotic defenses - isolation, regression, displacement

3) Mature - sublimation, humor, altruism (Vaillant, 1977).

The theory about object relations and ego psychology expands the ideas about the function of defense mechanisms by including - maintaining self-esteem and protecting the organization of the Self.

The initial research on defense mechanisms from the 30's of the last century concentrated mainly on two of them - repression and projection. In the beginning of the second part of the twentieth century some critics to those studies appear, the most prominent of whom is D. S. Holmes. After extensive research in the area of attention, learning and memory, he concludes that the defense mechanism projection can be explained by the concept of attribution, while repression - by the processes of attention and reaction suppression. In this way for his time, he refutes the presence of any unconscious processes that pertain to defense mechanisms and therefore by definition they are not to be considered as such.

Clinicians in psychology continue their work and believe that the results of Holmes' studies are not reliable since they are conducted in lab conditions and not in real circumstances. Modern

approaches to the study of defense mechanisms include observational methods like clinical interviews, stories, Q-sort. Lazarus (1998) reconsiders the conclusions and the critique towards Holmes and concludes that regardless of the methodological mistakes of the initial studies in the area of defense mechanisms, they undoubtedly lead to the presence of unconscious processes. Currently, all psychologists in the area of cognitive psychology accept that thought processes go beyond consciousness. New evidence supporting that notion is a prerequisite for supporting the existence of defense mechanisms that by definition are unconscious processes. This evidence points to the existence of indirect memory that activates memories that are out of awareness but later may influence the recall and the decision-making (Roediger, 1990). Recent studies on attention also support the existence of defense mechanisms. Attention can be split between two stimuli - one of which is conscious, and the other one is not. This attention division is a cognitive process that contributes to the defense mechanisms splitting and dissociation. Despite the lack of awareness of one of the stimuli, studies show that its physical and semantic characteristics are analyzed and it influences behavior (Greenwald, 1992; Jacoby, 1992). Moreover, behaviors that have required attention can become automatic and transform from conscious to unconscious and thus the individual might not be aware of performing them.

In a study by Bond et al. (2004) the authors go over previous research that has strong proof that the adaptability of the defense style correlates with the mental health of the individual and for some diagnosis, specific models of defenses are established. For example, in case of borderline personality disorder, maladaptive and distorting the self and reality defense mechanisms are used more often compared to adaptive ones. The defense style becomes better adjusted as the symptoms improve although the intermediate defenses can be very persistent and can speak to the quality of the therapeutic relationship.

In DSM III coping strategies and defense mechanisms contribute independently from one another to determining the score on the overall adaptation - scale V. In DSM V there is a separate scale measuring the functioning of defense mechanisms of the individual and can be used when determining a diagnosis. In this scale the defense mechanisms are represented in a hierarchical order.

Level of adaptation	**Defenses**
Highly adaptive	Altruism, humor, sublimation, suppression
Mental inhibition	Displacement, dissociation, intellectualization, isolation, repression, undoing
Minimal image distortion	Minimalizations, idealization, omnipotence
Denial	Denial, projection, rationalization
Substantial image distortion	Autistic fantasy, projective identification, splitting

Action	Acting out, apathetic withdrawal, passive-aggressive behavior
Defense dysregulation	Projection (psychotic), denial (psychotic), distortion (psychotic)

Defense mechanisms can be seen as intrapsychic self-defensive responses to threat. Defense mechanisms can be distinguished in their efficacy, so that some are adaptive, while others are not. Adaptive defense mechanisms have the characteristic to prevent threatening affect without sacrificing the correct perception of reality while maladaptive defense mechanisms often include a substantial reality distortion (Cramer, 1991). Another characteristic of adaptive defense mechanisms is that they usually lead to constructive actions and choices (Vaillant, 1977). In that sense the adaptive defense mechanism of humor allows the individual to accept reality related to a disappointment or an obstacle. No distortion of reality is needed for it to serve such a defensive function. Moreover, the use of humor softens the perceived threat from the disappointment which helps the individual to deal with a stressor in a constructive way. This defense mechanism stands on the opposite side of the maladaptive immature defense mechanism of denial in which case in order for the self to be protected some aspect of the stressor or its consequences need to be distorted which can lead to wrongful action or absence of such in case of projection. Different individuals have different defense styles in the sense that they differ qualitatively in the type of defenses they use in most cases. A primary goal of defense mechanisms is to alleviate the experience of a threatening affect including negative emotions which result from obstacles in the environment. There is enough evidence in the literature that confirms that the use of maladaptive and immature defense mechanisms increases psychopathology and impairs adaptation (Vaillant, 1992).

It is useful to look at defense mechanisms according to the level of their maturity. In adults the adaptive defenses should be at the top of the hierarchy, and the least mature - at the bottom. Research more and more confirms the notion that the use of mature defense mechanisms suggests a favorable social and personality functioning, while the opposite is often a sign to some kind of pathology like the presence of a personality or affective disorder (Cramer, 1999). Nevertheless, the last statement could need further examination. Whether a specific defense is adaptive to a certain individual can be determined only if the internal and external context of its expression is considered. If we take into account the factor age - we will discover that according to the theory it is acceptable less mature defenses to be used by small children since they have not yet figured out their function and they are being successfully protected by them, while older children and adults that have reached cognitive maturity need more complicated or mature defenses to be shielded from stressors. To this perception there are certain exceptions, for example, in cases of low IQ or serious psychopathology the use of immature defenses can be critical for maintaining a basic adaptation to the world. Another

factor that plays a role is time. In the short-term defenses can be extremely adaptive especially in the absence of alternatives, but in the long term they could hinder the use of effective active coping strategies and prevent the successful adaptation of the individual.

Regarding the relationship between defense mechanisms and therapy, the former could provide an insurmountable proof for the success of therapy. In a clinical setting often, it is hard for the efficacy of a certain therapy to be measured and the conclusions could be arbitrary and influenced by external factors in their interpretation. Until now clinicians used a change in the quantity and quality of the symptoms as an important sign for an existing change in the patient and the success of the psychotherapy. Modern standards require more thorough investigation of the psychological reasons for such behavioral and cognitive changes. One such psychological shift that could explain a change in the symptoms and could measure the efficacy of the therapy is a change in the use of defense mechanisms.

In the second part of the twentieth century studies on defenses and coping strategies continue to develop and focus on their hierarchical structure as well as on attempts to distinguish between the two concepts.

White (1974) looks at coping as a way to adapt in the face of difficult circumstances and conditions precisely because coping mechanisms are directed to the events in the environment, while defense mechanisms are more a way of protecting against anxiety and danger. Haan (1997) offers a three-sided model consisting of coping mechanisms, defense mechanisms and fragmentation. According to his theory, coping differs due to its flexible but goal-oriented actions, direction toward the future without forgetting the present, integration of the conscious and preconscious elements and processing of negative affect and its acceptable expression. She claims that the processes of objectivity, empathy, sublimation, concentration and displacement are essential to the efforts of coping. In an article from 1988 P. Cramer considers defense mechanisms and coping strategies as two different types of processes of adaptation. According to the author these processes can be easily distinguished in terms of the psychological process they include but not in terms of their relationship with consequences. The main characteristics that distinguish the two adaptation processes are their conscious/unconscious nature and the presence or absence of deliberation. Criteria like dispositional or situational status, hierarchy of the terms once considered of a great importance are found to be less valuable in distinguishing between the two processes.

In a study by Whitty et al. (2003) the author investigates the differences between defense mechanisms and coping strategies and more precisely whether there is a difference in using mature/immature defense mechanisms and adaptive/maladaptive coping strategies in different age groups. The results show that the youngest group (17-23) use significantly less mature defenses and significantly more immature defenses compared to the other 2 age groups. There is no significant difference in the level of maturity of defense mechanisms in people between the ages of

40-47 and 63-70 which is consistent with findings in the current study about the use of immature defenses. Contrary to the findings about defense mechanisms, there is no difference in the use of adaptive coping strategies among the different age groups. One additional finding is that people with ambitious life goals are more likely to use mature defense mechanisms. The authors confirm that when developing theories about stress and therapeutic intervention it would be of equal importance to consider both defense mechanisms and coping strategies.

The main differences between coping and defense mechanisms can be summarized as follows:

1. Coping is a broader construct than defense. While most defense mechanisms are rigid and automatic intrapsychological processes focused on hindering anxiety and danger, coping strategies are seen as more flexible, integrated and environment-oriented efforts, dealing with internal as well as external requirements and available resources.

2. Although the initial idea of defense mechanisms shares the notion that they are stable characteristics like personality traits, later coping mechanisms are being differentiated for the fact that they are flexible behaviors, influenced to a great extent by the factors of the environment and are viewed more like processes determined by the context of the situation.

3. Coping includes a broad range of cognitive, emotional and behavioral strategies directed not only towards the internal needs and desires but also to the external requirements and stressors.

4. Compared to defense mechanisms, coping strategies do not aim only at protecting the integrity of the self and alleviating mental pain and dissatisfaction for the individual, but also want to influence the factors of the environment and to maintain the balance of psychosocial functioning of the individual.

The researcher with the greatest contribution to the definition of coping mechanisms - Lazarus - stresses their characteristic of cognitive and behavioral processes that aim at mastering requirements of the external and internal environment that are considered as exceeding the resources of the individual. The definitions of Moos (1984) and Snyder & Dinoff (1999) relate the meaning of coping mechanisms to overcoming stress and their contribution to alleviating the physical, emotional and psychological consequences of the stressors and maintaining the psychosocial adaptation of the individual.

In case when a certain situation is evaluated as stressful or problematic, that is it limits or exceeds the abilities or the available resources of the individual, he should therefore choose one of the several coping strategies he has. According to the theory by Lazarus these coping strategies can be divided mainly into two categories - focused on the problem or task (external orientation) or focused on emotions (internal orientation). Later on, a third type of coping has been recognized - avoidance (Billings & Moos, 1981). Problem-focused coping is directed at changing the problem that lies at the bottom of distress. It is alloplastic by nature and is directed towards changing the external

reality and environment in order to diminish the stress caused by a specific situation (Perrez & Recherts, 1992). On the contrary, emotion-focused coping aims at regulating emotions after establishing an initial evaluation that the threatening conditions of the situation cannot be changed. In this case coping is autoplastic and its goal is achieving better adaptation to the existing stressful environment.

The work by Lazarus and colleagues puts a foundation for further investigation of the efforts for establishing a hierarchical structure of coping mechanisms and relevant theoretical models. For example, in 1978 Pearlin and Schooler investigated the efficacy of coping in different social contexts and their work helped understand the effect of coping models according to the specifics of the social roles. Skinner et al. (2003) offered the 3 most often used traits of coping strategies - problem/emotional focused; approach/avoidance and cognitive/behavioral - not to be considered anymore. Instead, the authors recommend the creation of hierarchical systems of actions like need for closeness, adaptation etc. The area needs additional research for establishing the organization of the identified clusters of coping mechanisms.

Endler and Parker (1983, 1997) created a multidimensional interactive model that aims at investigating the complex relationship between personality, anxiety, stress and coping mechanisms. This model stresses the idea of how personality influences the environment and at the same time is influenced by external factors. They focus on these cognitive, motivational, physiological and content variables that influence information processing paying special attention to a subcategory of characteristics such as anxiety as a trait or state. According to the researchers personality traits like anxiety, cognitive style and level of emotionality interact with stressful life situations like crisis and traumas and activate the perception of danger. This perception in turn changes the state of anxiety demanding a reaction to these changes. Reactions to changes in the state of anxiety are accepted as coping responses and psychological defenses. More specifically, it is suggested that in individuals with social phobia the levels of anxiety are almost always above average since the society we live in is based on social contact. The high levels of anxiety unconsciously and automatically unlock defense mechanisms corresponding to the maturity of the individual. The continuous use of and functioning through defense mechanisms lead to social and personality poor adaptation and to some degree to the discontinuing of the connection between the internal world of the individual and the external environment. This in turn leads to problems with the ability for mentalization and prevents the individual from using adaptive coping strategies in different situations.

A research by Stopa & Clark (1993) confirms the hypothesis that individuals with social phobia focus on their internal negative experiences and do not take into account to a full degree the feedback from the environment. The experiment consisted of a short conversation with a stooge that was being taped. The sample was divided into 3 groups - individuals with social phobia, a control group of patients with anxiety and a control group of non-patients. During the conversation their thoughts, behavior and attention are being evaluated. The results show that in comparison to the

two control groups patients with social anxiety have thoughts evaluating themselves more negatively, perform worse and systematically undermine their own performance. There is no difference in the factor attention between the three groups. The analysis of the thought content reveals that very few of the negative thoughts reported by individuals with social phobia are a clearly stated evaluation by other people. Another aspect that requires attention during the therapeutic treatment of patients with social phobia is the use of "safety" behaviors. The seeking of such behaviors is considered playing a major role in the maintenance of this and other anxiety disorders. Although there are clear theoretical differences between safety behaviors and adaptive coping strategies, their differentiation in the clinical practice may prove to be challenging.

Coping strategies and defense mechanisms are used to describe people's reaction to stressful situations. The idea of coping comes from the traditions of social psychology, while that of defense mechanisms is based on the psychoanalytic theory. According to the traditional view the two are very different. In recent years a larger volume of studies shows that the two concepts are more related to one another than was once believed. In a study by Bouchard et al. (2003) investigating the connection between the two constructs in the context of predicting the adaptation to a certain stressful situation like marital relationship. The researchers present two possible theoretical models that explain the relationship between defense mechanisms and coping - the independent model and the effectiveness model. According to the former the two concepts are relatively independent of each other, while the latter maintains the possibility that both contribute to the adaptive and maladaptive ways of coping with difficulties in spousal relations. The results show that the two constructs contribute in a unique way to the adaptation in relationships as neither one of them on its own does it lead to a better adaptation which can be seen as a support to the theory that both constructs are very complex in their nature and exist in a complicated relationship between each other when influencing the thoughts, emotions and behavior of the individual.

- **Therapeutic approaches**

A study from 2002 shows that although anxiety disorders are very common only 20% of the people who suffer from them receive some kind of treatment (Wang et al., 2002). In a meta-analysis of therapeutic approaches for social anxiety Acarturk et al. (2009) discovers that psychological therapies are effective in the treatment of anxiety disorders but the access to them is limited especially in countries with low or moderate income (Olfson et al., 2010). The official statistics for Bulgaria show that the possibility for psychiatric and psychological care is highly limited, as the governmental sector has on average 7 psychiatrists and 2 psychologists per 100 000 people. Other reasons for the lack of attention to anxiety disorders could be - recurrent symptoms, lack of knowledge and awareness, inadequate or short-term treatment.

Social anxiety disorder is associated with a significant handicapping and diminished life quality (Stein & Kean, 2000). In this case life quality is referred to the subjective evaluation of the

individual of how satisfied he feels in his everyday life. Safren et al. (1997) show that individuals with social anxiety disorder report a much lower life quality compared to a representative sample without the disorder. Life quality also has a negative correlation with the severity of the symptoms, handicapping and the presence of depressive symptoms. Although treatment usually renders good results, life quality remains significantly lower compared to people without social anxiety (Eng et al., 2001). Because of that it is important to discover and combine those therapeutic techniques that would give best results. In order for that to happen the peculiarities of the origin and course of the mental disorder need to be considered as well as the cultural characteristics of the social environment and the individual personality traits.

Pharmacological treatment

The interest in treating social anxiety with medication begins in the 70's of the 20th century. Drugs that alleviate anxiety belong to either anxiolytics or antidepressants. Many studies prove that medication is more effective compared to placebo and is faster in treating anxiety disorders. However, in the case of anxiety disorders exposure and psychological therapy are preferred since only through them is the patient able to experience in an authentic way, not under the effect of drugs, the situations he most fears and to restructure his beliefs about the future (Foa et al., 2005; Hollon et al., 2006). It is interesting that social anxiety is an exception to that rule. Federoff & Taylor (2001) provide evidence that benzodiazepines like Valium and Xanax exert better effects compared to cognitive-behavioral interventions.

From the latter point it can be assumed that medications with the least effect on the consciousness of patients (least side effects) will be most effective since they will interfere the least with the ability of the patient to learn new behaviors and to apply them. This expectation, however, has not been confirmed about tricyclic antidepressants like SSRIs and SNRIs.

In a meta-analysis comparing pharmacological treatment and CBT to a control group Gould et al., (1997) discovers that the two active conditions exceed the control group with an effect size ($r = .62$) and ($r = .74$) respectively. There is mixed evidence about the efficacy of the two types of treatment and which is more effective. A problem in pharmacological treatment is the preservation of the achieved results since once the medication is stopped there is a chance for a relapse. In a carefully conducted study Blanco et al., (2010) discovers that the combination of anxiolytics and CBT achieves better results compared to either one of the treatments alone. The results can be explained also by the fact that the pharmacological treatment results in faster but non-lasting results, while the effectiveness of CBT begins to manifest later and is maintained during a reevaluation months after the end of treatment and results in fewer relapse.

The point of such a treatment combination is only under the condition that the two therapeutic strategies potentiate one another. In a study by Haug et al. (2003) the researchers discover that the long-term use of medication combined with exposure in fact hinders the effect of exposure although

the combination seems promising in the short term. This phenomenon can be best described with the fact that taking medication changes consciousness and although the patient experiences a situation that causes fear, he or she, again, is unable to experience it fully just like before his anxiety has prevented him from that. The patient is deprived of the essential opportunity to experience the situation in a different way and to formulate different beliefs about it which in turn leads to a limited therapeutic result in the long term.

Additional factors influence the success of pharmacological treatment. Basoglu et al. (1994) discovers that patients who believe their improvement is due to medication, are less confident that they will be able to cope without it compared to patients who believe their progress is a consequence of their own efforts. Another factor can be the type of medication, as the more intensive pharmacological treatment could make patients attribute positive changes to the intake of medication and be more vulnerable to relapse. In the same way the dosage is also important when considering a combination with CBT. For instance, small doses of benzodiazepines at the beginning of therapy can facilitate exposure to situations that cause anxiety, while the intake of large quantities could lead to inhibition of the experience of anxiety and the lack of effect after exposure (Sartory, 1983). In that sense modern theories about the potentiation of pharmacological treatment and CBT pay special attention to the order and quantity when combining different approaches.

Cognitive-behavioral therapy (CBT)

The most researched psychotherapy to this day is cognitive-behavioral therapy (CBT). Many scientific trials and meta-analysis show its efficacy in the treatment of anxiety disorders (Acarturk et al., 2009).

In recent decades CBT has proven better among empirically based treatments (ESTs) for anxiety disorders in adults (Chambless & Ollendick, 2001). Several meta-analyses of well-controlled clinical trials support the efficacy of CBT in social anxiety (Deacon & Abramowitz, 2004). Norton et al. (2007) proves one more time the efficacy of CBT in the full spectrum of anxiety disorders including social phobia. The results show that the treatments that use CBT techniques show significantly better results compared to groups with no treatment or placebo.

Regardless of some limitations of the scientific research like publishing mainly data that supports CBT, using a waiting control group and the quality of the trials Pim et al. (2016) discovers that the effects of therapy remain moderate in the treatment of social anxiety even when controlled for the quality of the studies and the use of more conservative control groups like placebo (pill).

Main CBT techniques in social anxiety

Exposure

Systematic desensitization

Cognitive restructuring

Social skills training

Relaxation techniques

Self-instruction

The use of metaphors in CBT for the treatment of social anxiety disorder

In a study by Dimitrova & Petkova (2014) investigating the connection between social anxiety and the metacognitive ability for understanding and using humor, a concept was formulated that humor and its manifestations can be useful not only in its reflexive function of the ability for mentalization but also as a therapeutic technique. Until this moment the use of humor in therapy is described best in the use of metaphors in CBT. It is important to note that metaphor and humor are not synonyms but it is believed that their understanding and use depends on similar cognitive and metacognitive abilities.

The use of metaphors in CBT is related to the foundation of cognitive theory. A main idea supporting the cognitive model for emotions by Beck from 1976 is the assumption that the emotional reactions of the individual are a function of the way he organizes reality and assigns meaning to events and situations. The meaning is the factor that causes emotions, not events on their own. Cognitive theory stresses the notion that certain emotions belong to a specific type of interpretation. In other words, the same event may cause different emotions in different people, even in the same person in different periods. According to cognitive therapists people who feel emotional difficulties often or always engage in a form of negative and unproductive way of interpretation of situations while indirectly believing their attitude to be the only one possible, correct and truthful.

In alliance with the good therapeutic practices, it is important that the therapist facilitates the patient to understand how the world works and helps him overcome rigid beliefs that hamper his functioning and often can be the source of different emotional disorders. For this purpose, it is of paramount necessity to create a clear and understandable alternative explanation which can allow the patient to free himself from the dysfunctional negative beliefs. It is well-known that such an alternative explanation is achieved by the help of the case conceptualization which for some scientists like Butler (1998) represents a "mental map" of the difficulties of the patient. Such perspective encourages the idea that the patient and therapist are striving to discover, each with an expertise in his area (the therapist - in the psychological theories and therapeutic practices, the patient regarding his experiences). In such a case each session is seen as contributing to the discovery of new pieces of the "map" or the "puzzle" and for their connection.

The use of metaphors in clinical practice can help patients look at the world with different "eyes", to increase their cognitive flexibility and as a result to encourage them to try new types of

reactions and behaviors. Metaphors are used in cognitive therapy in order for the patients to be able to explore and understand the existing dysfunctional meanings and beliefs while simultaneously to start forming new and different ones. The use of metaphors in the therapeutic discourse can be perceived as an antipode to psychoeducation that requires a direct conversation about the specific problem, about the way the brain and mind work without the use of comparisons that are not directly related to the suffering and psychological pain of the patient.

The point of using metaphors consists in that the client directly or indirectly is welcomed to compare something he does not understand with another thing that is well known and understood. Metaphors create a cognitive bridge that improves the understanding of the patient about his problem, allows him the opportunity to see it in an entirely new light and gives him the chance to choose a different behavior as a reaction. Another advantage of using metaphors in the clinical practice is the opportunity for patients to cope with their problems coming from distress better without their consciousness being fogged by intense negative emotions, which usually are related to certain negative meanings attributed to the situation. Distress, suffering and psychological pain can prevent the individual from thinking clearly about what is happening with him, while sometimes metaphors are less emotionally charged and their use leads to a successful distancing from the problem and to a more productive discussion.

Metaphors ensure distance from the uncontrollable emotional reactions creating an opportunity for a re-connection to painful situations in a new way. Metaphors possess the unique characteristic to maintain the exact balance between keeping the discussion emotional enough in order for the patient to be able to connect to it and to remember it clearly in his mind while preventing the affect to go out of control. Metaphors give an opportunity for reaching the so-called insight about a specific problem and its source and to find new solutions. Another advantage of metaphors is their ability to include the patient more actively in the therapeutic process since often they provoke bright images that improve the memory about the discussed topic and the reached conclusions. The metaphors connect and store the new meanings and create a stronger possibility for the parts to evoke the whole. Last but not least metaphors enhance the reproduction of key meanings in therapy without the need for long interpretations and summary.

There are different ways that could assist the better understanding and use of metaphors. The first one is the technique 'guided discovery'. With its help the patient participates actively in the creation and specification of the best metaphor for a certain situation. This approach leads to a more thorough processing and facilitates the reproduction later on. The main goal in this case will be reaching a shared understanding of the problems of the client between the therapist and the client. Another way of increasing the strength of the metaphor is the way it is presented. It can be experienced through a role play or aspects of it can be physically shown by the therapist. It is important to include other senses, for example, to use the tone or the strength of the voice in order to illustrate the ideas contained by the metaphor. The choice of an appropriate metaphor is an

important process for which the therapist needs to be well-prepared. The patient has to easily be able to grasp the metaphor. It is recommended to be related to his interests and past experience. The therapist has to make sure that it resonates enough with the patient in order to ensure that it will be processed and understood well. The use of behavioral experiments to confirm validity of the conclusions derived from the metaphor can be used. Last but not least the metaphor needs to be in unison with the value system and culture the patient belongs to.

The metaphor can contribute to the use of humor as a therapeutic technique. Sometimes metaphors themselves are in the form of jokes or funny stories. Humor in therapy needs to be used carefully and the therapist should bear in mind that there is a chance for a patient to perceive a certain joke as a ridicule or arrogance. For obtaining the best result when using humor in therapy there are 2 important factors: the context in which the therapist uses humor and the therapeutic alliance. The best case is using spontaneous humor when the client is amazed by something he or the therapist has said. Then it is easy for the therapist to join in. Although he risks ruining a good joke, it is important that the therapist investigates what has contributed to the perception of the situation as funny since this is going to bring a new point of view to the given phenomenon and will help increase the cognitive flexibility of the patient. Of course, the same method is appropriate in case of intentional use of humor as well. Often humor leads to a change towards a given phenomenon - from acceptance in its entirety to looking at it with some irony which in turn reduces the attachment to emotionally intensive situations and introduces a different point of view.

Anxiety is an evolutionary developed fear of a potential danger. It becomes pathological when the reaction does not correspond to the stimulus. The level of anxiety depends not only on the idea about the risk of a threat but also on how "awful" the consequences of such a situation to be as well as the belief of the individual about his ability to cope with it. The presence of anxiety usually brings the so called "safety" behaviors like avoidance which from life-saving can turn into a maintaining mechanism for pathological anxiety. In a non-threatening situation, they constitute the obstacle that hinders the individual from discovering that his fears have no grounds. The cognitive model explains pathological anxiety with a misinterpretation about the danger in a certain situation and the maintenance of negative beliefs about it through safety behaviors. For example, people with social phobia that wear special clothes to hide sweating too much believe that the clothes are the only reason why others do not comment on them sweating. An appropriate metaphor describing the result of using safety behaviors is - "the solution has become the problem". The only effective way for therapy is limiting safety behaviors for better reality testing. This is not an easy task and it requires high motivation and decisiveness on the part of the patient. In cases of actual avoidance of a situation the metaphor to "face your fears" can be used and an example with fear of an animal can be given. For instance, what would you do if a child is afraid of dogs (the animal needs to correspond to the individual fears of the patient but not to be one of them)? What would be the best way to overcome this fear? In this way the curiosity of the patient is stimulated and he is also more involved

in the therapy as a whole. In cases of emotional avoidance in actual physical presence in a certain situation patient with social phobia use control over their emotion as their best strategy.

Usually behind such actions stands the belief that the individual will be overwhelmed and distraught by his affect. For such safety behaviors appropriate metaphors include: "to be paralyzed", " to tune out", "to build a wall between oneself and the world". The therapeutic intervention in this case aims at discovering the beliefs of the patient related to experiencing strong emotions in social context and with the help of cognitive restructuring to make them less dysfunctional thus supporting the manifestation of more balanced emotions. Safety behaviors in a given situation for individuals with social phobia may include preparing ready answers or phrases when the conversation is not going according to the plan or they feel they sound stupid. As it became clear the favorable outcome is believed to come from executing the safety behavior which in turn greatly undermines the confidence of the individual that he can cope on his own.

Conducting behavioral experiments without the use of safety behaviors is the most effective way for terminating the vicious cycle. In this case metaphors like the construction worker who was left to keep a wall straight an entire day can be used. The only way the worker could take a break and find out that the wall actually stands on its own and will not fall is to let it go. Or the story about a passenger who was dripping pieces of paper through the window in order to prevent an elephant from appearing on the rail tracks. When no elephants appeared, the passenger assumed that it was due only to the measures he had taken. The last example is appropriate when the therapist decides to use humor for helping the patient to distance himself from the situation but also to enhance the encoding and reproduction of the example. Humor helps build a bridge between the mind of the patient, the elements of the metaphor and the problematic situation. Conclusions are illustrated through the metaphor in order not evoke intense emotions and thus can be better understood.

Other factors that influence the emergence and maintenance of pathological anxiety is selective attention. People evolutionary are prone to being more sensitive to external and internal threatening experiences, signs and signals. While this trait serves mainly an adaptive purpose in the case of an anxiety disorder the patient remains focused on the source of danger and threat due to his heightened sensitivity. This in turn increases the levels of anxiety and stimulates patient's vigilance even more transforming very improbable catastrophic consequences into real and possible ones. A metaphor that well illustrates this phenomenon is to "seek trouble". A comparison can be used that the person is primed to find things that are related to what excites him at the moment. In that way the patient enters a vicious cycle where he is stimulated more and more to increase his vigilance which affects in a negative way the symptoms of anxiety. Another useful metaphor would be comparing the behavior of the client with that of an expert in a certain area. For example, for people suffering from social phobia a therapist can use the example of an expert on body language and to ask whose opinion is more authoritative for human behavior. Another way the client's behavior can be described is with the comparison "false alarm".

Social phobia is a fear of evaluation by others. This increases anxiety and the experience of vulnerability. Often in therapy it becomes clear that the image those patients have of themselves is that of being transparent to others. In that regard a suitable metaphor in the clinical practice would be that of a "glass box". Clients often spend a long time in self-observation, examination and criticism of their performance and project these actions onto others as well and surmise that they feel the same way and reach the same conclusions and therefore the patients feel like an "open book". This feeling can be most easily overcome with the help of behavioral techniques like role play and behavioral experiment. Another useful metaphor reflecting the inability of patients with social phobia to perceive accurately the feedback coming from their surroundings is that of "searching for a radio station". When the patient avoids social situations or is present but is more focused on himself by performing safety behaviors, he can be compared to somebody who is searching for a radio station but does not hear a song due to the static noise.

Presented in such a way it becomes clear for the patients that they do not have access to how others see them. This information is extremely important for the course of their phobia since the distorted perception of the responses coming from the external world is one of the primary maintaining factors of this disorder. Some specialists find the metaphor "loosen your belt" appropriate when they need to compare the set of available behaviors to the patient with social phobia and the need for adding new ones. For these patients it is typical to limit their behavioral models to a state similar to "rope walking" and they believe that even the smallest deviation from the rules of behavior leads to catastrophic consequences in a social context. It is important to note that the increase in the number of behavioral models will result in more balanced perception of situations and will diminish the rigidity of the behavioral reactions which in turn will give an opportunity for diversifying the communication with the outer world and for a different way of connecting to other people just like when we expand the surface, we step on this facilitates our movement forward.

Criticisms to classical CBT and contemporary approaches

A main advantage of CBT is the fact that cognitive and behavioral techniques come from logical and scientifically proven theoretical models about anxiety. Thus, there is a well-established connection between therapeutic techniques and the symptoms of the disorders they are aiming to treat.

Nevertheless, one of the most common criticisms to CBT claims that symptoms relapse after time or are being substituted by different ones. It is possible that this argument stems from the conviction that a successful treatment should always include the identification of the source of the symptoms. CBT actually does not neglect these reasons, to the contrary, they play an important role when choosing the appropriate therapeutic strategies. The focus is put not on the reasons related to the individual history of the patient but rather on the ones investigated and provided to CBT by the

theories explaining human behavior.

Regardless of the central place cognitive schemas take in the earliest work related to cognitive therapy, the cognitive techniques and approaches that emerge later on are directed more to the automatic thoughts, rules and assumptions. As a result of that, psychotherapeutic protocols became shorter and shorter in time and paid less attention to the processes on the level of cognitive schemas and core beliefs. In the most contemporary CBT approaches social anxiety is treated using well-structured sessions which can be fewer in number but may reach up to 90min. A reason for that is the serious attention that is paid to the construction of a behavioral experiment in the session and its implementation. The most recent studies on the effectiveness of classical techniques of CBT show that exposure does not result in a significant improvement of symptoms, regardless of their frequency or intensity. It turns out that behavioral extinction does not lead to a major change in perception of the world and the underlying core beliefs. This is the reason why nowadays therapists first investigate the individual fears related to the social situation and on the basis of this knowledge predict together with the patient what is to happen in such cases. The behavioral experiment aims at testing these predictions and giving real evidence to the patient.

A major difference in the current therapeutic protocol is the lack of need to focus on discovering, evaluating and analyzing anxiety caused by interpersonal interaction. Anxiety is present and efforts in the direction to diminish it by using relaxation techniques lead only to temporary results. What brings qualitative change is testing what the patient already "knows" in his head. Namely with the help of a list of situations that lead to anxiety in a hierarchical order, first the expected result is written down and then in real time the individual is put in the corresponding situation. At the end of the experiment the therapist and the patient compare the experience from the experiment with the made conjectures, the thoughts and emotions before, during and after the experiment are also analyzed.

Sometimes the same experiment can be done multiple times using the same behavior or making alterations. The behavioral experiment mainly aims at demonstrating the result of leaving the "safety behaviors". Another reason for including it in the therapeutic repertoire is when the patient trains himself to change his focus outward. With his consent the sessions are recorded on video and he can see the difference in his behavior and make a comparison when he is occupied with his concerns and remains distant from the other participant in the conversation and when he acts in a fully engaged manner with the other side of the communication. A recording can also be made in the cases when the patient imagines negative pictures about how he appears from the outside or uses internal information to judge how much others like him - how much he blushed, how much his hands shake, etc. In these cases, the therapist uses video feedback to normalize the state of the patient by urging him to compare himself with the other participants in the conversation and with the image he has of his performance. It also serves the purpose of changing the negative image of the individual for himself here and now.

In cases of social anxiety, the therapist should know the basic "mines" that he might come across during his work. First, people with social anxiety do try to control the conversation, the themes and their performance which leads to a distanced and superficial communication. Second, the therapist should not believe what he sees but must carefully examine the core beliefs and dysfunctional rules of the patient in order to find out what the specific symptom means to the patient. The entire time the therapist needs to be aware that he is the object of the phobia of the patient and as such could cause some intense emotions if he becomes too empathic or accepting. In some cases, it is acceptable to use a white board as an element, an intermediary, that allows for a comfortable distance between patient and therapist.

Many authors go back to the initial ideas by Beck about the need of the patients to conceptualize their problem using cognitive schemas (Young, 1995). More specifically Jeffrey Young is one of the most powerful supporters of the schema-focused clinical approach. Admitting the limitations of the traditional cognitive therapy, he suggests that the change of the focus towards schemas is often necessary since for some patients the changing emotions and cognitions from one moment to the next are unavailable and that makes the concentration on automatic thoughts unproductive. Other patients effortlessly recognize their irrational beliefs in therapy but continue feeling bad afterwards. While third are unable to establish a productive working alliance which is necessary for work focused on the symptom. Lastly, Young notes that the clinical picture of patients seen in the community often is much more complex and chronic compared to the one included in the representative samples of the clinical trials during the creation of the protocols for cognitive therapy. As a result, the need to focus on the underlying schemas has started influencing the practice of cognitive therapy and the schema-focused approach has become more and more oriented towards the explanation and treatment of specific clinical problems.

Other therapeutic approaches for social anxiety disorder

- **Cognitive-behavioral group therapy (CBGT)**
- **MISA program**
- **Interpersonal therapy**
- **Mentalization-based therapy**

Effectiveness of therapy when combining various approaches

In its effort to reach a more effective treatment for social anxiety researchers experiment with different combinations of approaches. Considering the vast majority of manifestations of social anxiety - physiological arousal, dysfunctional beliefs and thoughts, behavioral impairment, avoidance, distress, the idea of using various techniques that could address each aspect of the problem and thus optimize the end result seem intuitively attractive (Chambless & Gill, 1993). The review of such studies, however, does not support this hypothesis. It seems the efficacy of the combination of different approaches depends on the severity of the disorder and the presence of

comorbidity.

One reason for the mixed results when using various techniques and approaches in treating social anxiety might be the limited time and resources of the patient to master any of them and to apply it in his everyday life. Another possibility for the fact that a combination of therapeutic techniques is not received well is the lack of sufficient time for patients to gain a clear sense of what the point and goals of the treatment are - basic components of therapy that lead to the so called "shared understanding" about the nature of the patient's problem and how to address it.

There is a possibility that the combination of treatments provides fewer contradictory results in a long-term therapy but this hypothesis is not well-documented yet. Just like with the decision whether to combine CBT with medication, the focus of future research should be on the sequence of the chosen therapeutic measures and their intensity rather than on their combination.

The influence of the restrictive measures in times of pandemia on social anxiety

Current reports on social anxiety focus on the pandemic situation and report interesting consequences of obligatory mask wearing. Individual patients report a calmer internal monologue, fewer socially anxious thoughts and lower anxiety level when performing a task in front of other people and expecting their evaluation. Apart from decreasing anxiety, facial masks help socially anxious individuals to experience themselves as more authentic - they do not need to be careful and alert anymore about their social behavior like smiling and facial expression, for example.

One of the mechanisms that contribute to this effect is the feeling of anonymity and uniformity with other people (Hirsh, J. B., 2011). Thanks to facial masks the signs of anxiety like reddening of the face and nervous facial expressions that may otherwise attract attention cannot be viewed and recognized. The focus of people with social anxiety shifts from themselves to others. The circumstances also improve collective responsibility thus enhancing self-perception and self-esteem since mask wearing contributes to the welfare of society. The restrictive measures limit social contact which brings further tranquility among those patients that they need not to communicate even the opposite has been recommended.

In a study investigating the relationship between the visual consequences of the pandemia - facial masks and mental health Szczesniak et al. (2020) discovers that wearing a mask result in lower levels of psychopathology and more precisely of anxiety and helplessness especially for people who struggle with the physical and physiological aspects of social anxiety as well as an experience of increased sense of control regardless of age, gender and occupation. To some degree the current situation leads to temporary but real improvements in the mental functioning among individuals with social anxiety. Such results to this moment are achieved through online communication because it brings less anxiety and more self-confidence but it does not give an opportunity for overcoming the condition.

It is important to note that facial masks are a temporary solution for a chronic condition that requires therapy. Allowing for a different perspective, it is possible for the wearing of facial masks to contribute to the initial relaxation of the patient in therapy and to enhance the formation of a therapeutic alliance. Masks can be used also in behavioral experiments by carefully monitoring the sensations, emotions and thoughts with and without the protective piece of fabric.

Organization of the empirical research

- **Aims**

The current empirical research aims at discovering the specifics of the cognitive process in social anxiety. The investigation explores irrational beliefs and negative emotions and fears and their connection to behavior. A main focus of the study are the specifics of the metacognitive abilities in the clinical group and more precisely the ability for mentalization assessed by the attitude towards sense of humor. An important part of the current work is how the specific thought and emotional processes influence the abilities to adapt. The perspective of the study reflects the most contemporary approaches in cognitive therapy that focus on the importance of the emotional process for understanding a certain pathology and finding an adequate treatment. The scientific work is based on two pilot studies.

- **Summary of results of the pilot studies**

The pilot studies to a large degree confirm the initial assumptions based on the cognitive model. There exists a close connection between dysfunctional thoughts and negative affect caused by anxiety, as well as the use of immature defense mechanisms like dissociation. High levels of social anxiety suggest a more frequent use of maladaptive coping strategies. It seems, however, that the relationship between cognitions and behavior is more complicated. The connection between dysfunctional thoughts and the level of social anxiety also needs clarification. It is possible that social anxiety may have a different nature, etiology and manifestation which in turn influences all other variables like mentalization, defense mechanisms and coping strategies.

The data from the study suggests that gender, age and culture also play an important role in some cases and can overturn initial expectations. In women the acquisition of life experience enhances better adaptation and overcoming anxiety while in men the opposite tendency is observed with age - increasing anxiety provoked by social situations. This phenomenon could be part of the specifics of the cultural psychology of the Bulgarian population but it could also be conditioned by a specific stressor in the environment and expectations of the male role in times of political change and democracy. Similar results can bring a significant contribution not only to the theoretical grounds of the cognitive model and its application for the population in Bulgaria but also to the opportunity to use CBT as treatment. It seems as if Bulgarians who belong to a certain age group would not benefit from the therapeutic technique "exposure" used with great success for people with social anxiety disorder. Due to the different nature of their social anxiety for this group this strategy should be

reviewed and another one better fitted chosen instead.

Although the current pilot studies shed some light on many of the mechanisms related to social anxiety, they have limitations. First of all, the small number of participants hinders the data analysis. It is recommended to conduct a study with a larger representative sample. It is also important to use a comparison between a clinical and a control group and the participants in the clinical group should be individuals diagnosed with social anxiety disorder. These prerequisites will allow for investigating the moderating and mediating factors between social anxiety, dysfunctional behavior and the ability for mentalization.

- **Hypotheses**

On the basis of the information in the literature related to social anxiety and sense of humor and the results from the pilot studies the following assumptions were derived:

- Participants with higher social anxiety will show higher levels of dysfunctional automatic thoughts.
- Participants with higher social anxiety will experience more prominent anxious experiences resorting to the need of psychological defense and dissociation.
- Participants with higher social anxiety will use more dysfunctional coping strategies like avoidance of the problem and will be more passive to the problems as a whole.
- Participants with social anxiety will show a lower sensitivity to humor, its social use and the opportunity to use it as a coping strategy. These individuals experience an arrest of their emotional maturation due to their individual history and background which leads to an underdeveloped ability for mentalization and a diminished sensitivity to sense of humor, for example.

- **Methodology: Test battery**

The test battery the current study uses aims at diagnosing the level of social anxiety, the quantity and type of dysfunctional anxious thoughts and coping strategies. For establishing the use of mental defense mechanisms, a new scale is added measuring dissociation. Included also is a questionnaire evaluating the level of maturity of the sense of humor as an exemplary metacognitive ability in this case reflecting the ability for mentalization.

1. SPIN - Social phobia inventory

2. SAT - Socially anxious thoughts

3. Indicator for coping strategies

4. MSHS - Multidimensional sense of humor scale

5. QED - Questionnaire of experiences of dissociation

- **Empirical research**

The clinical sample was diagnosed with social anxiety disorder by a psychiatrist. The participants in it also have been assessed by a clinical psychologist. The rest of the participants have been chosen randomly. The individuals in both groups - clinical and control, gave informed consent for participation in the study and were given feedback about the results on the tests according to their individual preferences. The actual gathering of participants and administration of tests was executed over the course of several months. Some of the participants have continued their therapy. Relevant feedback was given to their therapists about the findings in the current study regarding the most up-to-date approaches in the area, scientific data as well as results from the sample of the current empirical research.

Representative sample (Table 1, 2)

The sample consists of 74 people - 30 males and 44 females between the ages of 16 and 62. The mean age is 37.5. In males the mean age is 39 years, while for females it is 36. The mode age for males is 50 years, while for women - 27. 75.7% of participants have a university degree, and the rest have completed high school. 30% of males and 20.5% of females have high school education, while 70% and 79.5% respectively have obtained a university diploma.

- **Qualitative analysis of the results**

Correlational analysis by scales (Table 3)

SPIN

After the conducted correlational analysis, a strong correlation between the social phobia scale SPIN and the questionnaire on socially anxious thoughts SAT ($r = .73$, $n = 74$, $p < .001$), as well as between it and the its fourth subscale "execution anxiety" ($r = .72$, $n = 74$, $p < .001$). A significant correlation was observed between SPIN and the first three subscales of SAT as follows: "overall discomfort and social inadequacy" ($r = .69$, $n = 74$, $p < .001$), “others notice the distress" ($r = .56$, $n = 74$, $p < .001$) and "fear of negative evaluation" ($r = .66$, $n = 74$, $p < .001$). A moderate positive correlation was established between SPIN and the coping strategy "avoiding a problem" ($r = .46$, $n = 74$, $p < .001$) and a weak negative correlation with the coping strategy "problem solving". SPIN has a moderate positive correlation with the questionnaire on dissociation QED ($r = .30$, $n = 74$, $p = .009$). While it shows moderate negative correlation with MSHS and 3 of its subscales and a weak negative correlation with the subscale "attitude towards people with a sense of humor". The

results of the correlation between SPIN and MSHS are (r = -.43, n = 74, p < .001), for the first subscale "social use of humor" - (r = -.46, n = 74, p < .001), for "humor as a coping strategy" - (r = -.33, n = 74, p = .004), and for "attitude toward humor as a whole" - (r = -.41, n = 74, p < .001).

As expected, the presence of social anxiety determines the quantity of anxious thoughts more specifically the results focus the most on cognitions related to execution anxiety. This gives an opportunity for a future study that would distinguish whether the result is related more to the experience of being observed or being evaluated.

There is a relationship between social phobia and the use of dysfunctional, in most cases, strategy "avoidance" as well as decreased manifestation of the adaptive one - “problem solving". At the same time the presence of social anxiety seems related to the use of immature defense mechanisms and vulnerability to stress. There is a negative correlation between social phobia and sense of humor and its use, less prominent toward people who have a sense of humor. The results show difficulties in the functioning of people with social anxiety especially when one or more of these are present: anxious thoughts, dysfunctional coping strategies, mental immaturity and underdeveloped metacognitive abilities manifested in the lack of appreciation and limited use of humor in everyday life. The tendency for people with social anxiety to have a "soft spot" for individuals with a sense of humor is evident in this sample as well, although any conclusions should be made with caution since it is not well-established whether people with social anxiety can learn from the experience of others especially in such delicate context as sense of humor.

SAT

The conducted correlational analysis reveals a strong positive correlation between the cumulative result of the scale for anxious thoughts SAT and 3 of its subscales: "overall discomfort and social inadequacy" (r = .95, n = 74, p < .001), "fear of negative evaluation" (r = .90, n = 74, p < .001) and "execution anxiety" (r = .95, n = 74, p < .001). The strength of the correlation between SAT and its second subscale "fear that others can see the distress" is significant (r = .69, n = 74, p < .001). There is a moderate positive correlation with the coping strategy "avoidance" (r = .40, n = 74, p < .001) and with the results from QED (r = .34, n = 74, p = .004), as well as a moderate positive correlation with the overall result on MSHS and its first subscale: "social use of humor" - (r = -.30, n = 74, p = .009) and (r = -.34, n = 74, p = .003), respectively. There is a weak negative correlation between SAT and the last subscale of MSHS - "attitude towards humor as a whole".

The results suggest a diminished coherence between the second scale on SAT and the rest of them. The embarrassment whether the physiological signs of social anxiety are noticed by others is secondary to the negative experience of having such discomfort, fear of judgment and feelings of being pressured when executing one activity or another. As expected, the people who report a larger number of socially anxious thoughts are the ones that use more dysfunctional coping strategies and immature defense mechanisms. The presence of such thoughts is connected also to a less positive

attitude towards humor as a whole and limits its social use.

The first subscale of SAT "overall discomfort and social inadequacy" correlates strongly in a positive direction with the scales "fear of negative evaluation" ($r = .79$, $n = 74$, $p < .001$) and "execution anxiety" ($r = .88$, $n = 74$, $p < .001$) and significantly with the scale "fear that others notice the distress" - ($r = .61$, $n = 74$, $p < .001$). There is a moderate positive correlation with the coping strategy "avoidance" ($r = .42$, $n = 74$, $p < .001$) and with the dissociation questionnaire ($r = .36$, $n = 74$, $p = .002$). At the same time there is a weak negative correlation with the overall score on the MSHS and its fourth subscale "attitude towards humor as a whole" as well as a moderate negative correlation with its first subscale "social use of humor" ($r = -.32$, $n = 74$, $p = .006$).

The results confirm the conclusions drawn from the overall results of the scale. It seems that anxiety whether others notice the distress is related to a lesser degree to the experiences of general discomfort and social inadequacy compared to the other two subscales of the test. High score on this test shows a negative correlation with the fourth subscale of the questionnaire that measures sense of humor which means that the positive evaluation of humor as a whole is lower - a sign of obstacles during the developmental process of metacognitive abilities.

The second subscale of SAT "fear that others notice the distress" significantly correlates in a positive direction with the third subscale "fear of negative evaluation" ($r = .62$, $n = 74$, $p < .001$) and with the fourth subscale "execution anxiety" ($r = .67$, $n = 74$, $p < .001$). There is a weak positive correlation with the coping strategy "avoidance" as well as with the test for dissociation. At the same time there exists a weak negative correlation with the overall score on the questionnaire about sense of humor as well as its first subscale - "social use of humor". The second scale of SAT "fear that others notice the distress" seems less connected to the other 3 scales of the questionnaire. It also shows a weaker interaction with coping strategies and defense mechanisms as well as with the social use of humor and the attitude towards it as a whole.

The third subscale of SAT "fear of negative evaluation" has a strong positive correlation with the fourth subscale of the questionnaire "execution anxiety" ($r = .85$, $n = 74$, $p < .001$). The same one correlates moderately with the coping strategy "avoidance" ($r = .37$, $n = 74$, $p = .001$) and with dissociation ($r = .35$, $n = 74$, $p = .003$). A negative correlation with the sense of humor is documented ($r = -.32$, $n = 74$, $p = .006$) as well as with the first subscale of the same questionnaire "attitude towards humor as a whole". The results show a strong connection between the fear of negative evaluation and execution anxiety. It also interacts with the coping strategy "avoidance" and the scale measuring dissociation.

Without being able to conclusively demonstrate cause and effect it could be assumed that socially anxious thoughts to some degree determine the avoidance which in turn confirms the dysfunctional cognitions. The data confirms that among individuals with a high number of thoughts related to fear of being evaluated the perception of humor is less positive and its use is limited.

In regards to the fourth subscale of SAT "execution anxiety" there is a moderate correlation in a positive direction with the coping strategy "avoidance" ($r = .41$, $n = 74$, $p < .001$) and the questionnaire measuring dissociation ($r = .34$, $n = 74$, $p = .003$). There is a weak negative correlation with the overall result on the sense of humor test and its fourth subscale "attitude towards humor as a whole", as well as a moderate negative correlation with its first subscale "social use of humor" ($r = -.32$, $n = 74$, $p = .006$). The fourth subscale confirms the results of the questionnaire as a whole.

Coping strategies indicator (CSI)

The first coping strategy "problem solving" demonstrated weak correlation in a positive direction with the second coping strategy "seeking social support", with the overall result on the questionnaire about sense of humor, with its first subscale "social use of humor" as well as with its third subscale "attitude towards people with a sense of humor". The data shows moderate positive correlation with the last subscale "attitude towards humor as a whole" ($r = .33$, $n = 74$, $p = .004$) and at the same time a weak negative correlation with the defense mechanism dissociation. These results confirm that problem solving is an adaptive coping strategy since it correlates positively with the sense of humor which is a sign of personal and cognitive maturity. Individuals who actively seek problem resolution are also the ones more inclined to use humor in social situations and have a positive attitude towards it.

The second coping strategy "seeking social support" shows a weak interaction in a positive direction with the sense of humor as a whole, with its third and fourth subscales - "attitude towards people with a sense of humor" and "attitude towards humor as a whole". This coping strategy as expected is positively related to the people who demonstrate a good sense of humor.

The coping strategy "avoidance" shows one significant interaction. There is a moderate positive correlation between the frequency of use of this strategy and the level of dissociation ($r = .33$, $n = 74$, $p = .004$). The correlational analysis confirms the relationship between behavior and the level of mental maturity. Immature individuals or the ones in regress use more dysfunctional coping strategies like avoidance.

Sense of humor (MSHS)

The overall result of the questionnaire shows strong positive correlation with its four subscales as follows: "social use of humor" ($r = .97$, $n = 74$, $p < .001$), "humor as a coping strategy" ($r = .89$, $n = 74$, $p < .001$, "attitude towards people with a sense of humor" ($r = .94$, $n = 74$, $p < .001$) and "attitude towards humor as a whole" ($r = .72$, $n = 74$, $p < .001$).

The first subscale of the test "social use of humor" correlates strongly with the second and third ones respectively - ($r = .82$, $n = 74$, $p < .001$), ($r = .88$, $n = 74$, $p < .001$), and significantly with the last one ($r = .64$, $n = 74$, $p < .001$).

The second subscale shows a strong positive correlation with the third one ($r = .84$, $n = 74$, $p < .001$) and significant with the last subscale "attitude towards humor as a whole" ($r = .58$, $n = 74$, $p < .001$).

The third subscale of the questionnaire demonstrates significant positive correlation with the last one ($r = .61$, $n = 74$, $p < .001$).

None of the results on the questionnaire about sense of humor shows an interaction with the dissociation scale with the exception of the fourth subscale "attitude towards humor as a whole" which demonstrates a weak negative correlation with it.

The results testify to a relative separation between the last subscale and the other ones for this questionnaire. One possible explanation is that humor reflects a high metacognitive ability of the individual and its connotation touches upon philosophical conceptions and life reflection to a greater degree. It seems like its use in social situations and as a coping mechanism and its perception from the outside is more accessible compared to its complex nature. In fact, precisely this subscale is related to the level of personal maturity and types of defenses.

Correlational analysis according to hypotheses

Hypothesis 1

The results from the study confirm the hypothesis namely participants who demonstrate symptoms of social anxiety will show higher levels of dysfunctional anxious thoughts. After the conducted correlational analysis, it was established a strong correlation between the social phobia scale SPIN and SAT ($r = .73$, $n = 74$, $p < .001$), as well as the fourth subscale "execution anxiety" ($r = .72$, $n = 74$, $p < .001$). A significant correlation is observed between SPIN and the first three subscales of SAT as follows: "overall discomfort and social inadequacy" ($r = .69$, $n = 74$, $p < .001$), “fear that others notice the distress" ($r = .56$, $n = 74$, $p < .001$) and “fear of negative evaluation” ($r = .66$, $n = 74$, $p < .001$). These results reveal that social anxiety and its aspects of fear, physiological arousal and avoidance correlate most strongly with socially anxious thoughts, specifically "execution anxiety". Action or execution of a task as a whole is impaired the most among such individuals probably due to the fact that usually it is accompanied by immediate observation and feedback or evaluation of performance.

Hypothesis 2

The second hypothesis is supported by the data analysis. The social phobia inventory correlates positively with the scale for measuring dissociation QED ($r = .30$, $n = 74$, $p = .009$). The interaction between the two variables is moderate which one more time proves the wide range of different characteristics that people with social anxiety manifest. The expectation that they will be more likely to use immature defense mechanisms is confirmed but the strength of the relationship

shows that there might be exceptions. The qualitative analysis of the individuals from the sample with high social anxiety directs the attention to the patient's background and history. The experience of traumatic events as well as the underdeveloped ability for mentalization are the factors that determine the interaction between those two questionnaires and as a result between high levels of anxiety and the need to resort to dysfunctional psychological defenses.

Hypothesis 3

The conducted correlational analysis shows moderate positive correlation between social phobia and the coping strategy "avoidance" ($r = .41$, $n = 74$, $p < .001$). At the same time there is a weak but negative correlation between the presence of social anxiety and the adaptive coping strategy "problem solving" ($r = .23$, $n = 74$, $p < .05$).

The results reflect the expected direction of the relationship, namely, individuals with high levels of anxiety prefer the dysfunctional coping strategy "avoidance" and at the same time use less "problem solving". They also seek less social support even though this scale does not reach statistical significance. Avoidance and social isolation hinder the use of close relationships for coping and support.

Supporting the connection between social anxiety and the choice of dysfunctional coping strategies, the questionnaire on socially anxious thoughts as a whole as well as 3 of its subscales show moderate positive correlation with the strategy "avoidance" as follows: ($r = .40$, $n = 74$, $p < .001$), “overall discomfort and social inadequacy “($r = .42$, $n = 74$, $p < .001$), “fear of negative evaluation “($r = .37$, $n = 74$, $p = .001$), “execution anxiety “($r = .41$, $n = 74$, $p < .001$). The second subscale "fear that others notice the distress" shows a weak correlation in the same direction ($r = .25$, $n = 74$, $p < .05$).

Hypothesis 4

It is supported by the conclusions of the correlational analysis which show a negative moderate correlation of the scale for social phobia with the questionnaire about sense of humor and 3 of its subscales and a weak negative correlation with one of its scales "attitude towards people with a sense of humor". The results that show the connection between the two questionnaires are ($r = -.43$, $n = 74$, $p < .001$), for the first scale „social use of humor “– ($r = -.46$, $n = 74$, $p < .001$), for "humor as a coping strategy" ($r = -.33$, $n = 74$, $p = .004$), and for "attitude towards humor as a whole" - ($r = -.41$, $n = 74$, $p < .001$).

The results of the study confirm the fourth hypothesis and the findings from previous studies namely that the sensitivity of people with social anxiety towards humor is significantly lower and their ability to use it in social situations as a way of coping with stressful circumstances is hindered or underdeveloped. This in turn is a sign of limitations in the area of emotions and their expression as well as difficulties in the process of mentalization.

The results also support the additional hypothesis that individuals with a positive attitude towards humor are the ones who more often choose the adaptive coping strategy - problem solving. The participants with no social anxiety who choose this way of coping are significantly more compared to the ones who show high levels of social anxiety.

- **Factor analysis of the test battery**

After the quantitative analysis of the data, the researchers wished to deepen their understanding of the phenomenon of social anxiety and the battery of tests that can be used for its investigation. The major question was whether the selected questionnaires that are standardized in an English-speaking society can capture the different aspects of thoughts, emotions and behavior in a sample of Bulgarians.

SAT

After the conducted factor analysis of this questionnaire, it becomes clear that the suggested 4 theoretical subscales are not supported empirically and the best decision in this case is to keep 1 factor that is to preserve the strength of the statistical data and the meaningful interpretation it is recommended to look only at the overall result on the scale (Appendix 1).

SPIN

After the conducted factor analysis of this scale with the data from the current sample, it has become clear that the suggested 3 subscales by the authors - fear, physiological arousal and avoidance are not supported empirically and again the best decision in this case is to keep only 1 factor that is in order to preserve the strength of the statistical data and meaningful interpretation it is recommended to have only the overall result (Appendix 1).

MSHS

After the conducted factor analysis on this questionnaire with the current sample data it was established that the suggestion of the authors about the existence of 4 dimensions in theory are not empirically supported. The authors, nevertheless, warn that the evidence for these 4 subscales is not strong and therefore it has been recommended to keep only 1 factor in order to preserve the strength of the statistical results and the meaningful interpretation (Appendix 1).

Coping strategies

The conducted factor analysis discovered 3 factors of this scale that correspond to the theoretical suggestion of the authors. It proves that the scale actually investigates coping strategies and the 3 factors are valid for the current sample of Bulgarians. The three scales are - problem

solving, seeking social support and avoidance, while the low consistency result confirms the lack of common factor and makes endeavors in that direction pointless. In any case there is some connection between the scales. For instance, a moderate consistency shows that avoidance even theorized as a dysfunctional coping strategy reflects an active form of coping. The actual data and results can be seen in Appendix 1.

QED

The conducted factor analysis on this questionnaire helped determine 3 factors on this scale corresponding to a great degree with the theoretical suggestion of the scientific team preparing the current dissertation work. In any case using the data from the sample we were able to establish the subscales - mental dissociation, physical dissociation and fantasy. It must be noted that some of items of the questionnaire are not included in either of those 3 factors due to the lack of connection with the rest of the items and also subscale Fantasy consists only of 3 items (Appendix 1)

In order to gain additional clarity and to reveal more support for the relationship between thoughts, emotions, defense mechanisms, higher metacognitive functioning, manifested by the sense of humor and behavior and the opportunity to guide future research, the subscales of all questionnaire have been kept and presented as theoretically advised by their authors for the quantitative as well as the qualitative analysis. In addition, the three factors of QED established after the conducted exploratory factor analysis were also included.

- **Regression analysis of the research data**

In order to establish the relationship between the variables beyond correlation a series of regression analysis have been conducted with the help of SPSS and Process 3.5 by Dr. Andrew F. Hayes for establishing moderators and mediators of the relationship between social anxiety, defense mechanisms, behavior and thoughts. Moderators are these variables whose presence can change the relationship between two other constructs, while mediators usually explain the relationship between two variables. A requirement for establishing such relationships is the size of the representative sample and in this case, there is a risk that the small number of participants will hinder the extraction of significant results.

According to the theoretical model of the researchers the connection between the presence of social phobia and the use of immature defense mechanisms is moderated by the ability for mentalization in this case measured through the questionnaire on sense of humor (MSHS). This hypothesis is not confirmed by the conducted analysis. There is no significant interaction which means that the relationship between social anxiety and dissociation is not a function of humor. The connection between the same two variables is not influenced by age either.

In any case there is evidence for a significant negative correlation between social anxiety and dissociation as well as between social phobia and the fourth subscale of the sense of humor

questionnaire - attitude towards humor as a whole and between the latter scale and QED. These circumstances suggest that there is a high probability sense of humor to mediate or explain the negative relationship between the presence of social anxiety and personal maturity. This hypothesis deserves to be tested again with a larger sample size.

One definitive finding is that the relationship between social anxiety and the coping strategy "avoidance" is mediated by the level of maturity and the use of defense mechanisms ($r = .46$; $p < .05$). The more avoidant the behavior due to high levels of anxiety, the more immature defense mechanisms like dissociation get activated. The level of personal maturity explains choosing avoidance as a coping strategy among people with high social anxiety.

- **Qualitative analysis of the results**

Summary of the qualitative analysis

After thorough qualitative analysis of the data of individuals from the clinical group of the representative sample the following conclusions can be drawn regarding the hypotheses of the current study:

1. Participants with higher social anxiety in any case demonstrate high levels of socially anxious thoughts. The cognitive component for this type of anxiety is not influenced by the individual history of the participants or other personality characteristics reflected by the results on the questionnaires from the test battery. These results one more time support the use of the cognitive paradigm for the conceptualization of this pathology and the use of cognitive-behavioral therapy for treatment of social anxiety disorder.

2. It seems that even in cases of severe social anxiety the individual does not necessarily resort to the need of a psychological defense. On the basis of the qualitative analysis of the data it becomes clear that this component is strongly influenced by the personal history of the individual as well as his initial predisposition. On the one hand the inborn resource of the individual for resilience in the face of extremely adverse personal circumstances and on the other - the level of repeated traumatization by the parents and the experience of loss.

The complex analysis shows that the scale for social anxiety and the one for dissociation are related to the questionnaire about sense of humor. According to the narrative data, the participants with high social anxiety can be divided into two groups - with a preserved or developed sensitivity towards humor and with almost no positive attitude towards humor. In both groups there are 2 people who obtain a normal result on the scale for dissociation and one participant with a high result on the same scale to the point of psychosomatic disorder. The personal history in those two informal groups shows some differences and sheds some light over the reasons why.

The individuals insensitive to humor and not using or needing psychological defense report

no traumatic events in their personal history. Social anxiety seems to be a consequence of projection of the parental uncontrollable anxiety onto the children, systematic devaluation, guidance and control. As a result of that the children grow up with an underdeveloped emotional and metacognitive resources and are vicariously traumatized by the fears of their parents to the point of a very debilitating anxiety disorder. Due to the limited range of social functioning, they do not experience the need for psychological defense and their behavior seems more like withdrawal from the world and isolation in themselves. In this case the personal predisposition - a sensitive child, possibly an introvert, leads to high social anxiety and a limited ability for mentalization but this relationship depends on the presence of anxious and overly controlling parents.

The case that differs regarding the use of defense mechanisms shows a traumatic loss of a grandparent (grandfather) against the same clinical picture - underdeveloped emotional and metacognitive capabilities due to the inability of the parents to respond to the changing needs of their growing child. In this case the low result on the sense of humor scale is combined with a high use of immature defense mechanisms like dissociation on a mental and physical level as well as use of fantasy.

On the other hand, the participants in the group with high social anxiety who have preserved or developed their sensitivity towards humor the researchers notice similar life history - lack of understanding from the parents but support from a close relative like a grandmother and a traumatic loss of this grandparent. It seems that the difference in these cases compared to the other participants is the presence of a moderating factor - a person who helps the child and supports him during the development of his personal and emotional potential reflected by the high results on the sense of humor questionnaire. It seems that their well-developed personality potential has helped them overcome the traumatic event - the loss of the grandparent without the need to resort to immature defense mechanisms even though an anxiety disorder is present in adulthood.

The case from the second informal group that differs from the other two in regards to the psychological defenses reflect a loss of a parent not a grandparent before adolescence, an event that influences to a great level the other living parent and the financial situation of the family for a long period of time. In this case, although there is proof for developed metacognitive abilities, these strategies are not enough due to the very severe trauma and a large amount of the unresolved mental energy is directed towards the body to the point of a psychosomatic disorder. A depersonalization on a physical level is observed as a main way of coping. The hypothesis in this case is that the loss of the parent in late childhood was too strong an experience to be processed by the yet immature psychological apparatus of the patient which in turn has led to pulling the resources of the body to overcome this difficult moment and thus has been established as an unconscious mechanism for coping with similar situations.

In summary, the upbringing by anxious and controlling parents influences the symptoms of

social anxiety by making them more acute; the ability for mentalization depends on the presence of a responsive caregiver and the level of using immature defenses depends on the severity of the experienced trauma. Evidence for the phenomenon of dissociation is present for well-mentalizing individuals with social anxiety as well but in these cases the experienced trauma is very severe.

3. The qualitative analysis does not confirm the first part of the third hypothesis of the study, namely, that the participants with high levels of social anxiety will use the dysfunctional coping strategy "avoidance" more. The results of the group on this subscale in general are low. Factors that might shed some light on this unexpected circumstance and explain it are: lack of social and communication skills, low self-esteem, isolation, fear of failure, diseases, death. If some of these phenomena are present, we could assume some blockage in behavior even in pursuing the passive coping strategy - avoidance. The second part of the hypothesis - that the participants in the clinical group will be more passive towards the problems as a whole - is confirmed by the data from the qualitative analysis since the results on the active coping strategies “problem solving" and "seeking social support" are moderate to low. The data confirms the observation for withdrawing from the world and life tasks, diminished activity and often difficulties or lack of desire for seeking social support. As mentioned above, the strategy "avoidance" is also rarely used as if the individual withdraws from the world to the point of not encountering situations he needs to avoid. It could be assumed that they also do not recognize avoidance as an appropriate strategy for specific situations like defending themselves from being retraumatized. The impossibility to "escape" from the psychological and physical abuse of their parents has led to the inability to recognize avoidance as a coping strategy and to a blockage of any kind of action including avoidance.

4. The fourth hypothesis of the study is confirmed only by half of the participants. It seems that the moderating element of the relationship between high social anxiety and low sensitivity towards humor is the presence of a responsive caregiver who would develop the emotional and metacognitive potential of the growing child. When this process is successful and to a certain point completed, regardless of the adverse circumstances and experiences of the individual, he shows a positive attitude towards humor, people with a sense of humor as well as its use in a social setting and as a coping mechanism, even in cases of severe trauma when it is combined with the use of immature defense mechanisms. While for the rest of the participants from the qualitative analysis there is a lack of sensitivity towards humor and inability to use it as a coping strategy.

The observations from the qualitative analysis that are not related to the quantitative results from the test battery illustrate the type of fears that people with social anxiety experience. Together with a fear of performing, communication with any type of figures in authority and extremely low self-esteem, there is also a paralyzing fear of illnesses, of making a mistake and ultimately of death. In that regard it is recommended to include an existential approach in the therapeutic plan of a long-term treatment.

Another circumstance that is obvious in the group of participants with the highest level of social anxiety is the overall hindering of social interaction to a point of isolation, lack of communication skills and impossibility for creating and maintaining meaningful relationships. Social anxiety is a disorder that could early and permanently destroy this important area of human functioning and deprive individuals of the opportunity to share, care and connect to other human beings.

Regarding the motivation for therapy - the treatment is difficult and the progress is very slow. Whether the encountered struggles will influence the therapeutic process depends on the personal resilience and will of an individual and how much he can overcome his resistance on his own. The achieved progress needs maintenance of the results in the long run.

Discussion

The results from the study confirm the initial hypotheses. People with social anxiety disorder show significantly more anxious thoughts on one hand and less positive attitude towards humor as a whole and its social use. They are more likely to use avoidance as a coping strategy and more rarely use active problem-solving compared to people without the disorder. They as a group more often exhibit immature defenses like mental blockage, fantasy and dissociation.

Although there are many expected results that reach statistical significance, some less prominent discoveries about the characteristics of the personality of patients with social anxiety disorder presented by Beck's model - cognitions, emotions, behavior can also be found. Undoubtedly the strongest and least contradictory is the relationship between social anxiety and socially anxious thoughts. The most meaningful for the clinical group are the thoughts related to evaluation by others, execution anxiety and overall discomfort. The fear that others may notice the physiological and behavioral signs of anxiety gives way to the above-mentioned factors which may reflect some specifics of the current sample or a cultural phenomenon. As expected, socially anxious individuals experience difficulties in finding an appropriate behavioral response and often resort to the so-called dysfunctional coping strategies like avoidance. In this case the result is accompanied by the observation that the exhibition of any coping strategy is low. The results of the clinical group signal problems not only with the choice of a strategy but with an overall withdrawal in situations requiring action. On the basis of the following qualitative analysis, it could be summarized that people with social anxiety often isolate themselves from relationships and social contact to the point of withdrawing from life and all its opportunities.

People with social anxiety use the coping strategy ‘problem solving’ more rarely, and more often prefer to cope by avoiding a situation or its solution. At the same time, they often experience difficulties seeking out and receiving social support. The reasons for that could be various but the qualitative analysis "lifts the curtain" to possible answers. On the one hand, anxiety is usually a consequence of traumatizing and re-traumatizing experiences in the family environment. The people

closest to the patients, their caregivers, are unable to provide the necessary support in key moments of development. In short, patients do not have the experience of receiving social support, do not know how to seek or recognize it. One the other hand, their personality and metacognitive immaturity do not favor the use of others' experience as an opportunity to cope with one's own life problems. It should not be overlooked the overall passivity reflected by the results on the questionnaire about coping strategies. The differences between people with social anxiety disorder and the non-clinical group are significant. The low and very low results of people with high social anxiety on the 3 scales of the questionnaire show a real withdrawal from the world, lack of desire to participate in life and passivity to the point of self-inflicted deep isolation. The fears of these people, their belief that they lack key communication skills and the lack of knowledge how to handle difficult situations - even to use an active avoidance of a situation, are so strong that they make their behavior poorly adjusted and deprive them from the opportunity to gain new and different experiences that would refute their dysfunctional assumptions.

People with social anxiety as a group also show limited sensitivity to humor and its use. Humor is a multifaceted phenomenon for which there are many theories in terms of etiology and main purpose. Facilitation of adaptation, ego defense, concentration of nervous pressure is only a small part of the various functions that humor plays for humanity. The current study showed that among people with high social anxiety the ability to use humor is not as well developed as it is among normal people. Regarding many studies in the area of mentalization this observation is probably due to the underdeveloped reflexive metacognitive function for perception and simultaneous integration of one's own and another's point of view, for tolerating the discrepancies between expectation and reality. The reason for such a "defect" other than an individual predisposition can be insecure attachment or traumatic experiences in childhood which inhibit the development of the ability for mentalization with a defensive purpose - to preserve the integrity of the self.

The results of the study show a relationship between the concepts of social anxiety and dissociation. The data from the quantitative and regression analyses demonstrate that the interconnection is very complex. On the one hand, socially anxious individuals undoubtedly use immature defense mechanisms but this circumstance is moderated by the presence of a life trauma and to some degree explains the level of metacognitive development and positive attitude towards humor. Dissociation on the other hand plays a role in the understanding of the connection between social anxiety and avoidance.

Limitations and recommendations

A major limitation of the current study is its natural model. It is unethical to provoke on purpose a state of social phobia in order to obtain an experimental and a control group and therefore the data analysis is mainly correlational, reflecting social anxiety as a continuous variable. Another factor that in a way compromises the significance of the results of the quantitative analysis is that the study does not follow the participants over time but rather gathers information only at one point of their

functioning.

On the other hand, the study is generous on qualitative data that gives a unique opportunity to formulate hypotheses about the relationship between different variables and the development of various phenomena - social anxiety, mentalization, defense mechanisms, that afterwards can be checked empirically.

In the future it would be of utter importance for the area of social anxiety to conduct an experimental study with and without active therapy as well as groups for different types of therapies can be formulated and therefore to investigate whether the theoretical findings of the current dissertation work are supported and to what degree in the context of the Bulgarian population and culture.

Theoretical and practical achievements of the dissertation work

- **Theoretical achievements of the dissertation work**

The current study "lifts the curtain" about the relationship between thoughts, emotions, behavior, defense mechanisms, maturity and metacognitive abilities among people with social anxiety. In some respects, the expectations are being confirmed while others evoke new questions and specify various hypotheses about future research.

According to the results the relationship between the strength of social anxiety and the level of prominence of socially anxious thoughts is definitive. A further investigation in the separate characteristics and manifestations of the cognitive and emotional components is unnecessary considering the factor analyses of the questionnaires and the conclusion that anxiety is in fact one phenomenon with many "faces" and a quest for more details during patient assessment can only lead to confusion and feelings of pressure which in turn will distort the data and the results in ways that would be hard to correct. One more proof for the change of the focus of the most contemporary therapeutic protocols for the treatment of social anxiety is that the finding, assessment and analysis of anxiety is deemed unproductive - a valid and necessary improvement for the Bulgarian population as well considering the results from the representative sample.

The connection between social phobia and behavior in no way is direct as the research team expected. The hypothesis that people with social anxiety will be less active when solving a problem is confirmed but they also struggle with the seeking for help and in many cases, they rarely count on avoidance as well according to the results. This fact with no doubt presents the complex connection between these two phenomena and the need for further investigation and it definitely requires considering psychotherapeutic features in those cases as well. Here more than anywhere else the results show that avoidance is actually an active choice and individuals with high social anxiety are passive to a point where they do not use this particular strategy either. Of course, this only illustrates one more time how severe their pathology is and it constitutes important information for the therapist.

Although the hypothesis that people with social anxiety will obtain a lower result on the sense of humor questionnaire was confirmed and they as a group are significantly less sensitive to this phenomenon this does not mean there are no exceptions. From the qualitative analysis it becomes clear that exceptions are usually formed in an impairing and stressful family environment but with the presence of one caregiver - in most cases a grandparent who helps the development of the child in an adequate way. These subtle differences are important for the understanding of the metacognitive functioning of people with social anxiety disorder and their potential to choose and benefit from a treatment. It is possible for the metacognitive abilities to explain the relationship between social anxiety and the use of immature defense mechanisms but this hypothesis should be further confirmed with a different methodology.

The connection between manifestations of social anxiety and dissociation exists although not in all cases. The qualitative analysis clarifies that this relationship is moderated by the presence of an experienced trauma. In other words, if social anxiety is due to an introverted temperament and vicarious traumatization by overly controlling parents, usually the individual learns to function in his own way and does not resort to immature defenses. On the other hand, if to this picture is added a severe traumatic experience, it is very likely the established coping mechanisms to be insufficient and the dissociation to reach a level of somatization.

The conclusions from the pilot studies that social anxiety affects men later and women earlier did not reach statistical significance for this sample. Social anxiety as a phenomenon begins its onset early in life. Education degree and life experience play a defensive role and, in these cases, dissociation is rarely observed. The length of the education matters not only regarding the development of the intellectual potential but it also serves as a source for resilience against high levels of stress.

The current study has made yet another contribution to the phenomenon of social anxiety. The connection between high levels of social anxiety and the choice of the coping strategy "avoidance" is explained by personal immaturity and in this case by the presence of immature defense mechanisms. The more such individuals use "avoidance" as a strategy, the more probable it is for them to have some personality deficits meaning more underdeveloped characteristics rather than impaired ones by traumatic experiences.

- **Theoretical achievements and practical contributions to the treatment of social anxiety disorder**

The close relationship between social anxiety disorder and its cognitive component demonstrates the need for the use of CBT in the treatment of these patients since the main focus of this approach is the identification and restructuring of dysfunctional thoughts, rules, assumptions and beliefs. From the literature of the current scientific work, it becomes clear that CBT is the most effective treatment for social anxiety disorder to date. After treatment termination patients continue to improve and seek out less therapy afterwards and the drop-out percentage is only 13%. Of course,

it is important to integrate modern protocols for treatment of social anxiety disorder - identification of expectations and beliefs about social situations and their verification with a behavioral experiment, training to change the focus from internal to external stimuli, the use of video feedback for reconstructing rigid internal images and assumptions.

The current results suggest that all additional techniques for anxiety alleviation like distraction, relaxation techniques, and mindfulness are recommended as a handful ways of controlling the condition. It is important that the use of therapy addresses the underlying depressive symptoms because in many cases they make the symptomatology more severe and hinder the favorable result of the treatment.

Not without proof, it can be assumed that the symptoms of profound withdrawal from the world towards oneself captured by the low result on the coping scale "avoidance" are provoked by distorted core beliefs and fears. In therapy, if these dysfunctional beliefs are related to how much patients themselves possess or believe they possess communication abilities, a training in social skills for increasing self-esteem as well as modeling on the part of the therapist will be appropriate.

The qualitative analysis clarifies that people with social anxiety experience a variety of fears if not their own, internalized ones from their caregivers. Their most prominent concerns are related to failure, disease, and death. The scientific team believes that the incorporation of an existential approach in the framework of a long-term therapy will have a positive influence over the course of the treatment and will prevent the likelihood for relapse.

The use of humor and metaphors as therapeutic techniques turns out to be appropriate not only for patients without severe disorders but also in cases of social anxiety. Again, individual approach and in-depth information to conceptualize each case are the factors determining the appropriate therapeutic techniques by the therapist. In any case, there are many people with social anxiety disorder who are capable not only to understand humor and to appreciate it in others but also to use it in their social communication as a way to cope in difficult situations. This fact questions whether to use only patients with social anxiety in therapeutic groups and what would be the inclusion criteria. In addition, as first steps toward the use of metaphors in the therapeutic process stands the mentalization-based therapy (MBT). Its use will provide the unique chance for the patients to integrate various modes of functioning, to improve their metacognitive capabilities and to test reality better. And therefore, to form their expectations about the future on their findings about how the world works not on their imagined fears.

The data from the qualitative analysis also shows the way patients with social anxiety disorder behave and conduct themselves in therapy. At the foreground stands the high risk for drop-out not only because therapy incorporates the source of the phobia but also due to the fact that any little improvement will destroy the already established norms and rules which makes change a source of stress, anxiety and insecurity for those patients. As noted in the theoretical introduction, the fact that maybe for the first time these patients are exposed to situations they fear leads to an increase in anxiety and whether they continue with therapy depends to a large degree on

successfully overcoming it. It is interesting that the experience of anger and frustration if they are unable to cope with that emotion can become a reason for dropping out of therapy as well. Due to these findings and observations as well as to the underdeveloped metacognitive abilities and the lack of equipment to learn from the experience of others the need for a long-term maintaining type of therapy is huge.

- **Practical achievements of the dissertation work**

Practical contribution of the current study is the special attention to the questionnaires from the test battery and the conducted factor analyses. The data and results can be taken into account for future scientific topics since there is already reliable information and proof about the different tests and their subscales.

Conclusion

The current study aims at confirming the results of previous studies (Dimitrova & Petkova, 2014), investigating the relationship between social anxiety and sense of humor as well as presenting social anxiety in the light of the cognitive model and the accompanying cognitive and behavioral characteristics. The data from the study confirmed the initial idea that high levels of anxiety affect the ability for mentalization and in this case the understanding and use of humor. There is a close connection between high levels of social anxiety and the use of dysfunctional coping strategies and immature defense mechanisms. The high level of anxiety is also accompanied by the presence of dysfunctional thoughts. The data from the present study need a deeper analysis with a larger sample size and the presence of experimental (therapeutic) and control groups in order to give a more complete explanation of the observed interactions. The current research provides evidence that personal maturity plays the role of a moderating factor between the high levels of social anxiety and the use of dysfunctional coping strategies and assumes ‘sense of humor’ as a mediating factor in this dyad.

It is important that the current results be additionally supported by an experimental study focusing on applying the new established relationships between the described phenomena within a well-structured therapeutic framework.

PUBLICATIONS

- Publications in scientific journals approved by NACID:

Dimitrova, S. (2021). Social anxiety and coping strategies. *Clinical and Consultative Psychology, 38*, ISSN 1314-0280.

Dimitrova, S. (2021). Therapeutic approaches and recommendations for the clinical practice in social anxiety disorder. *Clinical and Consultative Psychology, 39*, ISSN 1314-0280.

Dimitrova, S. (2021). Alternative approach to social anxiety disorder. *Electronic Journal of VFU "Chernorizets Hrabar",* ISSN 1313-7514.

- Other publications:

Petkova, P., Matanova, V. et al. (2020). The projective thematic apperception test for adults and children. STENO. ISBN 978-619-241-124-4.

Petkova, P., Tsoneva, N., Dimitrova, S. (2018). Mindfulness techniques in PTSD. 48th European congress of cognitive therapy, Sofa.

Dimitrova, S. (2018). A cognitive bridge – the use of metaphors in CBT. 48th European congress of cognitive therapy, Sofa.

Petkova, P., Petrova, G., Dimitrova, S. (2018). Impairments in the process of mentalization in psychosomatic illnesses. *Cognitive Behavioral Therapy, 1.*

Petkova, P., Dimitrova, S. (2017). Anger in the psychotherapeutic practice. A scientific conference with international participation in psychiatry and clinical psychology "Anger", Sofia.

Petkova, P., Dimitrova, S. (2016). Emotional regulation in CBT. *Cognitive Behavioral Therapy, 1*, 18-22.

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Petkova, P., Dimitrova, S., Petrova, G. (2015). Cognitive-behavioral approaches in terminal illnesses. *Cognitive Behavioral Psychotherapy, 1*, 28-36.

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Petkova, P., Petrova, G., Dimitrova, S. (2014). Dysfunctional emotional distortions in cognitive-behavioral psychotherapy. *Cognitive Behavioral Psychotherapy, 1*, 36-42.

Petkova, P. & Dimitrova, S. (2013). Cognitive-behavioral therapy and mentalization. *Journal for Cognitive Behavioral Psychotherapy.*

Table 1

Crosstab

	Gender/Age		
0.00 males	N	Valid	30
		Missing	0
	Mean		39.1333
	Median		36.5000
	Mode		50.00
	Std. Deviation		10.80145
	Minimum		19.00
	Maximum		58.00
1.00 females	N	Valid	44
		Missing	0
	Mean		36.6364
	Median		38.5000
	Mode		27.00[a]
	Std. Deviation		10.97585
	Minimum		16.00
	Maximum		62.00

a. Multiple modes exist. The smallest value is shown

Table 2

Crosstab

Gender/Education			Categories education - 2 groups		Total
			1.00 high school degree	2.00 university degree	
Gender	1.00 males	N	9	21	30
		% within gender	30.0%	70.0%	100.0%
	2.00 females	N	9	35	44
		% within gender	20.5%	79.5%	100.0%
Total		N	18	56	74
		% within gender	24.3%	75.7%	100.0%

Table 3
Correlational analysis

		SPIN social phobia - total score	SAT social anxiety thoughts - total score	SAT1 overall discomfort and social inadequacy	SAT others notice the distress	SAT3 fear of negative evaluation	SAT4 execution anxiety	CS1 problem solving	CS2 social support	CS3 avoidance	MSHS – sense of humor – total score	M1 social use	M2 humor as coping strategy	M3 attitude towards humorous people	M4 attitude towards humor	QED dissociation
SPIN social phobia - total score	Pearson Correlation	1	.733**	.690**	.562**	.656**	.716**	-.234*	-.030	.461**	-.429**	-.461**	-.329**	-.284*	-.405**	.303**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.045	.796	.000	.000	.000	.004	.014	.000	.009
	N	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
SAT social anxiety thoughts - total score	Pearson Correlation		1	.946**	.691**	.899**	.954**	-.159	.034	.399**	-.303**	-.340**	-.192	-.196	-.256*	.335**
	Sig. (2-tailed)			.000	.000	.000	.000	.175	.775	.000	.009	.003	.101	.095	.028	.004
	N			74	74	74	74	74	74	74	74	74	74	74	74	74
SAT1 overall discomfort and social inadequacy	Pearson Correlation			1	.614**	.790**	.879**	-.181	-.013	.416**	-.282*	-.318**	-.142	-.173	-.258*	.358**
	Sig. (2-tailed)				.000	.000	.000	.122	.915	.000	.015	.006	.229	.140	.026	.002
	N				74	74	74	74	74	74	74	74	74	74	74	74
SAT others notice the distress	Pearson Correlation				1	.619**	.670**	-.214	.088	.251*	-.239*	-.269*	-.186	-.153	-.078	.262*
	Sig. (2-tailed)					.000	.000	.068	.455	.031	.041	.020	.112	.194	.509	.024
	N					74	74	74	74	74	74	74	74	74	74	74
SAT3 fear of negative evaluation	Pearson Correlation					1	.847**	-.161	.036	.369**	-.316**	-.344**	-.223	-.211	-.294*	.346**
	Sig. (2-tailed)						.000	.170	.758	.001	.006	.003	.056	.071	.011	.003
	N						74	74	74	74	74	74	74	74	74	74
SAT4 execution anxiety	Pearson Correlation						1	-.177	.040	.406**	-.272*	-.315**	-.174	-.164	-.234*	.340**
	Sig. (2-tailed)							.132	.732	.000	.019	.006	.139	.162	.045	.003

	N	74	74	74	74	74	74	74	74	74
CS1 problem solving	Pearson Correlation	1	.272*	.015	.264*	.257*	.102	.269*	.332**	-.290*
	Sig. (2-tailed)		.019	.900	.023	.027	.385	.021	.004	.012
	N		74	74	74	74	74	74	74	74
CS2 social support	Pearson Correlation		1	.070	.267*	.216	.216	.276*	.272*	.201
	Sig. (2-tailed)			.553	.021	.065	.064	.017	.019	.085
	N			74	74	74	74	74	74	74
CS3 avoidance	Pearson Correlation			1	-.103	-.172	.029	-.045	-.083	.329**
	Sig. (2-tailed)				.384	.143	.808	.704	.483	.004
	N				74	74	74	74	74	74
MSHS - sense of humor- total score	Pearson Correlation				1	.971**	.891**	.938**	.716**	-.151
	Sig. (2-tailed)					.000	.000	.000	.000	.200
	N					74	74	74	74	74
M1 social use	Pearson Correlation					1	.818**	.882**	.639**	-.161
	Sig. (2-tailed)						.000	.000	.000	.171
	N						74	74	74	74
M2 humor as coping strategy	Pearson Correlation						1	.844**	.583**	-.087
	Sig. (2-tailed)							.000	.000	.461
	N							74	74	74
M3 attitude towards humorous people	Pearson Correlation							1	.610**	-.125
	Sig. (2-tailed)								.000	.288
	N								74	74
M4 attitude towards humor	Pearson Correlation								1	-.240*
	Sig. (2-tailed)									.039
	N									74

QED dissociation	Pearson Correlation	1
	Sig. (2-tailed)	
	N	
**. Correlation is significant at the 0.01 level (2-tailed). p <.01		
*. Correlation is significant at the 0.05 level (2-tailed) p <.05		

Appendix 1

Factor analyses of the questionnaires

Results from the factor analysis on the Questionnaire of experience of dissociation (QED)

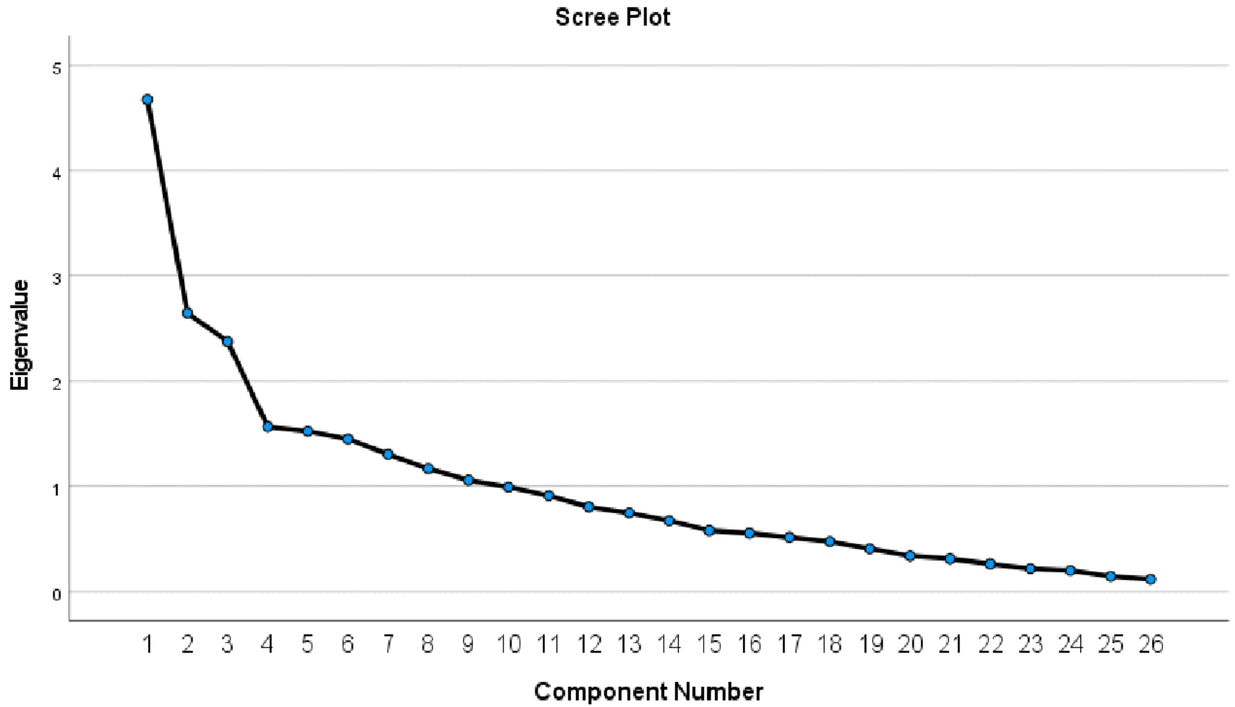
Item	Factor loading		
	1	2	3
14. Sometimes my limbs move on their own.	**0.73**	0.11	-0.2
13. Sometimes I feel there is somebody inside me who guides my actions.	**0.68**	0.15	0.10

22. My soul leaves the body	**0.65**	-0.05	0.13
11. While growing up people often said that I seemed in my own world.	**0.59**	0.15	0.18
12. Sometimes I feel my body undergoes a transformation.	**0.57**	0.03	0.05
2. Sometimes I feel like somebody else.	0.54	-0.43	-0.18
3. Sometimes my mind goes “blank”, empties completely.	0.54	-0.44	-0.11
8. I’ve had periods when I can’t remember what I had been doing the previous day/ days.	0.52	0.38	-0.18
4. I often wonder who I am.	0.50	-0.31	-0.30
9. When I try to speak out words, they do not come out right.	0.49	0.07	0.19
1. I often feel as if things are not real.	0.49	-0.46	0.04
5. Once or more times I’ve looked at myself in the mirror like looking at a stranger.	0.44	-0.30	-0.06
16. Sometimes I have a problem understanding the speech of others.	0.35	-0.05	-0.14
7. I rarely feel confused like in a fog.	0.13	-0.11	0.10
15. When I was a child I rarely sat down and daydreamt while at school.	-0.19	**-0.62**	0.05
19. I have a rich and exciting fantasy life.	0.06	**-0.60**	-0.18
21. I fantasize (daydream) a little.	0.05	**-0.60**	0.02
26. I have never had periods of déjà vu to be in a new situation with the clear sense that I have been there or that I have experienced that before.	-0.39	-0.59	-0.08
6. I often feel that in my thoughts and actions the thought about myself is absent.	0.13	-0.32	0.31
18. My mind has never emptied.	0.03	-0.32	0.23
25. I have never been in trance or hypnosis.	0.09	-0.02	**0.72**
10. I have never reached a place without knowing where I was before that and how I got there.	-0.06	0.25	**0.66**
17. I rarely worry where I put things.	-0.002	0.14	**0.60**
23. I do not think I will be able to get hypnotized.	0.063	-0.20	**0.56**
20. I have never looked into space without thinking about anything.	-0.173	-0.09	**0.49**
24.When I was a child, I never had imaginary friends.	0.316	0.01	0.34
Percentage of variance	17.98%	10.18%	9.13%
Eigenvalue	4.68	2.65	2.38

Method of extraction: Principal Component Analysis.

Method of rotation: Oblimin with Kaiser Normalization.

Factor values above .**49** are significant.


Scree Plot
Eigenvalue
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Component Number

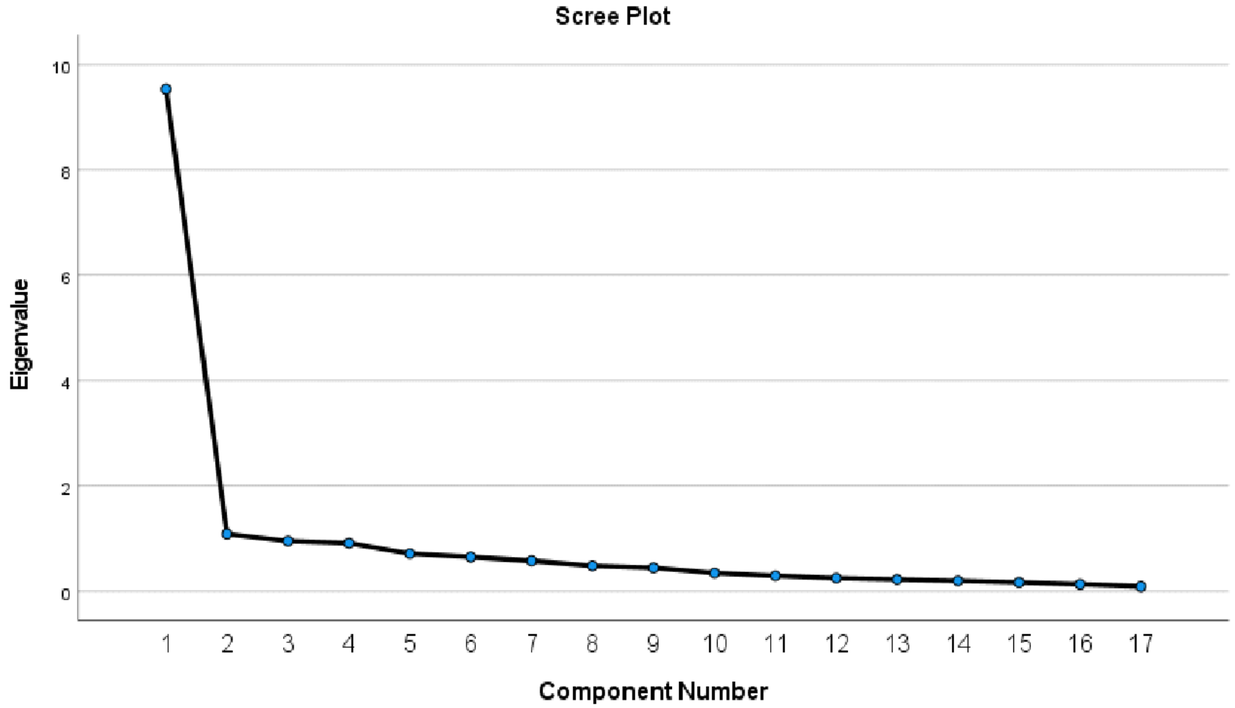
Results of the factor analysis on the Social phobia inventory - SPIN

Item	Factor loading		
	1	2	3
5. Being criticized scares me a lot.	**0.84**	-0.10	-0.35
16. I avoid speaking to anyone in authority.	**0.83**	-0.02	0.16
15. Being embarrassed or looking stupid are among my worst fears.	**0.81**	-0.16	-0.30
10. Talking to strangers scares me.	**0.80**	0.37	-0.01
6. I avoid doing things or speaking to people for fear of embarrassment.	**0.79**	-0.16	-0.13
14. I am afraid of doing things when people might be watching.	**0.79**	-0.19	0.09
13. Heart palpitations bother me when I am around people.	**0.77**	0.25	-0.17
9. I avoid activities in which I am the center of attention.	**0.77**	-0.22	0.43
3. Parties and social events scare me.	**0.76**	0	0.16
17. Trembling or shaking in front of others is distressing to me.	**0.71**	0.21	-0.22
8. I avoid going to parties.	**0.71**	0.16	0.35
12. I would do anything to avoid being criticized.	**0.70**	-0.08	-0.4
1. I am afraid of people in authority.	**0.70**	-0.45	-0.08
7. Sweating in front of people causes me distress.	**0.69**	0.3	0.14
11. I avoid having to give speeches.	**0.69**	-0.33	0.30
2. I am bothered by blushing in front of people.	**0.68**	-0.05	0.08
4. I avoid talking to people I don't know.	**0.68**	0.51	0.08
Percentage of variance	56.07%	6.39%	5.59%
Eigenvalue	9.53	1.09	0.95

Method of extraction: Principal Component Analysis.

Method of rotation: Oblimin with Kaiser Normalization.

Factor values above .50 are significant.


Scree Plot
Eigenvalue
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17
Component Number

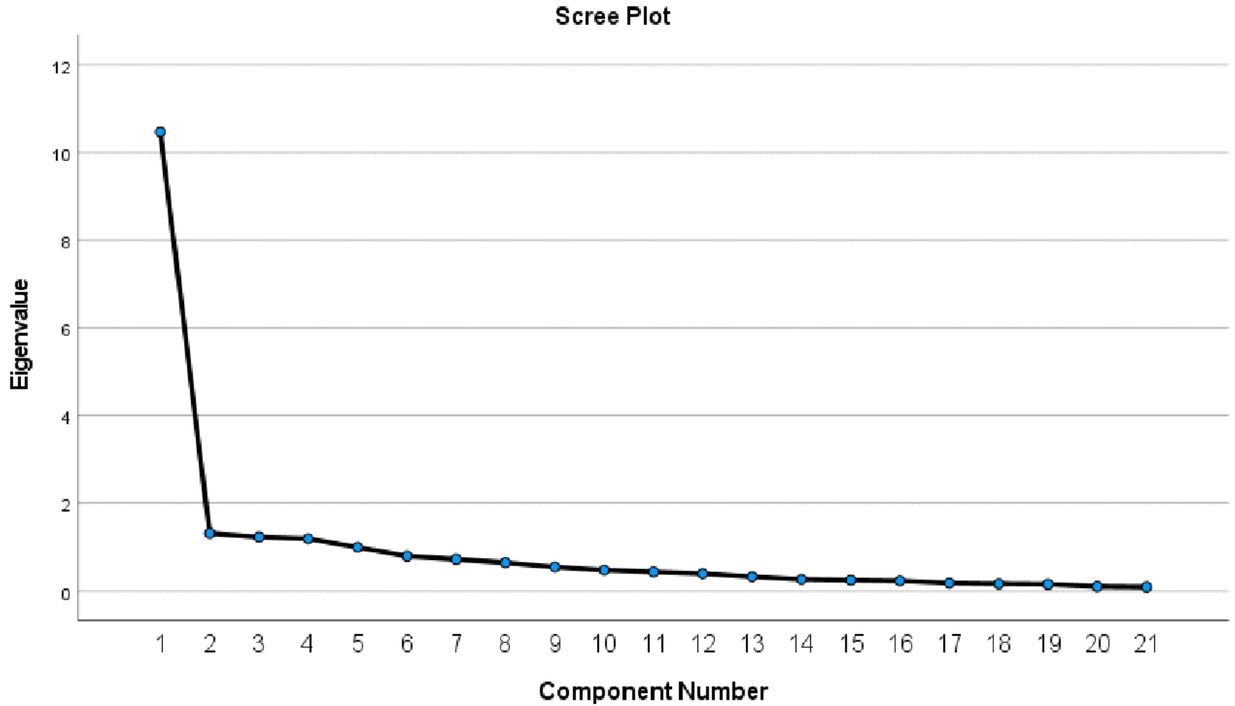
Results of the factor analysis on the Social anxiety thoughts scale - SAT

Item	Factor loading	
	1	2
13. I feel helpless.	**0.90**	-0.06
7. I feel scared.	**0.87**	0.04
14. I am going to freeze.	**0.82**	0.04
20. Others will not understand me.	**0.79**	-0.10
8. I wish I could just be myself.	**0.75**	-0.11
16. I don't like being in that situation.	**0.66**	0.10
19. I feel butterflies in my stomach.	**0.65**	0.05
17. I am inadequate.	**0.64**	0.21
10. I am shaking.	**0.62**	0.22
4. I am sweating.	**0.50**	0.12
5. What should I say first?	**0.42**	0.17
12. Will others notice my anxiety?	-0.08	**0.89**
6. Can they recognize that I am nervous?	-0.12	**0.85**
21. What do they think of me?	-0.02	**0.85**
18. Is my anxiety obvious?	0.10	**0.76**
15. Now they know I am nervous.	0.19	**0.65**
9. What do they think of me now?	0.16	**0.63**
3. Maybe I sound stupid.	0.20	**0.61**
2. I do not know what to say.	0.12	**0.58**
11. I do not pronounce words well.	0.00	**0.47**
1. I feel tense and insecure.	0.36	0.41
Percentage of Variance	49.89%	6.28%
Eigenvalue	10.46	1.32

Method of extraction: Principal Component Analysis.

Method of rotation: Oblimin with Kaiser Normalization.

Factor values above .**50** are significant.


Scree Plot
Eigenvalue
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Component Number

Results of the factor analysis of the Coping strategies inventory - CSI

Item	Factor loading		
	1	2	3
12. Talked about fears and worries to a relative or friend.	**0.83**	0.07	-0.04
24. Went to a friend for advice about how to change the situation.	**0.7**	0.03	-0.08
14. Told people about the situation because talking about it helped you come up with solutions.	**0.69**	-0.02	-0.13
32. Sought reassurance from those who know you best.	**0.67**	-0.01	0.21
23. Went to a friend to help you feel better about the problem.	**0.64**	0.04	0.05
7. Talked to people about the situation because talking about it made you feel better.	**0.63**	0.05	-0.09
1. Described your feelings to a friend.	**0.61**	0.05	-0.35
25. Accepted sympathy and understanding from friends who had the same problem.	**0.56**	0.43	0.09
5. Accepted sympathy and understanding from someone.	**0.55**	0.24	-0.12
31. Accepted help from a friend or relative.	**0.53**	0.34	0.04
19. Went to someone friend or professional to help you feel better.	**0.51**	-0.23	0.03
10. Daydreamed about better times.	**0.48**	0.02	0.25
16. Turned your full attention to solving the problem.	-0.01	**0.71**	0.12
20. Stood firm and fought for what you wanted in the situation.	-0.06	**0.70**	-0.04
29. Tried to solve the problem.	0.06	**0.66**	-0.14
9. weighed up your options carefully.	-0.073	**0.64**	0.30
17. Formed a plan in your mind.	0.08	**0.61**	0.21
33. Tried to carefully plan a course of action rather than acting on impulse.	-0.08	**0.58**	-0.06
15. Thought about what needs to be done to straighten things up.	0.19	**0.51**	0.08
8. Set some goals for yourself to deal with the situation.	0.05	**0.50**	-0.12
11. Tried different ways to solve the problem until you found one that worked.	0.04	**0.49**	-0.17

28. Identified with characters in movies or novels.	0.25	**-0.37**	0.32
2. Rearranged things so your problem could be solved.	0.18	**0.29**	-0.01
3. Thought of many ideas before deciding what to do.	-0.02	**0.26**	0.05
21. Avoided being with people in general.	-0.36	-0.05	**0.68**
18. Watched television more than usual.	0.05	0.07	**0.60**
6. Did all you could to keep others from seeing how bad things really were.	-0.35	0.09	**0.56**
27. Fantasized about how things could have been different.	0.32	-0.26	**0.55**
30. Wished that people would just leave you alone.	-0.29	0.02	**0.52**
22. Buried yourself in a hobby or sports activity to avoid the problem.	0.35	0.01	**0.51**
4. Tried to distract yourself from the problem.	-0.07	0.06	**0.51**
13. Spent more time than usual shopping.	0.26	0.20	**0.28**
26. Slept more than usual.	0.09	-0.03	**0.25**
Percentage of variance	19.18%	10.39%	9.00%
Eigenvalue	6.33	3.43	2.97

Method of extraction: Principal Component Analysis.

Method of rotation: Oblimin with Kaiser Normalization.

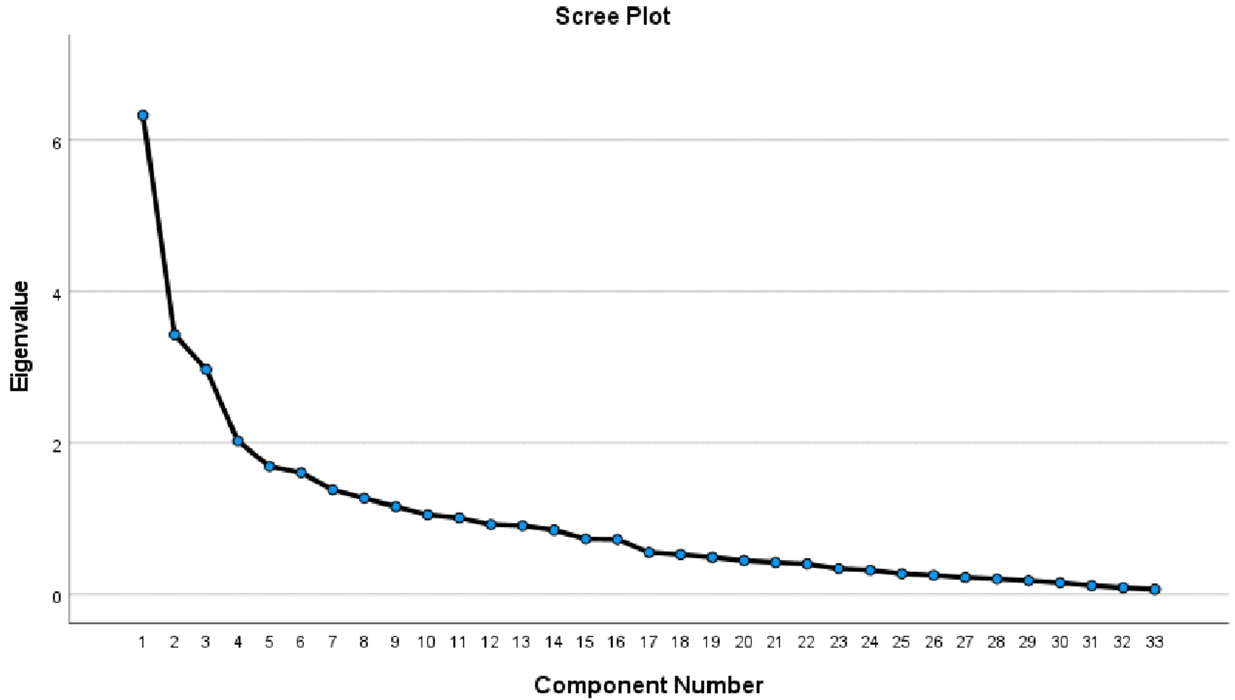
Factor values above **.25** are underlined

correlational matrix of the components

Component		1	2	3
	1	1	0.154	0.05
	2	0.154	1	-0.019
	3	0.05	-0.019	1

Method of extraction: Principal Component Analysis.

Method of rotation: Oblimin with Kaiser Normalization.


Scree Plot
Eigenvalue
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Component Number

Results of the factor analysis of the Multidimensional sense of humor scale - MSHS

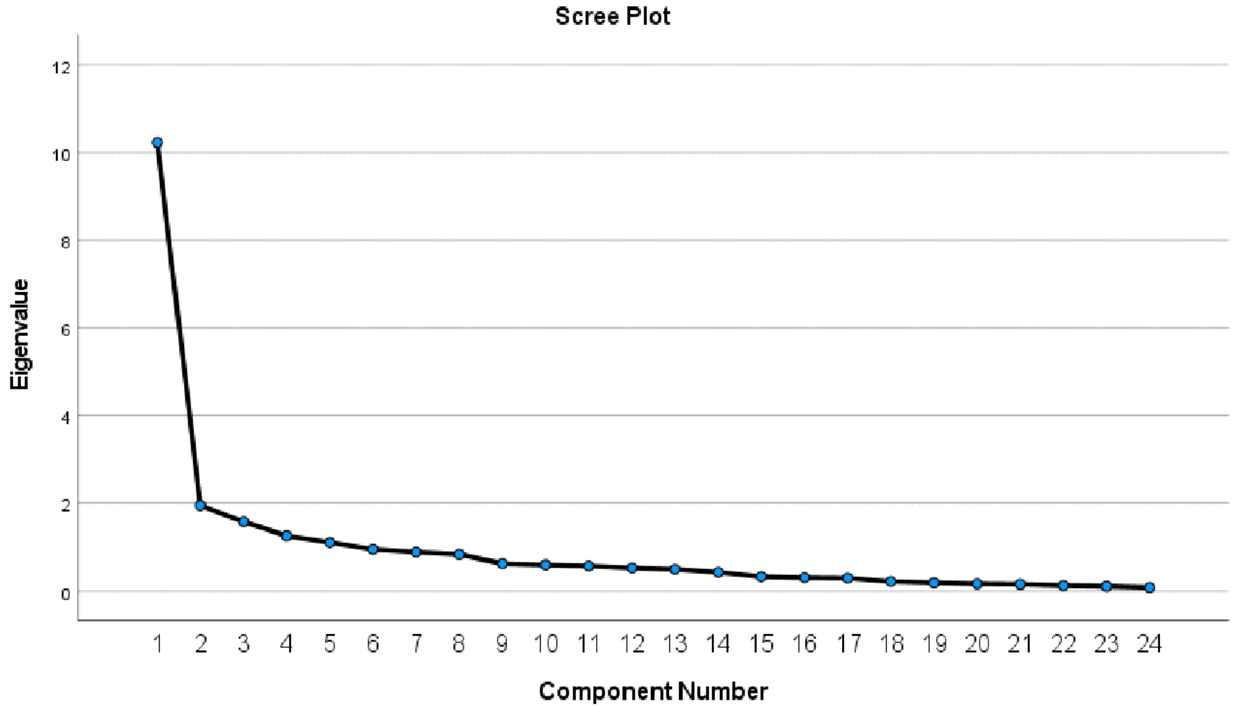
Item	Factor Loading	
	1	2
12.I can say things in such a way as to make people laugh.	**0.86**	-0.11
15.People look to me to say amusing things.	**0.85**	-0.19
3. I'm confident that I can make other people laugh.	**0.82**	0.01
21. I can actually have some control over a group by using humor.	**0.78**	-0.18
5. Other people tell me that I say funny things.	**0.77**	-0.13
9. I can often crack people up with the things I say.	**0.76**	0.09
7. I can ease a tense situation by saying something funny	**0.75**	0.19
24. My clever sayings amuse others	**0.74**	-0.04
2. Uses of wit or humor help me master difficult situations.	**0.74**	0.18
18. I'm regarded as something of a wit by my friends.	**0.72**	0.08
6. I can use wit to help adapt to many situations.	**0.72**	0.21
23. I use humor to entertain my friends.	**0.70**	0.25
1. Sometimes I think up jokes or funny stories.	**0.68**	-0.10
19. Coping by using humor is an elegant way of adapting.	**0.65**	0.16
22. Uses of humor help to put me at ease.	**0.64**	0.26
16. Humor helps me cope.	**0.55**	0.44
13.Humor is a lousy coping mechanism.	0.12	**0.69**
20.Trying to master situations through uses of humor is really dumb.	0.20	**0.56**
8. People who tell jokes are a pain in the neck.	0.09	**0.53**
4. I dislike comics.	-0.36	0.52
10.I like a good joke.	0.42	0.49
11. Calling somebody a "comedian" is a real insult.	-0.07	0.41
14. I appreciate those who generate humor.	0.24	0.30

17. I'm uncomfortable when everyone is cracking jokes.	0.1	0.23
Percentage of variance	42.59%	8.17%
Eigenvalue	10.22	1.95

Method of extraction: Principal Component Analysis.

Method of rotation: Oblimin with Kaiser Normalization.

Factor values above .**50** are significant.


Scree Plot
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Component Number