



Center for Open Access in Science

Open Journal for
Psychological Research

2018 • Volume 2 • Number 1

ISSN (Online) 2560-5372

OPEN JOURNAL FOR PSYCHOLOGICAL RESEARCH (OJPR)

ISSN (Online) 2560-5372

<https://www.centerprode.com/ojpr.html>

ojpr@centerprode.com

Publisher:

Center for Open Access in Science (COAS)

Belgrade, SERBIA

<https://www.centerprode.com>

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Psychological Sensitivity to Sounds in Misophony and Phonophobia

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Received 28 February 2018 ▪ Revised 20 May 2018 ▪ 29 May 2018

Abstract

The aim of the article is to take a short reflection on the issue concerning the psychological aspects of sound sensitivity – expressed in the phenomenon of misophony and phonophobia. The following description was briefly described: hyperacusis, phonophobia and misophonia, and melophobia, indicating the basic symptoms of disorders in a psychological context.

Keywords: phonophony, misophonia, hyperacusis, sound sensitivity.

1. Introduction

Auditory perception is a complex process of information processing in the form of vibrations of molecules from the environment to the brain, where they are developed and analyzed. The distributed processing of (auditory) information in the brain enables the auditory canal that activates many mental processes (memory, attention) and emotional (in the mesolimbic pathway) and motor reactions. Auditory perception – which is the ability to receive and process sounds, is possible at the level of the auditory analyzer's performance. The sounds are contained in three basic divisions into groups: tones (simple sounds), multitons (complex sounds) and noise. The basic function of the sense of hearing is its defenses, because it enables the reception of stimuli reaching from distant and invisible sources – regardless of the location in space. The sense of hearing allows you to locate potentially dangerous objects in space, giving you the opportunity to assess their direction and distance. Specific sounds alert the organism, preparing to take appropriate actions in response to their perception (“fight or flight”), they are a guidance system for the sense of sight and together with the speech apparatus – it enables interpersonal communication. The sensitivity of the auditory organ for audible tones in the range from 3 to 5 kHz is the highest (hearing threshold) and shows the lowest tolerance for pain thresholds – sounds in this band are perceived as louder, although they generate similar energy levels as in lower and higher bands. The short-term physiological response to noise (noise) involves an increase in the concentration of neurotransmitters: adrenaline, noradrenaline and cortisol (fighting or escape hormones), increased blood glucose, increased heart and blood pressure, exclusion of the digestive system, motor reflexes. Long-lasting physiological response of the body: sleep disorders, chronic fatigue, dizziness and headaches, muscle and chest pain, negative changes in the immune system. The psychological response of the organism includes the emotional sphere: irritability and

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irritation, mood variability, decline in mental performance, extended reaction time, reduced precision of movements, at 55-75 dB, the intensity of sounds gives distraction, hinders work and reduces productivity. There are different and varied mechanisms for structural and emotional evaluation of sounds and music. Under the influence of emotions, one can remain indifferent to sounds and music (e.g. in depression, after brain injury, in the Asperger syndrome) (Sachs, 2009: 325), or remain in ecstatic states that are out of control. Emotions can arouse mental-emotional states in which the reception of sounds or music is combined with suffering and the desire to escape. The brain, containing a limbic (emotional) and cortical (logical) part – reacts to stimuli coming from the outside, shaping biochemical and hormonal reactions (neurotransmitters: dopamine, serotonin, noradrenaline, cortisol) through the filter reactions to sounds, noise, music or events as a threat or positively.

Auditory hypersensitivity, i.e. increased sound sensitivity, is associated with reduced sound tolerance, especially defined as specific. Hyperacusibility to most sounds (hyperacusis) or one specific sound (phonophobia) may occur when anomalies appear in the functioning of the ear (e.g. tinnitus), which is usually rare, or in a situation where the functioning of the ear is at a level with no known anomaly of the organ ear (e.g. stress, migraine, insomnia). Changes occurring in the emotional state (especially: anxiety, mood) is a natural defense mechanism, designed to ensure a person's proper functioning in the environment (e.g. by activating the ability to detect a threat). The process of developing sensitivity to sound – it takes place with the involvement of the limbic system (emotions), autonomic (the “fight or flight” reflex) and nervous system, causing the activation of protective mechanisms. In the case of hyperacusis – it is a state of increased arousal caused by the presence of sound amplification in the central auditory pathways, in phonophobia – it is an automatic response in the form of fear and fear of sound, while in misophony – it is immediate (subconscious) appearance of negative emotions (irritation, irritability, anger, aggression) in contact with unpleasant sounds that are perceived by others as natural and do not cause resentment or aversion. Mechanisms with hyper acoustic properties (hyper-sound sounds too much) are embedded in the processes of spinal sound processing and changes in the central auditory processing (with a normally functioning inner ear), however phonophobic (very strong aversion, fear, fear, fear of sound) and misophonic (aversion to a given sound, noise) have support in normal hearing, but psychological factors co-decide on the state of high sensitivity to certain specific sounds.

2. Hyperacusis

Hyperacusis is a state of reduced tolerance to most types of lower frequency sounds (eg water noise in the tap, leaf movement, car sound) that appear above a certain intensity threshold. Such a condition may appear under the influence of neurological conditions (Knipper, 2013; Middleton et al., 2011), post-traumatic stress disorder (PTSD), migraine, tinnitus, head injuries, borreliosis, brain infections (Baguley, 2003). Feeling uncomfortable in exposure to low sound frequencies is considered to be an auditory processing disorder. In the hyperacusis state, weakened tolerance of the average listener to normally audible sounds appears (over 40 dB is considered as noise), creating discomfort (Sun et al., 2011). Sensitivity to low-intensity sounds (eg listening to a conversation in a room) may cause a sense of pain – ordinary and mundane environmental noises are unbearable, causing attention to the pursuit of silence.

It is observed that people with hyperacusis and low level of UCL (Uncomfortable Loudness Level), which changes depending on the sound stimulus – may experience misophonia or phonophobia (Ratajczak & Skarżyński, 2017). Phonophony and misophonia can exist independently of one another or coexist with one another and hyperacusis (Raj-Koziak et al., 2006), whereas misophonia can lead to hyperacusis, i.e. changes in central auditory processing.

3. Psychological aspects of sound perception - tenderness

Reduced tolerance to certain aspects of sound – reflecting the involvement in this process of emotions, is an expression of excessive sensitivity to its effects and is associated with several phenomena, referred to as: hyperacusis, misophonia and phonophobia. These phenomena differ from each other, giving a different description of the characteristics of those affected. The extremely high activation of the auditory system is characteristic of people who experience discomfort associated with the perception of sounds. It is worth mentioning that the term “misophonia” is a broader term for the term phonophobia, signifying strong aversion or hatred (aversion) to a particular aspect of sound. This concept includes and describes symptoms in people who feel and express a large variety of negative emotions generated by sounds. The term phonophobia is a narrower term compared to misophonia, because it is a description of a specific type of misophonia, a diagnostic situation in which fear and anxiety – being negative emotions, dominate in relation to the manifested dislike of sound (Jasterboff & Jasterboff, 2001). Most people with reduced tolerance to sounds show symptoms of misophonia (they do not like certain sounds), but among them you can meet some people with typical signs of phonophobia (i.e. they are afraid of exposure to a specific sound).

3.1 *Phonophobia*

The problem of phonophobia has the psychological basis of its appearance and is a specific form of misophonia. Phonophobia is affected by people expressing fear of selected sounds or all sounds, which is associated with abnormalities in the excitation of the limbic system (amygdala and reclining – they are responsible for emotional reactions to music) and the autonomic nervous system. Phonophobia – it is fear of exposure to a specific sound. The term phonophobia – means hypersensitivity to loud sounds, which is manifested by aversion to sound as well as anger and anxiety (Hérbert et al., 2013; Jastreboff & Jastreboff, 2000). Auditory hypersensitivity is a phenomenon consisting in reduced tolerance to perceived sounds (Tyler et al., 2014). Anxiety and emotional tension before a loud sound is manifested by irritation due to the occurrence of certain sounds and fear of issuing one's own voice. Sometimes, in extreme cases, phonophobia can lead to misophony, or hatred of sounds. Phonophobia, called acoustic phobia, is diagnosed in migraine as one of its three components [(a) headache, (b) phonophobia or migraine aura, (c) photophobia] (ICHD-3) (Fliciniński et al, 2014; Głabiński & Juszcak, 2012) and in a situation where the possibility of hyperural hypersensitivity is eliminated, which is associated with tinnitus or hyperalgesia to sounds of a certain volume, although they may be objectively perceived by others as silent. Phonophobia develops when the autonomic nervous system and the limbic system are over-excited (Baguley & McFerran, 2011), especially in the areas responsible for emotions – in a situation of properly developed, healthy hearing aids. The specific sound that appears on the average or low volume is selectively intolerable, causing discomfort. In the phenomenon of misophonia and phonophobia, the effect of the amygdala, taking part in fear conditioning, depression or tinnitus, is noticed (Baguley, 2014). In response to the perception of sounds audible in everyday life (e.g. ticking of the clock, footsteps, creaking doors, breathing, munching, snoring, sniffing), a person with phonophobia reacts with excessive clarity losing control of behavior: he escapes in a panic, isolates himself from the environment is distracted, irritated, scared and evil (Pienkowski et al., 2014). He/she wants to avoid hearing contact with the stimulus at all costs. It also does not tolerate people who are a relay subjectively perceived as uncomfortable – noises. The subjective feeling of a person covered by phonophobia and hypersensitivity as well as tinnitus occurs in a situation of tiredness and an increased level of stress (Sahley & Nodar, 2001). During such a condition in the area of the auditory cells, the effect of the neurotransmitter, i.e. glutamate, is increased – causing the subjective perception of sound as too loud (Sahley, 2001).

Bad noise abatement is not related to hearing thresholds (from 0 dB, to 130 dB – pain), measured in decibels on a logarithmic scale (dB). Sound, treated as any pressure change heard by the human ear (Brüel & Kjaer, Prusak, 2004), in the subjective sense of volume – is determined by various factors. Indication that the human ear has unequal sensitivity to the frequency range (2kHz to 5kHz) and differently differentiates frequencies at low and high sound pressure levels (SPL). Sounds of the so-called impulse (short, lasting less than 1 s) or otherwise called impulse make the ear less sensitive to their volume than to longer lasting sounds (Brüel & Kjaer).

Components of musical perception (i.e. melody, rhythm, harmony, tonality, timbre) are based on different psychological mechanisms of auditory perception, having a neuronal, emotional, aesthetic, socio-cultural background. The variety of experiences not related to music (e.g. autobiographical, traumatic, positive, etc.) and music as well as musical training or its lack in human development, allows to develop reflection on understanding and understanding the regularity and specificity of the processing of sounds and music in contact with other people. Experiencing sounds and music is associated with the perception of a selective and comprehensive representation of symbols and ambient sounds, which are supported by an automatic and unconscious simulation mechanism, supporting the resources of the unit equipped with luggage of all types of experiences (with negative vs positive profile).

3.2 *Melophobia*

A specific variation of the phobia associated with sounds and music is melophobia (Greek melopoeia = the art of creating a melody, phobia = fear), i.e. fear of music with the dominant aspect of the melody. Sounds that form a structurally melody can be experienced by people with melophobia and are subjectively perceived as unpleasant, causing persistent fear or hatred of music. Sensory experiences (including auditory and related musical aesthetics) open the mind to the memories stored in it that may have positive or negative connotations. Melodies (eg themes or melodic phrases), creating subjective references and analogies to the perceived as unpleasant situations, objects, phenomena (music) – can arouse unjustified, disproportionate fear and experience of anguish, accompanied by strong physiological reactions and vegetative-somatization symptoms.

It is indicated that specific phobias (e.g. melophobia) (F.40) cause serious disturbances in life of about 0.2% of the population (Leder & Siwiak-Kobayashi, 2006), although in human development, the fear of specific objects is natural (Szpecht-Tomann, 2009). Anxiety, having a structure composed of a triad of components (physical – I feel, cognitive – think, behavioral – I do) (Mattis & Ollendick, 2002) – is a derivative of the disproportion between the perceived element of reality creating a sense of threat (melophobia is, for example, the entire melody, phrase melodic, etc.) (i.e., primary cognitive appraisal) and confrontation with this situation, i.e. the possibility of dealing with it (i.e. secondary cognitive appraisal).

3.3 *Misophonia*

Misophonia is a term introduced by P. and M. Jastreboff, which means hatred/aversion to sounds – occurring in contact with another person (sometimes an animal), generating nuisance sounds (Cavanna & Seri, 2015). Misophonia is defined by the abbreviation SSS (i.e. sound narrow sensitivity syndrome). Misophony is triggered by neurological factors that cause the person affected to be particularly sensitive to sounds issued by other people with whom he is in close and frequent contact. It becomes a physical sign of the reluctance accumulated over the years by the other person who causes these sounds. Usually people with misophonia show subjective sensitivity to specific sounds (of average loudness), not being able to tolerate the dynamics of emerging sounds (objectively neutral) – issued by the environment or by other people in the context of situations and activities (e.g. eating, moving, gestures) that accompany these

sounds. Misophonia presents the state of neurological or sensory processing disorder (e.g. in autism, Asperger's syndrome, ADHD), in which the experience of certain sounds can cause psychological stress, because they become unbearable. Sensory information received from the environment causes improper interpretation of auditory, visual, tactile, balance, fragrance and social signals. A person afflicted with misophonia, or an excessively intense response to hypersensitivity to sound stimuli of a particular pattern or meaning (Jastreboff & Jastreboff, 2002) – loses the sense of time, space and movement, which is felt as a difficulty occurring in the life of a person who affects the ability to achieve life goals (Wu et al., 2014). The disproportionately strong emotional reactions to sound/movement indicate an autonomous arousal and unpleasant emotional experience – triggering fear, disgust, anger (Edelstein et al., 2013) for a specific set of sounds: trivial noises, food noises, rocking the feet, munching, clock ticking, chewing gum, tapping with your fingers, etc. Sensitivity of this type appears in childhood, shaping patterns of recognition leading to subsequent intolerance of sounds coming from other people (train, plane, engine) or animals (Cavanna & Seri, 2015).

There are few studies presenting the clinical spectrum of misophonia. The results of one of them indicate that misophonia co-occurs with mood disorders, anxiety disorders, depressive disorders, dysthymia, obsessive-compulsive disorder and psychoneuroticism, which have higher rates than in the general population (Schröder et al., 2013).

According to the criteria of the Diagnostic and Statistical Manual Disorders (DSM), indications indicating misophonia are based on observations (Schröder et al., 2013): (1) the presence or prediction of a specific sound produced by man (sounds of food, breathing) trigger an impulsive physical reaction that begins with irritation or disgust, immediately becoming angry; (2) anger initiates a deep sense of loss of self-control, which manifests itself in rare but potentially aggressive explosions; (3) the person recognizes that anger or disgust is excessive, unreasonable or disproportionate to the circumstances or provoking stressor; (4) the person seeks to avoid a misophonic situation; if he does not avoid it, he experiences the sound situation with great discomfort, anger, distaste; (5) cause of anger, disgust or avoidance of the person significant stress (i.e., disturbs the person for whom he has anger or disgust) or significant interference in the daily life of the person (e.g. anger or disgust can cause it difficult for a person to perform important tasks at work, meet new friends, attend classes or interact with others); (6) anger, disgust and avoidance are not better explained by other disorders, such as obsessive-compulsive disorder (eg disgust with someone obsessed with pollution) or post-traumatic stress disorder (e.g. avoiding stimuli related to trauma associated with the threatened death, serious injury or threat to physical integrity of yourself or others).

Misophonia (Greek *misos* = hatred, *phone* = sound) is considered a definite set of auditory and neurological symptoms (Jastreboff & Jastreboff, 2001; Edelstein, Brang, Rouw & Ramachandran, 2013, Ledoux, 2015). The research suggests that misophonia exists in relation to several constructs: anxiety, obsessive-compulsive symptoms, disability, general sensory sensitivity, depression. Absorption of certain types of sounds may adversely affect the feelings of people with obsessive disorders that show symptoms of suffering, irritability, irritability, aggravating quickly to anger (features of misophonia), or anxiety (a feature of phonophobia) (Schröder et al., 2013), which leads to actively avoid sounds that cause suffering (McGuire et al., 2012). Studies also indicate that misophonia is a positive association with anxiety and/or depressive symptoms (moderate, positive correlations) and with general sensory sensitivity, which is thought to be associated with the possibility of selective sound sensitivity (Baguley & McFerran, 2011). The nature of emotional and behavioral reactions as well as neurobiological misophonia is subjected to measurement by means of research methods that allow to determine the connections between disorders and the spectrum of attributes assigned to this unit. It is assumed that in a person affected by mellophilia (e.g., knocking, chewing, scratching, shuffling objects, clicking, etc.) there is an immediate aversive reaction to some sounds that are perceived as specific acoustic

(sometimes visual) patterns in relation to a known person. Regardless of their loudness measured by decibels (dB), sounds play the role of stimuli triggering emotional and behavioral reactions (Edelstein et al., 2013). In the context of the study of people with depression and anxiety (Arch, 2012), misophonia – understood as hypersensitivity to a specific sound, may promote the assumption that irritability, which is a component of depressive and/or anxiety disorders – may favor a decrease in the tolerance threshold for mild and harmless in terms of volume stimuli. Among the audiologists there are opinions that increased emotional reactions to certain sounds are possible to explain the so-called hyper-connectivity, occurring between nervous, limbic, autonomic systems and the specificity of PTSD disorder and affective disorders: obsessive-compulsive, mood (e.g. depression). In the diagnosis of misophonia, the influence of the perceived auditory stimulus (trigger) on the psychophysiological response (i.e. the level of irritation, reluctance or fear, tendency to escape) should be determined, which allows to differentiate hyperacusis from misophonia or phonophobia. Quantitative methods that use questionnaires and imaging (eg fMRI, indicating an increase in brain activation in the presence of hyperacusis) serve this purpose (Kramar et al., 2017).

4. Incentives (triggers) in misophony

Misophonia – understood as an emotional aversion to sounds, contains some similarities with the term that defines misokinesia (misocinesia), or the state of aversion (hatred) to movement. This means that certain body movements in space can cause a trigger reaction. The triggering stimuli are considered from the perspective of two subgroups as: (1) key stimuli, that is, they play their role in a side way; (2) triggers, having a social background, the emergence of which is associated with evolution and acting as a signal (e.g. trembling of feet, crunching etc.) (Żywicznyński & Waciewicz, 2015). Hearing triggers can be any repetitive sound, felt as oppressive. There may also be visual stimuli triggering repetitive movements (e.g. hair turning) and movements associated with auditory triggers (e.g. jaw movement) (Jastreboff & Jastreboff, 2014; Wu et al., 2014). Ordinary, simple activities, gestures and sounds of everyday life can become a stream of triggers activating in a specific context of the situation (e.g. during a meal), generating an aspect of fight or flight. Even a brief exposure to the triggers of misophonia is the cause of immediate disclosure of anger and anger and disgust, which are a difficult to bear experience (Schneider & Arch, 2017). The environment is recognizable by the human being on the basis of sounds that reach it (e.g. noise), which is an encoded showcase of situationally defined contexts. Daily sounds, perceived by the majority of the population as ordinary, not very significant, but being the opposite of silence, are perceived by a person with misophonia as particularly significant and causing aversion. Research indicates that sounds that have bodily and physiological connotations are considered the most repulsive – i.e. bodily excretion and the sound of secretions (e.g. vomiting, sniffing, coughing, spitting). In addition, results that do not link specific sounds with the reaction of disgust or avoidance allow us to suppose that reactions to certain sounds (causing disgust) can be acquired in the process of social learning and attributed to culturally significant values as acceptable or unacceptable to the public (Cox, 2014). In misophony, sounds are perceived as something more than irritating – they cause a strong impulsive reaction expressing anger and aggression.

Acoustic stimuli that can trigger in contact with categories of communication acts (eg gesture) (Nęcka, 2000: 53). Negative reactions (trigger stimuli) in emotionally-behavioral recipients may be, for example:

(a) stimuli perceived in contact with food (noises: munching, swallowing, bouncing, chewing, slurping, crunching, swallowing, licking, spitting, sucking, moisturizing lips, etc.); (b) stimuli received in contact with the process of breathing of other people (noises: snoring, grunting, groaning, sniffing); (c) vocal stimuli and vocalizations – sounds related to pronunciation,

articulation and originating from the larynx (whispers, whistles, buzzing, muffled conversations, repetition or confusion of words, inappropriate singing, babbling); Non-verbal gestures in connection with speech and vocalization are treated as an act of speech (linguistic behavior) and included in the category of acts of communication (Nęcka, 2000: 53). The communication act contains a semantic event, independently or depending on the context of the situation; (d) stimuli associated with the body movement in space and/or referring to gestures (noises: bare feet on the carpet or floor, shuffling, heels, nail biting, scratching, specific gestures).

The movement of the body in space refers to sounds, issued to the relationship between interpersonal communication (involuntary or volitional) on the cognitive-emotional-behavioral level. Every expressive movement that expresses emotion or thought – made by any part of the body – is integrated into the set of gestures. Gestures are called those actions that clearly characterize the intended expression and are not interpreted by the recipient as serving other purposes (e.g. practical) than volitional and expressive (Oxford English Dictionary, for: Kendon, 2004). Gestures are also defined as actions that are a spontaneous movement of hands synchronized with speech (McNeill, 1992) or instrumental actions that are a physical action oriented to gripping with the help of hands (Fogassi & Ferrari, 2004). Articulation movements, which are the act of speech, are understood as a kind of gestures and constitute an integral component of the communication process.

Behaviors that are represented by gestures in the concept of gestures of gestures (McNeill, 1992, 2005, 2012) are placed on the axis according to three criteria: (1) the intensity of speech presence decreases; (2) the increase in the presence of linguistic attributes is increasing; (3) the conventionalisation of the sign treated as a gesture increases. This axis is made up of: gestures – gestures embedded in the language – pantomime – emblems – sign languages.

The gesticulation accompanying the sounds, perceived by people with misophonia as exaggerated and irritating, refers to movements of the hands and other parts of the body appearing in the course of speaking (Kendon, 2004; Goldin-Meadow, 2010) having a spontaneous character. Gestures that are subject to classification are distinguished into:

(a) iconic – that is, having semantic similarity to the content of the expression, they express certain objects or actions in the shape of a gesture as a whole or trajectory of the movement of hands (Juszczyk, 2011);

(b) batts (beats = strokes) – i.e. gestures having the same form (e.g. rhythmic movements of the hands, feet, arm on the top-bottom axis) without references to the meaning of the statement, but synchronized with the rhythm of the prosodic expression (Efron, 1941; McNeill, 1992). The musical analogies reflect the nature of the accented rhythm of speech: the phonetic and gestural components of the statements are intended to emphasize the semantic and modal intention of the sender, which is related to the emotions of participants in the communication exchange. Negative emotions appearing in a person with misophonia when receiving a sequence of baton gestures, may sensitize them in contact with another person (usually close to);

(c) deictic (pointing) – these are gestures that are contextual and relational. They are related to the mental ability to change the cognitive position in the environment, or the deictic shift (Stockwell, 2006) in the “body language”.

The gesture modifies the state of affairs between the recipient with the diagnosis of misophony and the sender of the message (without misophony), imposing (unconsciously or consciously) the way of reading the message. The behavior of a person who is in a specific relationship with a person with the characteristics of misophonia is the carrier of communication information with intent / no intentions. The accompanying acoustic sound strengthens or sustains the content expressed by gesture. Reception of the sender’s intentions (without misophony) is distorted by hypersensitivity and negative emotional assessment of the acoustic signal associated

with a specific sequence of gestures or gesture by a person affected by mellopathy. Communication neutral activity of a non-verbal sender (people without philosophy) (e.g. neurological nature) can be interpreted by the recipient (with misophonia) at the level of intentions passed on by the other person, giving it a negative sense of communication – triggering irritation or anger (in reaction fight/flight).

(d) visual stimuli related to sound (sounds: drilling, abrasion of the wall or on the board, whistling of a kettle of a given color and volume level (Fenko, Schifferstein & Hekkert, 2011). The Pantomime creates a separate group of gestures that can be referred to mimetic concepts. Mimeza (mimesis) means the ability to represent mentalities that are spontaneous, intentional initiation or memorization of movement patterns (throwing objects, jumping, step dance) that are detached from a particular subject or action. They represent sequences of movements that are not necessarily activated by the principle of an unconditional response to the stimulus, which means that the person can recall them at any time from memory or imagine.

5. Research tools

In order to understand the mechanism of the formation of misophonia, several questionnaires were developed, which are still in the process of checking their credibility: (1) Multiple-Activity Scale for Hyperacusis (MASH); (2) Misophonia Activation Scale (MAS-1); (3) the Amsterdam Misophonia Scale (A-MISO-S) (Schroeder et al., 2013) – a tool with reference to obsessive-compulsive disorders, hence it is not clear how much Misophonia measures; (4) Misophonia Questionnaire (MQ) (Wu et al., 2014) – a tool correlating with sensory hyperreactivity; (5) Misophonia Assessment Questionnaire (MAQ) (Johnson, 2001); (6) Misophonia Assessment Questionnaire (Dozier, 2015); (7) Coping Response Survey (Dozier, 2015).

In the diagnostics of misophonia and phonophobia one should take into account the multidisciplinary perspective, which focuses on various scientific disciplines: audiology, primary health care and specialist care (e.g. neurology), psychological, psychiatric and psychotherapeutic help.

6. Therapeutic interventions in the treatment of phonophobia and misophonia

6.1 Cognitive Behavioral Therapy

Cognitive Behavioral Therapy (CBT) and dialectical behavioral therapy (Dialectical Behavior Therapy – DBT) (Linehan, 2014) are one of the psychological and psychotherapeutic methods applied to people with mofophy and phonophobia. It contains two main components: cognitive (ie cognitive restructuring) and behavioral (i.e. behavior modification), which do not use sounds or external signals, but take into account the science of recognizing the negative stimuli and thoughts associated with them, and the attention and imagination control processes (Greimel & Kröner-Herwig, 2011).

CBT therapy is supported by interventions in the field of audiology (sound generators), pharmacotherapy – especially in phonophobia (treatment of anxiety and depression), Neurofeedback, mindfulness-based interactions (MBSR) and relaxation, listening trainings and ACT-Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999; Hayes, Strosahl & Wilson, 2012) – emphasizing acceptance of emotions instead of reducing the symptoms of misophonia (Schröder et al., 2013).

6.2 Habituation

The habituation method (TRT – Tinnitus Retraining Therapy) – includes a stage of therapeutic consultations and sound therapy, where the time spent on therapy lasts from 18 to 24 months. This type of program is aimed at reversing inappropriate beliefs responsible for generating aversive response to sound (unwillingness to specific sounds in misophony) or fear of sound (in phonophobia). The process of desensitization (desensitization) to sounds that cause discomfort, which has references to the sources of development of hypersensitivity and anxiety – maintained by the individual, but felt as real or imaginary, takes a relatively long time. The habituation therapy – originally intended for the treatment of tinnitus, consists in getting accustomed to and replacing sounds that evoke negative emotions by associating them with sounds considered pleasant (e.g. with a fragment of a musical piece).

Therapeutic interventions using this method are addressed in particular to people with phonophobia, for whom an anxiety situation is less artificial than in the natural environment, gradually reducing the intensity of anxiety reactions to negatively perceived auditory stimuli. So far, the effectiveness of treatment with TRT has not been confirmed in empirical studies (Schneider & Arch, 2015), however CBT therapy is recommended as treatment (Bernstein, Angell & Dehle, 2013; McGuire, Wu & Storch, 2015).

7. Conclusion

Within the issues related to the psychological aspects of hypersensitivity to sounds, recognized as a type of disorders, there are relatively few uncertainties. They refer to the methodology of research carried out in the context of misophonia and phonophobia, where measurement tools are still part of the process of verifying their diagnostic reliability. The annoyance of the symptoms of misophonia and phonophobia – occurring on several levels under the name of specific phobias, is a significant public health problem. To experience a strongly negative emotional reaction in the context of the perception of sound hypersensitivity requires further research. Quality of life – as a subjective sense of the level of satisfaction and satisfaction going from life understood as the whole experience or its individual spheres, requires care for its improvement and providing positive emotional experiences with the support of diagnostic and therapeutic methods.

Acknowledgements

The article has no specific fund.

Conflict of interests: none.

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Hopelessness and the Attitude Towards Cardiovascular Diseases

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Received 20 March 2018 ▪ Revised 30 May 2018 ▪ Accepted 12 June 2018

Abstract

This study focuses on the extent to which hopelessness depression theory is applicable in the field of psycho-cardiology. The study assesses the relation between hopelessness depression symptoms in patients having cardiovascular problems and the adherence to treatment or life quality. The participants to this research were interviewed and assessed with a set of scales meant to identify the objectives of the study. The results indicate an adequate internal consistency for the scales used in the study. The identified predictors are 34.4% relevant in the case of hopelessness depression symptoms and 17.6% relevant in the case of the attitude towards cardiovascular diseases. The implications of the predictors are discussed and correlated with some suggestions regarding the need for counselling or the need for prevention programs.

Keywords: hopelessness, attitude, depression, cardiovascular diseases.

1. Introduction

The quality of life represents a multidimensional concept aiming the well-being including the emotional status, physical functioning and well-being (Abeles et al., 1994; Thommasen & Zhang, 2006). At the opposite, the chronic diseases imply some adaptation processes which depend on factors such as: functional constraint, the significance given to the modifications, the period in which there appear modifications, losses, social influence and the culture (Marian, 2013).

Heart failure is a frequent diagnosis in the hospitalised patients from industrialised countries and the mortality rate caused by acute heart failure is roughly 30%. More than half of the deaths occur before the individual reaches the hospital (Fauci et al., 2003). The pain occurs in the central region of the thorax and/or epigastrium, sometimes at the level of the arms, abdomen, back, mandible and neck. Frequently the pain comes with weakness, sweat, nausea, anxiety and the sensation of imminent death (Fauci et al., 2003; Marian, Drugaș & Roșeanu, 2005).

In 1979 Schoolmeister indicated that the evolution of heart failure implies: the stress phase, the disorganization phase and the reconstruction one. The reactions of the patient in terms of duration and intensity during these phases depend on a series of personality traits (type A behaviour) and on a set of patients' circumstantial aspects (Marian, 2004).

Being labelled as "cardiacs", the patients with chronic cardiovascular diseases gain a special social status, related to the need for being protected against a series of stress factors.

To the sources of psychical stress there are added, usually unconfessed, the perspectives of sudden death (mainly in the patients who have previous history of heart failure) or some redoubtable complications (strokes which can cause paresis and paralysis, pulmonary oedema in hypertension or valvulars, etc.). The perspective of stroke relapse or its complications creates a condition of permanent fear; this is the expression of psychical stress on different intensity degrees which will have a negative impact on the evolution of the main heart disease.

2. Chronical disease and hopelessness

Disabling diseases can determine a helplessness conditions, hopelessness and disutility feelings, lack of will and interest; all these feelings cause the decrease of treatment adherence, the inobservance of therapeutic prescriptions which may lead to complications and to worse evolution of the patient (Marian, 2006; 2013).

The association of depression with chronical diseases is frequently estimated in a third of the subjects diagnosed with these diseases. The researches previously conducted (Barefoot et al., 2000) indicated that around 50% of the patients with heart attack were diagnosed with depression. Symptoms such as pain and asthenia are amplified by depression and may cause difficulties in therapeutic intervention. Depression may also determine people to withdraw from usual activities and to cause social isolation (Chung et al., 2008).

Abramson, Metalsky and Alloy (1989) and Metalsky and Joiner (1997) claimed that hopelessness depression symptoms include: delay of voluntary answer, sadness, suicidal ideation, lack of energy, apathy, psycho-motorial retard, sleep disorders, lack of attention and negative cognitions. The testing of hopelessness depression symptoms represents an approach for the assessment of depressive symptoms in an individualised manner (Marian, 2012a-b; Marian, 2013).

Barefoot et al. (2000) indicated that the presence of depressive symptoms influences in a negative manner the prognosis in cardiovascular diseases. Depression is manifested by a series of symptoms which not necessarily appear together. Fatigue and demoralizations feelings are indicators of vital exhaustion and they are seen as potential predecessors of heart attack. This information has important inferences for identifying the classes of symptoms which need improvement and for identifying the patients who could use therapeutic interventions.

Carney et al. (1995) investigated the impact of depression on health and concluded that depression and the uselessness feeling represent a risk for the incidence of cardiovascular diseases. The risk for cardiovascular diseases was even more pronounced in the case of depressive participants who presented uselessness feelings and were smokers.

The impact of disease related believes on depressive symptoms for the patients with cardiovascular diseases was examined by Stafford, Berk and Jackson (2009). Researchers examined the relations between the disease related believes and life quality. Negative believes related to negative consequences of the disease were associated with the enhancement of depressive symptoms three and nine months after the diagnosis was set. A positive attitude towards diseases was significantly associated with an increase of life quality. Older participants presented more negative attitudes towards diseases. These attitudes can be identified and modified by psycho-therapeutic cognitive-behavioural means which aim at decreasing psychological morbidity and at increasing patients` life quality after heart attack.

Chung et al. (2008) indicated that emotional distress in close persons is associated with the decrease of life quality for the cardiovascular disease patient. Consequently, the partner`s emotional distress has a negative impact on the cardiac patient`s life quality, because he is vulnerable to the emotional distress of his close person. From theoretical point of view, the

emotions are transferred to another person when two individuals have a close emotional relationship. In order to improve life quality for the patients with cardiovascular diseases, depressive symptoms and anxiety should be assessed for both life partners.

The way in which the patient with heart attack perceives the disease represents a key factor in the recovery process. Petrie, Cameron, Ellis, Buick and Weinman (2002) investigated through short term psycho-therapeutic interventions the consequences of changing the negative attitude towards diseases; they proved that when discharged, the patients had a high degree of optimism, strong beliefs regarding the management of the disease and the recovery and the anxious symptoms were diminished. The intervention proposed by them differs from regular recovery programs for the patients with cardiovascular diseases because it was deployed during hospitalization.

The intervention in the hospital frequently allows the early modification of irrational convictions and of the attributional dis-adaptive style until recovery, the patients being more receptive to change.

Other relevant studies reported significant relations between depression and the way patients perceive social support (Marian, 2006; 2013), proving that the relation between depression and death caused by cardiac diseases decreases when social support is higher (Marian, Drugaș & Roșeanu, 2005; Marian, 2013).

3. Objectives

We proposed to observe the extent to which hopelessness symptoms differ according to a set of social cognitive criteria. According to the participants' attitude towards disease, we observed whether the hopelessness symptoms are more accentuated in the patients with surgical interventions. We also observe the extent to which demographic variables could be relevant predictors for negative attitude towards disease.

4. Method

4.1 Participants

There were 143 participants included in this study. There were 74 women (51.7%) and 69 men (48.3%); the marital status indicates that 92 (64.3%) are married and 51 (35.7%) are not married. All the participants volunteered and the group was formed out of 68 non-clinical participants (healthy) and 75 participants diagnosed with heart attack. From the age point of view, 41 participants are 50 years old (28.7%), 66 are aged between 51-70 years old (46.2%) and 36 were over 71 years old (25.2%).

4.2 The instruments used

Hopelessness Depression Symptom Questionnaire (Metalsky & Joiner, 1997) is designed in order to assess some uselessness symptoms in the case of depression. It is an instrument made of 32 items which include eight subscales. Alpha coefficients for each subscale were (see Marian, 2012b, 2013): (a) motivational deficit (retarded initiation of voluntary responses; .83); (b) interpersonal dependency (.77); (c) psychomotor retardation (.83); (d) lack of energy (.89); (e) apathy/anhedonia (.83); (f) insomnia (.90); (g) concentration difficulty (.73); and (h) suicidality (.75). The alpha coefficient for the full HDSQ was .95.

Illness Attitudes Scale (IAS) elaborated by Kellner, Slocumb, Wiggins, Abbott, Winslow and Pathak (1985) indicates the way in which the patient approaches the disease. The IAS comprises several subscales – worry about illness, concern about pain, health habits,

hypochondriacal beliefs, thanatophobia, disease phobia, bodily preoccupation, treatment experiences, and effects of symptoms. Kellner et al. (1985) reported a good internal consistency (α between .62 and .92). A high score indicates a negative attitude towards the disease.

Quality of Life Scale (QLS) was elaborated by Cowan and Kelly in The American Chronic Pain Association, in 2003 (www.theacpa.org). This scale performs an assessment for the functioning ability rather than for the pain itself; the scale is meant to help the patient and the healthcare team to assess and to communicate the impact of pain on everyday activities. The scale included 11 items, counted from 0 to 10, where 0 stands for no functioning and 10 stands for normal functionality. The items include descriptions of the patient's daily activities and he should chose only one item which best describes his situation at the moment of the assessment.

5. Work procedure

The instruments used were applied without a dead line from the examiner. In the design of the research there were included: demographical and clinical information, the number of hospitalizations, surgical interventions, the diseases associated with the main diagnosis.

Design. The objectives target a multifactorial experimental design. Considering that the predictors are number and continuous variables we use regression in predictive purpose.

6. The interpretation of the results

According to the previously presented objectives, we discovered the differences in the case of hopelessness depression symptoms according to the type of participants.

The statistical analyses reveals the existence of some differences between the averages for hopelessness depression symptoms according to gender ($t=2.55(141)$; $p<.01$; $d=0.42$) and this confirms the significant differences between the two groups. The women present more accentuated symptoms representative for hopelessness depression as compared to men.

In the case of the attitude towards the disease, the married participants manifest a higher negative attitude towards the disease as compared to the participants who are not married ($t=1.87(141)$; $p<.05$; $d=0.21$) without measuring a significant difference between genders.

The registered results support the initial predictions about the differences between the participants reported to the frequency of hopelessness depression symptoms according to the number of hospitalizations [$F=2.481(61; 142)$; $p<.001$]. Consequently, an increased number of hospitalizations significantly influences hopelessness depression symptoms in the way that they are more frequent.

6.1 *Predictions about the prevalence according to age, gender and the quality of life*

We postulate that age, gender and the quality of life are relevant predictors in estimating hopelessness depression symptoms for the heart attack hospitalised patients.

The data presented in Table 1 explain in adjusted form a proportion of 50.3% ($R^2=.503$) the dispersion of the evolution for hopelessness depression symptoms in the case of heart attack participants.

Table 1. Simple linear regressions predicting hopelessness depression symptoms

Prediction	$F_{(3, 142)}$	R	R^2	B	$SE B$	β	t	p	pr
	46.959	.709	.503						
	p<.001								
Age				11.33	1.92	.41	5.88	.001	.352
Gender				-5.67	2.42	-.14	-2.33	.02	-.140
Quality of life				-12.6	2.36	-.37	-5.32	.001	-.318

Note 1: Predictors: age; gender; quality of life; Dependent Variable: hopelessness depression symptoms.

Note 2: * $p < .05$; ** $p < .01$; SE = standard error; B = unstandardized coefficients; β = standardized coefficients; pr = semipartial correlation.

The regression equation indicates that women who suffered from heart attack tend to be more sensitive in developing specific rather than men ($B=-5.671$; $t=-2.33$, $p<.02$; $pr=.14$); a decrease for the quality of life with 12,609% shall come along with the enhancement of hopelessness depression symptoms for the participants with heart attack ($B=-12.609$; $t=-5.32$, $p<.001$, $pr=.31$). In this context the age is a major predictor for the heart attack participants ($B=11.332$; $t=5.88$, $p<.001$, $pr=.35$).

6.2 Predictions about the prevalence according to age, hopelessness depression and the quality of life

The regression was additionally applied in order to establish whether hopelessness depression symptoms, the quality of life and the age of the participants could be predictors for the negative attitude towards disease. The statistical data obtained explain a proportion of 27.1% ($R^2=.271$) from the evolution of negative attitude dispersion towards disease (see Table 2).

Table 2. Simple linear regressions predicting attitude towards disease

Prediction	$F_{(3, 142)}$	R	R^2	B	$SE B$	β	t	p	pr
	17.182	.520	.271						
	p<.001								
Age				-.57	1.76	-.03	-.32	.74	-.023
Quality of life				-3.92	2.12	-.17	-1.84	.05	-.134
HDS				.28	.06	.42	4.16	.001	.302

Note 1: Predictors: age; quality of life; hopelessness depression symptoms; Dependent Variable: attitude towards disease.

Note 2: * $p < .05$; ** $p < .01$; HDS = hopelessness depression symptoms; SE = standard error; B = unstandardized coefficients; β = standardized coefficients; pr = semipartial correlation.

In this context a decrease for the quality of life with 3.9% shall lead to the increase of negative attitude towards disease ($B=-3.925$; $t=-1.84$, $p<.05$, $pr=.134$); besides that, the results suggest that young people with heart attack and hopelessness depression symptoms are more vulnerable to develop a difficult adaptive attitude ($B=.284$; $t=4.16$, $p<.001$, $pr=.302$).

7. Conclusions

The impact of chronic disease on physical and psychical functioning shall determine the way in which the patient perceives the symptoms, the severity, the evolution and the treatment of the disease. The attitude towards disease and the perception of social support represent important factors both in maintaining the health and in the process of recovery from the disease.

The attitude towards disease differs according to the marital status of the patients with heart attack, in the way that a higher emotional contagion is possible for married persons and implicitly negative reactions, as Chung et al. (2008) claimed in a different context. Our data suggest that the patient's negative attitude towards disease is more intense if the life partner adopts the same attitude.

In consonance with the results of Carney et al. (1995), we confirm that hopelessness depression symptoms are relevant predictors for the development of cardiovascular diseases.

Hopelessness depression symptoms were analysed even according to the number of hospitalizations for the participants who had no surgical interventions. The results confirmed that the number of hospitalizations significantly influences the symptoms, so the participants with more than three hospitalizations present the most accentuated hopelessness depression symptoms. Hospitalization itself makes the patient believe he is in the helplessness condition maybe even because of the fact that many times the patient is hospitalised during an emergency case when he cannot control the somatic symptoms he manifests. The increase of hospitalization incidence may aggravate the psychological equilibrium of the individual.

On the other hand, the decrease of life quality for the patients with heart attack may generate the intensification of hopelessness depression symptoms. The regression equation suggests that the decrease of life quality shall increase the negative attitude towards the disease, especially in young people.

Optimising the accommodation with the disease by early implementing psychological programs could have the purpose of improving the attitude towards the disease even during hospitalization. The hospitalised patients with cardiovascular diseases are more receptive to change. As Petrie et al. (2002) claimed, the patients who benefit from psychological interventions and counselling are more optimistic when released from hospital, they manifest beliefs regarding the disease management and they are confident about the ways of recovery. The perception of social support towards the dangers perceived as being imposed by cardiovascular diseases has a major role in respecting the treatment (Marian, 2004; 2006; Sayers et al., 2008) also being an essential factor for decreasing the mortality (Lam & Lauder, 2000).

Finally we consider that the assessment of the patients should also measure even the extent to which the patients could make some major life changes imposed by the symptoms of their disease, and their ability to respect complex therapeutic indications. In this respect, the psychological assessment of the patient's close persons would be relevant. Chung et al. (2008) claimed that the emotional distress of a close person could be associated with the decrease of life quality for the patient with heart attack. We consider that the implementation of programs aiming both the patient and the person who gives him support and who looks after him, would be the most efficient.

Acknowledgements

This research did not receive any specific grant from funding agencies in the public commercial, or not-for-profit sectors.

The author declares no competing interests.

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Complementary Aspects in Reality Therapy and Person-Centered Therapy

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Received 22 March 2018 ▪ Revised 30 June 2018 ▪ Accepted 10 June 2018

Abstract

In this brief review we made a comparative analysis of Reality Therapy and Person-Centered Therapy. Common points in theoretical aspect and differences in therapeutic process were highlighted. Also we focus our attention on the scientific basis of the two approaches. The main purpose of this paper is to underline the importance of an “open minded” intervention despite all differences between methods that are tributary to a specific approach, or to scientific evidence. Eventually the goal for all practitioners is to improve client’s status.

Keywords: reality, person-centered, therapy, application, efficiency.

1. Introduction

Reality therapy (RT) and Person-Centered therapy (PCT) are two different approaches in terms of ranking. So William Glasser’s Reality Therapy appeared in the sixth decade of the last century, as a directive therapy and Carl Roger’s Person-Centered Therapy appeared in the fourth decade of the last century fully developing in 1980s, as a non-directive therapy. However, analyzing the underlying principles of the two approaches we find similarities that are inconsistent in practice.

Present work analyses RT and PCT by comparison, reviewing, in a compact manner, the most important elements that outlines a therapeutic approach. For start, we will present the main concepts of therapies in discussion. Afterwards will focus on therapeutic process of the two different approaches in terms of reporting to the individual, and in terms of triggering the mechanism of change.

The differences between RT and PCT is evidenced through a comparative analysis of these therapeutic approaches, at applicative level. The main aim of this analysis is to bring in attention of scientific community the importance of a flexible conceptualization and insight in the therapeutic process in terms of directive or non-directive approach. Adopting strategies based on the individual’s traits of personality and its evolution throughout the therapeutic sessions is an essential aspect in increasing the efficiency of the process of change, as we underlined in a previous work (Mocan, 2014).

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2. Conceptual aspects

Reality therapy is a directive therapeutic approach based on *choice theory* referred to as control theory. The choice theory is based on the idea that we are governed by five basic need, fulfillment of which ensure us a rewarding life. So the purpose of our choices is to fulfill these basic need. The mental representation of each individual about the surrounding reality and the adaptation to this reality in his way to satisfy the need mentioned above can generate perceptual errors. These perceptual errors are the main source of distress. Solving the perceptual error, the conflict, is related to the individual's ability to reorganize the information from reality. The process of reorganization is the basis of creativity, so the individual has the tools to choose a behaviour that meets the demands of a quality world in the context offered by reality. It is essential to mention that the theory of choice addresses behaviour as a complex of emotions, thoughts and actions which are interdependent (Glasser, 1981).

Person-centered therapy is a non-directive approach that starts from the idea that the individual is aware and is at the center of a constantly changing world, which leads to a permanent actualization tendency. Thus the individual has abilities and primary motivations. Reporting to the world follows from the interaction between universal reality and subjective and personal perception of the reality. This interaction forms in Rogers view the individual "private world". Although PCT is focus on individual and personal experience, provides an essential role to community orientation and relationships. The structure of the self is formed as a result of interacting with the environment, especially as a result of evaluative interactions with others (Rogers, 2002). The main sources of distress from Rogers perspective are distorting and denying experiences that don't coincide with the self-concept. Thus, the individual invests a lot in maintaining self-image (Marian, 2011).

3. Common points in theory

In the synthesis made in the previous section we can observe some common points of the two therapeutic theories. Both approaches support the presence of basic needs (in RT) or capabilities and primary motivations (in PCT) that leads the individual in the development of the self-concept. Also, the main source of distress and conflict is in both approaches the inconsistent between our own perception of reality and the perceptions of others about the same reality as well as the inconsistent between the objective aspects of reality and our own perception.

The individual's attempt to adapt to the contexts of life involves the process of reorganization (in RT) respectively the permanent tendency of self-actualization (in PCT). Both processes involve an evaluation of our self-image and patterns of behaviours adopted in target situations. This tendency of self-actualization is a primary mood that is externalized by behaviours, by the way we relate to life. As in the PCT, this exteriorization materializes in observable and measurable behaviours, in attitudes, thoughts and experiences, in the RT perspective, they are all organized under the concept of global/total behaviour, where emotions, thoughts and actions are interdependent dimensions.

4. Practical differences

The most important and visible differences between the two approaches at the practical level are in the therapeutic relationship and in the therapeutic process.

Thus, in RT the therapist aims to create a supportive environment that offers clients the opportunity to make changes in their lives. Moreover, the therapist represents the point of reference of the objective reality, keeping the attention on the concrete, palpable aspects, constantly provoking the client to explore what he is doing, what he/she thinks and what he/she

feels to conclude later on the extent to which there are more efficient ways to function (Wubbolding, 2002). So RT focuses on the elements that clients are aware of and helps to increase awareness of needs, goals and inefficient behaviours used to control the environment, which predisposes clients for change (Mocan, 2013).

In PCT, the therapist also creates a supportive environment, but with the purpose of determining the client to explore his or her feelings, to observe inconsistencies, to discover the neglected attitudes. This is how the client discover itself by bringing to light the aspects that he is not aware of when he comes into therapy.

RT focuses primarily on the behavioural component of the individual and then on the cognitive component, the therapeutic relationship being characterized by collaboration in formulating a specific and effective action plan. This is often done by confronting the client with his own blocks in ineffective behavioural patterns, in ruminations of the uncomfortable situation in which he is.

In PCT, the therapeutic relationship is one of understanding and the alliance in which the therapist adopts an empathic attitude and an unconditional acceptance attitude. Through this reporting to the client PCT gives the client the chance to become aware of and reassess feelings, thoughts and perceptions, allowing a satisfactory absorption of experiences. This brings changes in the behavioural and effective reporting of the client to himself, to the world and to others.

At therapeutic level, one of RT's goals is to encourage customers to become aware of what they are doing now and to help them see the connection between what they feel, their actions and decisions, understanding that when they start to act differently from past, changes also occur at the emotional level (Corey, 1996). Controlling your own global behaviour, and more, the ability to take responsibility for it, is the alternative offered by RT practitioners underlining that self-imposed barriers and excuses are forms of self-deception that can give the feeling of release in short term but in the long run they lead to the consolidation of identity problems. Individuals also learn to accept the reasonable consequences of their actions (Howatt, 2001).

The objectives of PCT are rather analytical, aiming to make the individuals aware of their own attitudes, emotions, values and goals. Once the client discovers these aspects of self, he learns how to integrate them in "here and now" life. Another important aspect of the therapeutic process in PCT is to facilitate verbal, attitudinal and perceptual changes by experimenting/experiencing the relationship with the therapist. Thus, through therapeutic-relationship the therapist brings changes in locus of control. In the first phases of therapy, there is a tendency for the client to adopt an external locus of control, and constantly the therapist place the locus of control internally, to the client. By making this transfer, the client's confidence in his own control increases, giving the power to accept himself (Marian, 2011).

5. Applicability

In terms of applicability, the route of the two approaches is different. The RT had little impact on the scientific community so after more than half a century of existence there is little conclusive data on the effectiveness of this type of therapy. On the other hand, the PCT currently has a strong scientific basis, its effectiveness being demonstrated in many studies. We mention here the meta-analysis made by Robert Elliott and Beth Freire in 2008, which highlighted the impact the PCT has had over time. Thus, PCT is associated with major changes on clients during therapy. Also studies show that these changes are maintained in time after therapy (Elliot & Freire, 2008).

The RT has created many controversies among therapists primarily because the therapeutic model is easy to understand by clients, becoming a self-education method rather than

a therapy itself. So each individual is able to evaluate his own behaviours, to make an action plan and to assess the consequences of its application. However, the presence of the therapist is necessary for the client, to guide all these processes, to motivate the client to implement the plan and supervise the client's assessment in/off the stages of change (Bradley, 2014).

Referring to the problems addressed by the two therapeutic approaches, we can see, as a consequence of the above-mentioned aspects, that the RT has focused in time more on group interventions, minority communities and organizations. There are limited studies on the effect of RT in individual therapy sessions and the data are not conclusive (Mocan, 2013). Also, studies have been carried out on the intervention at the educational level also in order to improve the interpersonal relations in classroom (Hinton, Warnke, & Wubbolding, 2011).

The PCT generally address to people with mild and moderate mental disorders, those with depressive and anxiety disorders. Important results were revealed that support the effectiveness of this approach. Due to the essential elements of the therapeutic relationship in PCT from which we recall empathy, unconditional acceptance, congruence, alliance, the main direction of intervention is primary counselling. Thus, compared to the RT, the PCT is an approach generally applied in individual counselling, and studies have highlighted numerous positive effects in this area (Gibbard & Hanley, 2008).

6. Conclusions and directions

In this paper we performed a comparative brief analysis of two therapeutic approaches, the RT and the PCT. This analysis reviews both the common elements of the two approaches and the aspects that differentiate them.

The common elements are based on the phenomenological and existential orientation of the two approaches, both having a strong relation to reality and its subjective perception. The aspects that differentiate them weigh a lot more when it comes to the therapeutic process itself and the applicability of strategies and therapeutic methods. It is well known that the RT is a directive approach and the PCT a non-directive one.

Another sequence of this paper focuses on how each of these approaches has penetrated the scientific community in general and the therapeutic practice at the level of conclusive scientific evidence on the effectiveness of these approaches. We emphasize that the PCT is a more widespread therapy among practitioners, being evidence-based.

In the past few years, both approaches are trying to expand their area of effectiveness (e.g. the PCT in groups and in educational environment, the RT in individual therapy), through studies that reveal an opening towards adapting the therapeutic process to the individual or to the groups they are targeting (Mohd Sa'ad, Yusoff, Nen, & Subhi, 2014; Jegathesan, Shoba, & Thanaraj, 2016; Pedigo, Robey, & Christiansen, 2016; Boyer, 2016).

Through this paper we support the flexibility of the therapeutic process by careful analysing client's personality, attributional style, and relationship patterns to facilitate change. Filling on client's needs is an essential aspect of therapy, referring here to adopting more or less directives strategies in line with the client's particularities and evolution in therapy.

Acknowledgements

This research did not receive any specific grant from funding agencies in the public commercial, or not-for-profit sectors.

The author declares no competing interests.

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Theoretical Approaches to Investigate Self-Understanding: Literature Review

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Received 29 March 2018 ▪ Revised 30 June 2018 ▪ Accepted 13 July 2018

Abstract

In this informational-analytical paper results of the most relevant international research on self-understanding are analyzed and summarized. This work is aimed to summarize different approaches of investigating self-understanding from various perspectives of developmental psychology, psychology of knowledge, narrative psychology, psychoanalysis and humanistic psychology. An attempt is made to separate the phenomenon of self-understanding from self-knowledge, self-awareness, self-esteem, self-reflection, etc. The analysis of the features of self-understanding is carried out in the framework of two different tendencies: it is viewed as a cognitive phenomenon (emphasis on the process and result of the formation of knowledge about oneself) and as an existential phenomenon (appealing primarily to the value-semantic aspects of self-understanding).

Keywords: self-understanding, self-awareness, self-knowledge, cognitive phenomenon, existential phenomenon.

1. Introduction

The psychological development of the problem of self-understanding is one of the newest and promising areas of modern psychological science. Registration of this problem as an independent one occurred in the late 90s of the 20th century. Throughout the century, many philosophers, psychologists and educators, while studying other psychological problems and in the context of various theoretical and methodological approaches, affected the problem of recognition, description and study of self-understanding, or understanding yourself in one way or another; sometimes even marking this concept with different meanings.

The term “self-understanding” is often used in psychotherapeutic and pedagogical practice. The need to understand ourselves, to understand our motives and feelings, thoughts and actions is characteristic to all people to a varying degree. This is evidenced by an increase in the number of popular psychological publications that call to understand and know yourself better. However, in scientific psychology, the problem of self-understanding did not arouse much interest among researchers. The interpretation of the phenomenon of self-understanding, describing the human “self”, is given in the thesaurus in psychology (Walker, 1994) along with other terms that

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are of great importance for the personality psychology. Thus, self-understanding is part of the concepts that are significant for psychology.

In the course of studying, the problem of self-understanding was mentioned mainly in connection with the study of self-awareness of the individual. Self-understanding is regarded as a synonym for self-knowledge by A. N. Leontiev (1983) and Y. B. Gippenreiter (1988), self-awareness function – V. V. Stolin (1983), as a sign of a certain level of self-knowledge – I. I. Chesnokova (1977).

- There is no universally accepted definition of self-understanding in modern psychology.
- Self-understanding is tied with self-knowledge, self-awareness, self-reflection.
- There are two sides of self-understanding – cognitive and existential.
- As a cognitive phenomenon it emphasizes the formation of knowledge about oneself.
- As an existential phenomenon it is appealing to the value-semantic aspects of being.

In the opinion of B. V. Kaygorodov, self-understanding brings into agreement the “Self-concept” with the reality. In the process of self-understanding the correlation, interaction and mutual influence of the “self”, “self-concept” and “self-image” are brought into correlation. The main function of self-understanding is to comprehend the authenticity and meaning of the existence of one’s “self” through the comprehension and understanding of the “self-image” and the “self-concept” (Kaygorodov, 2000).

It is quite peculiar that until recently the only dictionary where the definition of the phenomenon we are studying was met is the *Dictionary of pastoral care and counseling*, edited by R. Hunter (1990), where self-understanding is regarded as a person’s ability to observe and explain his past, present and future motives and behavior. This definition of self-understanding in one form or another is used by all practical psychologists. It clearly identifies one of the main characteristics of self-understanding, namely a person’s ability to self-observation, which consists in the fact that a person can expand their personal space and, through the definition of the most adequate “point of reference” to look at themselves in a new way. In its turn, the *Oxford Dictionary of English* (2003) later gave a more concise definition of self-understanding, as an “awareness of and ability to understand one’s own actions and reactions”.

In international psychological research, there are several main areas for studying the phenomenon of self-understanding. In developmental psychology self-understanding is seen as a cognitive representation of oneself. Self-understanding is aimed at differentiating a personality from society, emphasizing its individuality, originality, unsimilarity to others, state W. Damon and D. Hart (1982) and S. R. Cook-Greuter (1994). Within this area, self-understanding is considered as one of the key concepts for the development of the individual, and the main emphasis is made on studying the development of self-understanding primarily in childhood and adolescence.

2. Approaches to investigate self-understanding

The foundations of the study of self-understanding in the field of developmental psychology were laid by American psychologists W. Damon and D. Hart, who, based on W. James’s (1891) ideas about two components of the human personality, namely, “self” as “I”, the subjective knower (i.e., that aspect of the personality that organizes and interprets its experience and at every single moment is conscious of the reality, the world around and within itself) and the “self” as “me”, the object that is known (that is, the totality of everything that a person understands as belonging to themselves, including, first of all, the physical, social and spiritual which characterize the uniqueness of their personality), explore the way in which children and adolescents come to understand the “self” as “me”, as the object that is known (Damon & Hart, 1982).

Self-understanding, according to Damon and Hart, is a complex concept and is defined as “the cognitive representation of self, one’s interest to their ‘self’ and individuality”. In the process of self-understanding, as the researchers note, the “self” as “I”, the subjective knower perceives the “self” as “me”, the object that is known, consistently rising from the cognitive representation of their “physical self”, that is – body, clothing, property – to the representation of the “social self”, that is – social roles and relationships – and the “spiritual self”, that is – the totality of their psychological properties and abilities. This process results in the formation of the concept of “self” in a child, which Damon and Hart are comparing, by its mechanisms, with the process of formation of any other concepts, forming during ontogenesis, etc. Thus, in fact, self-understanding, from the point of view of scientists, is nothing more than a “concept of the self”. In the concept of Damon and Hart, self-understanding is a quite wide notion, which, in fact, is mixed with another related concept, that of self-awareness (Damon & Hart, 1982).

The research of the American psychologist Cook-Greuter (1994) is dedicated to the study of development in the period of human’s maturity. Personality development, according to her just remark, is a sequence of self-understanding stages, based on the stages of personality development. And each such stage is characterized by its own structure and ways of self-understanding. In her work author identifies and describes the three higher stages in the development of the adults’ personality no younger than 26 years of age: autonomous, self-aware and universal. During the autonomous stage, a person strives to reach the limit of their possibilities and focuses their attention on self-realization, self-actualization, the creation of a complex, consistent and objective idea of themselves in order to be himself or herself to the maximum degree. In the next stage – the stage of self-awareness – the personality, as Cook-Greuter notes, explores their thought processes and attitudes and brings meaning into their own experience. The main focus is on “self” as a process and a meaning-generating center. And, finally, the goal of the last – universal – stage, according to Cook-Greuter, is simply “being”. “Self” at this stage is described as a continuous flow, transformation, and the main way of self-understanding is meditation, observation of the continuous flow of changes, the subjective experience of direct knowledge of the deep reality outside of the symbols (Cook-Greuter, 1994). In our opinion, such an unusual point of view on self-understanding, when it is closely associated with states of consciousness and even interpreted in the spirit of oriental meditative practices, allowed to emphasize the role of this psychological phenomenon in the spiritual development of the personality, which is not limited to the level of its self-actualization.

In the study of self-understanding Cook-Greuter also draws attention to the fact that the more a person is differentiated, the more elements and diverse sources they can simultaneously process and integrate into an entire semantic structure. At the highest levels whole structures of knowledge or experience, interconnected and forming a new integrity, can act as elements. Inside this integrity, the researcher believes, dynamic interaction takes place between the “self-concept” and the surrounding world (Cook-Greuter, 1994). These arguments allow us to state that, first of all, self-understanding is based on differentiation of a person’s ideas about themselves, which leads personality to a complex structure and integrity of the “self”; second, self-understanding possesses a level-like character, and at its highest levels there is a formation of a multiply connected structure or restructuring of ideas about oneself; and, thirdly, self-understanding contributes to the coordination of self-awareness products and reality.

The second direction of the study of the self-understanding phenomenon is associated with the psychology of knowledge. In this field of psychological science the term “self-understanding” refers to such concepts as “self-awareness”, “self-knowledge”, “self-relationship”, “self-analysis”, “self- reflection”, but does not duplicate any of them. At the present time, there is no universally accepted definition of self-understanding, which most researchers agree with. Because of terminological vagueness, this problem sometimes cannot be separated from the problems of adjacent areas.

Self-understanding as a cognitive representation of oneself is examined in the works of M. Dymkowsky (1993), C. Sedikides, and J. Skowronski (1995). Authors do not distinguish self-understanding and self-knowledge and describe this integral concept as a set or even a system of autoschemes, or well-organized structures of knowledge about oneself. Autoschemes have a dual nature, being both a process and a structure, a hypothesis or a model that is correlated with incoming information. Dymkowsky (1993) writes that self-knowledge or self-understanding can be interpreted as a cognitive prototype, multidimensional space, or as a cognitive category with internally hierarchical structure, as a stable categorical structure, or as a representation in sign, thematic, and mathematical form.

The analysis of publications on the problem of self-knowledge shows that implicitly the authors adhere to two positions concerning the relationship of these phenomena.

(1) In some works, in particular the ones that analyze sources of self-knowledge, these concepts are identified. So, self-knowledge and self-understanding are used as synonyms in Dymkowsky's book *On self-knowledge and knowledge about oneself*, where the author specially notes that in this work the terms "self-knowledge" and "self-understanding" are interchangeable. Dymkowsky says that self-knowledge begins with a review of one's own life, when external steps and internal conditions are analyzed and a person gets an opportunity to gain an understanding of how they are developing and to critically evaluate their spiritual and intellectual essence. This description of self-knowledge also corresponds to the above interpretation of self-understanding (Dymkowsky, 1993).

(2) In other studies, realized by B. Brown self-knowledge is defined as the entire amount of information about oneself, represented in the individual consciousness, or the cognitive representation of oneself, that part of the knowledge of the individual that is meaningfully referring to oneself as to a single whole or to some aspect of this whole. It should be noted that the concepts of "self-understanding" and "self-esteem", unlike the pair "self-understanding – self-knowledge", almost do not mix. Self-esteem emphasizes a positive or negative mode of perception of oneself, one's abilities, qualities, a place among other people, while self-understanding emphasizes the causes and meaning of one's own behavior and their attitude towards others (Brown, 1988). However, in R. Mills's work *A new understanding of self: The role of affect, state of mind, self-understanding, and intrinsic motivation*, self-understanding actually equals to self-esteem (Mills, 1991).

The circle of concepts that are adjacent to "self-understanding" also includes self-reflection. There is always an equal mark between the phenomena of reflection and self-understanding. So, for example, in the article of Sedikides and Skowronski, self-reflection is described as "active and coming from within thinking, which often arises from an attempt to attribute a certain meaning to events rather than to gather thoughtlessly all the facts relating to oneself" (Sedikides & Skowronski, 1995).

Thus, self-understanding is examined and studied not only in the publications dedicated to this phenomenon, but also in the studies of self-awareness, self-knowledge, self-esteem, etc. In the context of the study of self-awareness problem, the phenomenon of self-understanding is also encountered in the work of I. I. Chesnokova, where self-knowledge is considered as one of the structural components of self-awareness of the individual, as a process of moving from one knowledge of oneself to another knowledge, its refinement, deepening, and amplification by other people.

Self-knowledge is a complex, multi-levelled process, individualized in time. Self-understanding, in its turn, is the highest level of the self-knowledge development. That level of self-awareness development on which a person achieves the most mature and true understanding of themselves, their social essence, awareness of their true worth, characterizes the highest stage of their formation as a personality (Chesnokova, 1977).

3. The cognitive component of self-understanding and its connection to self-awareness

The interpretation of self-understanding in modern psychology is very ambiguous, and this fact generates a significant difference in the approaches and methods of this phenomenon research. In this regard, V. V. Znakov wrote that modern scientific research shows that self-understanding is both a holistic, integrative, and heterogeneous, multidimensional psychological phenomenon. As the researcher noted, when trying to define “self-understanding”, psychologists usually pay most attention to different sides of self-understanding – either cognitive, or existential, connected to being (Znakov, 2005).

Self-understanding as a cognitive phenomenon is a subject of developmental psychology, where the concept of self-understanding belonging to Damon and Hart is the most advanced. Authors introduce the concept of the “locus of actual development”, which suggests that children of any age have a certain understanding of all aspects of the “self” as *me*, the object that is known, and its significance for their development changes with age. Damon and Hart state that every aspect of self-knowledge is represented in the self-understanding of all people from childhood to adulthood. However, the understanding of each side of the “self”, that is, the quality of the judgment about it, undergoes changes with the development of the personality. It is assumed that different levels of understanding are hierarchically subordinate: the lower apprehensions of self are constituent parts of higher levels. The study of the phenomenon of self-understanding from infancy to adolescence allowed the authors to identify the following repetitive ontogenetic patterns (Damon & Hart, 1982):

- a shift from the physical to the psychological self-concept;
- the appearance of stable social characteristics of the individual;
- an increase in the volitional and reflexive components of self-understanding;
- the tendency of integration of the self’s individual aspects into a complete system.

Damon and Hart are also the authors of a series of studies in which the correlation between self-understanding and social cognition is analyzed. The results of the research showed that a high level of self-understanding development is associated with a high level of awareness of the concepts of interpersonal interaction, such as justice, power and friendship. Thus, self-understanding is the key component of an individual’s understanding of their social world (Damon & Hart, 1982). Nevertheless, the development of self-understanding, according to their studies is not limited to the development of an understanding of social interactions: these two phenomena are related, but they significantly differ from one another. Similar conclusions have been made about the relationship of self-understanding and understanding of others.

A special place in the study of the self-understanding phenomenon is reserved for the problem of distinguishing the subject from other people who play an essential role in the construction of a meaningful identity. Identity can be defined as a subjective concept of oneself as an individual, thus being a form of representation. There are no images of self that an individual can identify as specific objects without defining themselves. This identification implies that an individual can perceive themselves as a particular object, different from all others. According to the ideas of D. Kodol, it is important that the distinctive features be recognized socially; identity, together with other forms of representation, is not self-constructed by individual, but arises in the course of interaction in the processes of perception, cognition and communication, including the introduction of the individual into the social environment (Kodol, 1981). Therefore, self-understanding involves understanding oneself, first of all, as an object that has distinctive features.

The concept of self-understanding of B. V. Kaigorodov belongs to the area studying self-understanding as a cognitive phenomenon, since in this concept self-understanding appears as a system of human representations about oneself, becoming more complicated with each age

stage. Self-understanding, according to B. V. Kaigorodov, has a complex structure, which is determined by the integration of its two sides. On the one hand, the structure of self-understanding can be represented by three interrelated components: the need-motivational (system-forming), the cognitive and the emotional-volitional. However, in the studies of this author, the dominant component is cognitive. The basis of the cognitive component is the person's knowledge of themselves, their openness to new experiences, techniques and ways of self-understanding. But self-understanding is not limited to knowing oneself as such. Self-understanding is interpreted as "knowledge of knowledge", the formation of the sense of knowledge about oneself, which is possible through the experience and the processing of this knowledge. In the opinion of B. V. Kaigorodov, self-understanding unites the self-concept with reality. The main function of self-understanding is to perceive the authenticity and meaning of the existence of one's self through the realization and understanding of the self-image and the self-concept. Consequently, self-concept is a means and a way of understanding oneself, concentrating the concepts of a person about oneself, allowing them to interpret their own actions and behavior (Kaigorodov, 2000).

Thus, in the studies of B. V. Kaigorodov, self-understanding is a system of human representations about their individual psychological features, their attitude towards other people, the reflective attitude of others towards themselves, their motives and their place in the world. Self-understanding creates the "inner thesaurus of the personality as a system of concepts about oneself," which determines the content of the self-concept and through which meaning evolves into the behavior of a growing person.

Cognitive-oriented psychologists H. Markus and S. Kitayama introduce the concept of "self-interpretation", which is similar to the concept of "self-understanding". Self-interpretation is characterized as a constellation of thoughts, feelings and actions manifested in the relationship with others, and can be of two types, depending on the mode of self-determination: "independent self-interpretation" and "interdependent self-interpretation". In their works, authors give a detailed description of the motives, ways of self-determination, relationships with others and the most typical feelings common for people with these types of self-interpretations. Independent self-interpretation is defined as being separated from others, a holistic and stable self, divided from the social context. The main characteristics of independent self-interpretation are: internal efforts, thoughts and feelings; a sense of uniqueness and self-expression; an internal locus of control; realization of a person's own goals and immediacy in communication. Dependent self-interpretation is defined as a "flexible and changing" self, being influenced by the external properties of the environment, such as status, roles, relationships, belonging and adaptability, acquiring one's own position and engaging in relevant activities, interacting with others, and understanding others. In the self-concept of the owners of "interdependent self-interpretation" social identity prevails because they tend to describe themselves in terms of social roles, and the basis of their self-relationship is the correspondence to the expectations of others. Internal attributes are relatively less important for people who often think of themselves in relation to specific social relations or context (Markus & Kitayama, 1991). Thus, self-interpretation is a certain attitude, manifested in a relationship with others, in which cognitive, affective and behavioral components are singled out. In accordance with the type of mental set in the self-concept of the individual, elements of personal or social identity prevail.

Summing up the analysis of self-understanding as a cognitive phenomenon, we should note the inseparable connection of self-understanding with self-awareness and reflection. It is also being debated upon whether self-reflection shows negative personal qualities – the inclination for heart-searching, the state of being fixated on one's own problems based on self-distrust. Many psychologists respond to this question negatively: the awareness of one's own inner world, attention to one's own thoughts and feelings contributes to an adequate adaptation to social reality in normal people (Scandell, 2001). In particular, M. B. Connolly et al. (1999) writes that clients

characterized as reflexive and eager for self-improvement, in the process of communication with a psychotherapist, reveal a deeper level of self-understanding of interpersonal relationships patterns.

4. The existential side of self-understanding as the semantic center of personality and the premise of self-actualization

As V. V. Znakov notes, from the standpoint of the existential approach, understanding is interpreted as a way of being a person in the world. Self-understanding in this case turns out to be such a phenomenon, whose sources should be sought by reflection of the value-semantic formations of the personality and the contexts of the subject's activity (Znakov, 2005). The existential aspect of self-understanding is regarded, first of all, in the context of narrative psychology, which draws an analogy between understanding the text and the person's understanding of themselves, their own behavior and the events of their life. In this approach, the concept of "self-understanding" is synonymous to the self-identification of the individual.

In his model of identity as a personal story, D. P. McAdams has started out from the notion of Erickson's ego identity and argues that identity itself can take the form of a story that contains a description of the situation, scenes, characters and the main idea. Identity must bring together different aspects of the self, so they can be meaningfully linked to each other in a certain temporal sequence. Identity, therefore, is a way of organizing personal experience. The researcher believes that life stories characterize individual peculiarities of people just as well as personality traits, motivation, etc. (McAdams, 1996). This principle was further developed by T. Sarbin, who asserted that human life, like a narrative story, has a plot, time sequence and important episodes. Therefore, the meaning of human activity and experience is expressed with the greatest completeness in the narrative (Sarbin, 1986).

In narrative therapy, the attention of researchers is drawn to the understanding of the psychotherapeutic situation as a narrative. Thus, in the article of Dean Ruth Grossman, various methods used in groups for changing the meaning, organizing the past, explaining the present and creating alternatives for the future are examined. Narratives are seen as forms of self-creation, they can be used to support or instruct, improve self-understanding and interpersonal relationships (Dean, 1998). Self-understanding in narrative psychology is seen as the creation of a "text" about self, as continuous self-interpretation. The basic position of the narrative approach to the study of this phenomenon is the consideration of the self as a product of co-building in the community. Self-understanding brings together various aspects of the self and is a way of organizing personal experience.

The next direction in the study of self-understanding as an existential phenomenon is psychoanalysis, where self-understanding is seen as the most important factor that allows the subject to change in the process of interaction with a psychoanalyst. Human understanding of their suppressed feelings, desires, leading to personal integration, is opposed to the defense mechanisms, primarily rationalization and intellectualization. The problem of the importance of self-understanding for the therapeutic process was posed by S. Freud. In his early works, he believed that the task of therapy is to turn the unconscious into the conscious, in order to learn the truth about one's own behavior and motivation. Most psychological symptoms are rooted in lack of understanding of oneself, ignorance of the true motives and emotions. Generally, this is the result of a struggle between desires emanating from the Id and the demands of the Superego (Freud, 1966). To date, the most recognized definition of the "self-understanding" concept in psychoanalysis is given by Appelbaum. According to this definition, self-understanding is the ability of the subject to discern the interconnections between thoughts, feelings and actions, in order to understand the causes and possible significance of the facts of their experience and behavior (Appelbaum, 1973). Developed self-understanding means the ability to experience

psychological conflict and stress exclusively intrapsychically, without using such regressive forms of coping as somatization. Thus, self-understanding is the opposite of another psychological phenomenon - alexithymia, the inability of the subject to detect, identify and distinguish feelings, in psychiatry it is viewed as a source of great psychological difficulties. People suffering from alexithymia, in their turn, often have a tendency towards somatisation of the stress. A decreased level of self-understanding in the literature was often associated with tendency towards somatization of the stress, the use of psychoactive substances and the manifestation of antisocial behavior (Scandell, 2001).

Researchers identified 5 factors of self-understanding (Raingruber, 2000):

1. Desire to try to understand oneself and others;
2. Openness to new ideas and the ability to change;
3. Accessibility to the area of feelings;
4. Belief in usefulness of discussing psychological problems;
5. Interest in understanding the motivation and meaning of one's own behavior and behavior of others.

Thus, self-understanding in psychoanalysis, is the person's ability to understand the connections between thoughts, feelings and behavior, understanding the causes of behavior and the influence of past experience.

Unlike the psychoanalytic approach, humanistic psychology emphasizes not rational, but emotional, empathic character of self-understanding, which is closely connected with positive self-esteem and self-acceptance of the individual and gives the opportunity to live life more fully – to be yourself to the fullest extent. In the framework of humanistic psychology it is noted that the phenomenon of understanding another person is prior to self-understanding and the understanding of the situation of communication. Self-understanding is, in fact, understanding oneself as the other, suggesting the formation of a different vision of oneself, an attempt to look at oneself from another value-semantic position. On the one hand, understanding the other, the subject enriches themselves. Perceiving the life experience of another person, they also change, become different. On the other hand, the understanding of the partner by the subject also gives to the partner an opportunity to change and understand themselves in a different way (Rogers, 1961). Therefore, the understanding of the other and the understanding of oneself are considered in this scientific tradition as processes, similar in mechanisms and internal characteristics.

Since, according to V. V. Znakov, the result of self-understanding is information with a new meaning about oneself, self-understanding can be defined as the dynamics of semantic entities of personality in the areas, outlined above (Znakov, 2000). We propose to consider self-understanding as an intrapersonal dynamics of semantic entities in the process of self-knowledge.

The process of understanding the semantic connections is the reflexive work of consciousness, directed not so much to oneself, but to the world, and which consists in solving a special problem, called by A. N. Leontiev the "task of meaning". It is characterized by Leontiev as the task of comprehension of those motives that communicate meaning to various objects, phenomena and actions. The author explains that "the task of meaning is the task of determining the place of an object or phenomenon in the life of a subject" (Leontiev, 1983). It can be placed in relation to one's own action (what for I am doing it, did it or going to do it; what motives lay behind it, what needs or values are exercised through this action and what consequences it will lead to), and also in relation to objects, phenomena or the events of reality (what place do they occupy in my life, in my world, for which aspects of my life they are important, how can they affect it, what can the consequences be). As self-understanding implies awareness of the meanings and semantic

connections already existing for the subject, we can assume that in this case we are dealing with the second type of dynamics of the semantic processes.

Self-understanding, thus, is an awareness of the semantic structures of the subject (values, goals, life position), the semantic connections of the subject (motives of behavior in a particular situation and the needs and values that stand behind them). Being the semantic center of the personality, self-understanding is considered as a precondition of personal growth and self-actualization. Self-understanding is closely connected with self-acceptance, positive self-esteem and gives the person the opportunity to live his life more fully, “to be themselves to the maximum extent” (Romanova, 1999).

5. Conclusions

Self-understanding simultaneously as a cognitive and existential phenomenon is one of the key issues in the psychology of human existence. In a number of works, V. V. Znakov considers self-understanding as a complex psychological phenomenon, highlighting cognitive and existential components in it (Znakov, 2000).

From the cognitive point of view, successful self-understanding is defined by the researcher as a meaningful result of observing and explaining a person’s thoughts and feelings, motives of behavior. Znakov (2005) distinguishes three main areas of psychological analysis of self-understanding:

- Ability to discover the meaning of actions, to understand their individual psychological characteristics: knowledge, skills, motives, achievements, etc.;
- Ability to understand the specific nature and causes of how one understands other people, i.e. in a specific way and not in a different manner;
- Socially reflective components of self-understanding – how the others treat you and how they evaluate you.

Based on the analyzed scientific material, it is possible to draw the following conclusions about the signs of self-understanding as a cognitive phenomenon:

- Self-understanding is a system of human representations about their individual psychological features, their type of attitude towards other people, the type of reflective attitude of others towards themselves, their motives, their place in the world; introspective views of a person about their own individual intellectual resources.
- The structure of self-understanding includes a complex matrix of self-identifications, and its configuration depends on the type of self-interpretation.
- The main task of self-understanding is to create a comprehensive, consistent and objective view of oneself.
- Self-understanding is not a static-ascertaining phenomenon, it has a constant internal movement.
- Self-understanding considerably influences the entire structure of the psyche, the world perception as a whole, and determines the basic line of human behavior.
- Self-understanding is achieved by thinking, by careful rational analysis supplemented by intuition and emotions.

The existential aspects of self-understanding are directed towards the search for the meaning of one’s existence, actions, and a mental outlet not only beyond the limits of a particular communicative situation, but beyond the limits of one’s own life, including it in some other coordinate system in which life is endowed with meaning. Znakov believes that self-understanding as a mental process is a gradual process of revealing, the person’s discovery of the truth about oneself, i.e. correlation with the internal criteria of the development of the individual, the notions of social and ethical obligations (Znakov, 2000).

Self-understanding as an existential phenomenon has the following characteristics:

- the desire of the subject to try to understand themselves and others;
- openness to new ideas and the ability to change;
- sensitivity to one's own desires and needs;
- interest in understanding the motivation and meaning of one's own behavior and the behavior of others;
- freedom from the psychological defense that separates the individual from their own essence;
- internal locus-control in the sphere of interpersonal relations;
- access to the feelings sphere;
- awareness of the subject's semantic structures (values, goals, life position), their semantic connections (motives of behavior in a particular situation and the needs and values that stand behind them);
- a reflexive understanding of the basic existential motivation (perception of values, meaning, attitude towards death, fears, etc.).

To conclude, at the moment, the analysis of the features of self-understanding is carried out in the framework of two different tendencies: it is viewed as a cognitive phenomenon (emphasis on the process and result of the formation of knowledge about oneself) and as an existential phenomenon (appealing primarily to the value-semantic aspects of self-understanding). The attempt to combine these approaches is made in the context of the psychology of human existence and the semantic theory of personality.

Acknowledgements

This research did not receive any specific grant from funding agencies in the public commercial, or not-for-profit sectors.

The author declares no competing interests.

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Reflexive Foundations of Cognitive Mental States

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Received 19 May 2018 ▪ Revised 28 June 2018 ▪ Accepted 15 July 2018

Abstract

One of the most important topics studied in cognitive psychology is cognitive activity associated with the acquisition, organization and use of knowledge. The question of qualitative and quantitative features of the relationship between reflection and cognitive states remains open. Nevertheless, there is no doubt that for more successful assimilation of new information, an individual, regardless of one's age, must experience certain mental cognitive states in the process of cognition. In particular, attention is drawn to the states of interest, reflection, passion for the object of cognition. This is one of the cognitive states that perform preliminary motivational function. Reflexivity has an impact on various characteristics of the subject (behavior, activity, personality). Reflection allows to realize, evaluate, compare actual state with the desired one, to predict the state in different situations of life, to rebuild the ways of action, etc. that is, the regulation of mental states, their alignment in the desired direction is provided by reflection. Reflection interacting with mental states creates a new quality – awareness and experience of states. It allows students to predict the results obtained, adjust their cognitive activity. As the level of reflection increases, the intensity of mental states increases in persons with high levels of courage and determination, while the intensity of “timid” states decreases as the level of reflection increases. The productivity and success of the development of educational material by students, self-management of their behavior and activities, as well as their own state largely depend on the inclusion of reflection in the educational process. The aim of our research is to identify the specifics of the relationships between the level of reflection and the intensity of cognitive states, determining the intensity of cognitive states depending on the level of reflection. Students of Kazan Federal University (Volga region) were used as the subjects of the research. Students retrospectively evaluated the cognitive states of interest, reflection, enthusiasm. Three methods were used to measure reflexive processes: the technique for diagnosing reflexivity (A. V. Karpov, V. V. Ponomareva), M. Grant's technique and the original technique for diagnosing reflexive processes which reveals the features of recognition, awareness and identification (A. O. Prokhorov, A. V. Chernov). The research data analysis revealed that different characteristics of reflection form significant connections with characteristics of cognitive states. Retrospective reflection seriously determines behavioral reactions in the process of cognition. Reflection of the actual activities, consideration of future activities, identification of the experiences contribute to cognitive characteristics such as emotions, physiological and behavioral responses.

Keywords: cognitive states, reflection, students, reflexive regulation.

1. Introduction

1.1 *Cognitive activity*

One of the most complicated problems in cognitive psychology is cognitive activity associated with the acquisition, organization and the use of knowledge. The issue of qualitative and quantitative features of the relationship between reflection and cognitive states remains open. Nevertheless, there is no doubt that for more successful assimilation of new information a person, regardless of age, must experience certain cognitive states in the process of cognition – in particular, the state of interest, reflection, enthusiasm, etc. These are cognitive states that perform a benchmark-motivational function (Prokhorov & Yusupov, 2015).

From theoretical point of view, the study of cognitive states is relevant for the development of “mental state” category since it affects the problematic issues of phenomenology, composition, structure, functions, dynamics, classification of mental states, etc. It can be assumed that cognitive states are the common background of cognitive activity – a psychological variable integrating all levels of cognitive reflection and regulation, which is manifested in all spheres of human praxis.

The issue concerning the content of cognitive states, their structure, functions, dynamics, connections with other psychic phenomena (processes and features), including the states of other classes, is still open. As a consequence, the states specific to cognition – for example, interest, surprise, meditation, etc., are identified with motivational, emotional or volitional states, or the very existence of cognitive states is being questioned.

While studying the structural and functional organization of cognitive states, we found that the states manifest themselves as functional structures, including subsystems of metacognitive regulation, emotional activation of cognitive activity, intrapsychic activity and emotionally-personal regulation of thought processes. We collected important data that allow us to consider that the functions of cognitive states are associated with the actualization of cognitive activity, the development of the cognitive sphere, metacognitive regulation, and with the change in the subject's relationship to objective activity and the society (Prokhorov, Chernov & Yusupov, 2011).

In our opinion, the manifestation of these functions in the psyche and life activity of the subject is determined by the mental regulation of cognitive states: by the influence of semantic structures of consciousness (personal meaning, values, constructs, mindsets and orientations, etc.), motivation, reflection, orientation, subject's experience, categorial structures of consciousness, mental representations as a part of the knowledge structure, as well as person's subjective (mental) experience – its reproduction in problematic life situations is manifested in the actualization of a cognitive state of a certain quality. It can be assumed that self-concept system of the subject, whose dispositions define “bias” and cognitive activity in the life activity of a person acts as the central generator of the integral regulatory system of mental regulation that influences the actualization, intensity, duration and other characteristics of cognitive states.

Cognitive states are actualized in a problem situation in the interaction of the subject and the object of cognition, stimulating intrapsychic (cognitive) activity, activating a wide spectrum of intellectual manifestations integrated in the functional structure of states under the action of mental structures. Thus, the effect of subject's involvement in solving certain problem or problem situation which is adequate to the goal of activity is achieved.

Subjectively significant goal (or useful result) is a systemically important factor of actualization of states – it is formed under the influence of a functional complex of constituent mental structures: motives of activity and semantic structures of consciousness, reflection, experiences, categorial structures, representations, subjective (mental) experience and self-

concept system. Self-concept determines the inclusion of mental structures in the actualization of states and their manifestations.

1.2 Reflexivity and mental states

It is no secret that reflexivity affects the various characteristics of the subject (behavioral, activity-based, personal). Reflection enables to realize, assess, compare the actual states with the desired ones, to predict the states in various situations of life, rebuild the ways of actions, etc. That is, the regulation of mental states, their alignment in the necessary direction is ensured by reflection (Chernov, 2012).

In our concept of reflexive regulation of mental states (Prokhorov, 2013; Prokhorov & Chernov, 2012, 2013), the reflection is “included” as the central, basic link in the regulatory process of the subject, as a self-determinative and self-regulatory beginning of one’s regulatory actions. The reflection helps to improve awareness, evaluation, comparison of the current state with the desired state and, accordingly, if necessary, helps the subject to correct the applied methods and methods of regulation. Reflection enables to predict, “replay” possible options and results of the regulation of states in various circumstances and situations of life, to reconstruct the existing ways of actions, to analyze the structure of actions that do not lead to success, to work out the final decision and proceed to executive actions: using the selected methods and methods of regulation of conditions adequate to current or projected situation, event or activity. Inclusion of reflexive mechanisms is determined by the purpose of regulation – the necessity of changing the mental state as an inadequate to the situation, event, purpose of activity, etc. (the need for a state change is realized by the subject through reflection).

Regulatory process is performed with active participation of the basic cognitive processes (perception, representations, mnemonic processes, thinking, etc.), integral (goal-forming, anticipation, decision-making, forecasting, planning, programming, control, self-control) and metacognitive (metacognitive awareness, metamemory, metathinking etc.) based on personality traits (temperament, character, etc.) and meta-properties, it is not very effective in the absence of appropriate motivation of the subject and the absence of personal meaningfulness.

The inconsistency of the experienced states with life situations “launches” basic, integral and metacognitive processes, which result in awareness, comprehension and rethinking alongside with subsequent planning, forecasting, strategy development, decision making and updating of operational self-regulation tools and their further verification (metacognitive strategies). We should note that reflection also activates the semantic structures of consciousness, causing their inclusion in the regulatory process.

We can assume that reflexive mechanisms (strategies, plans, etc.) form stable functional complexes consisting of operational means, intentional models, metaprocesses (cognitive and regulative), and meta-properties that form in the current time and in recurring or similar life situations. Functional complexes are the basis of a more complicated level of regulation, causing the prolonged actualization of “prescribed” states with certain parameters from the sign, quality, intensity, duration, etc. The deployment of such a reflexive complex, as well as its parameters is determined by the requirements of subject’s social functioning, events and situations of life (ordinary or tense). Functional complexes can be reconstructed during regulation when social aspects of life change and if they are not effective enough.

Regulation is carried out in a specific social environment, against the backdrop of cultural, ethnic, professional and other influences, in a specific social situation of life associated with the place of the subject in a small group: with one’s social roles, statuses, etc. The direction of subject’s life “sets” (creates) integral structure of reflexive regulation of states. It manifests itself in the change of operational means in case of their inconsistency with current or predicted

situation, in ensuring the adaptation of the subject to the changing conditions of life through restructuring the regulation strategies, in developing new meanings of life and being, in making appropriate decisions.

The following levels of reflexive activity can be identified in the regulatory processes: at a low level, individual executive actions for regulating states are reflected and monitored, at a higher level the subject displays oneself as “self-structure” (self-concept) that produces planning and evaluation of one’s own actions. It is associated with the actualization of internal regulatory schemes and processes (metacognitive strategy), developed during ontogeny (regulatory schemes different in efficiency determine different qualitative and quantitative limitation of subject’s activity in the regulation of states). The inclusion of reflexive levels allows the subject to move from operational to mental aspects of state regulation and vice versa: self-monitoring of states in the current situation is carried out, regulation techniques are updated, operational tools and strategies for regulating states in past situations and activities are retrospectively evaluated and analyzed including their effectiveness in certain life circumstances, probable future conditions and means of their control are planned and forecasted, etc.

These processes are influenced by models and images of the world, by semantic structures of consciousness, experiences, mental representations, and other components of consciousness, as well as social mediation: the subject’s role in particular large or small social group, one’s roles and status, etc. Depending on level of reflexivity, as well as the degree of its development in the subject, the manifestation of situational, retrospective and perspective regulation of mental states will be different.

We should also note that the reflexive processes of the subject and reflection, in general, generate new meanings, new relationships, creating and defining emerging strategies and plans, ways and means of regulating states. The main psychological mechanism of reflection, which determines the transforming and generative functions and increases the measure of the subjective regulation is the internal dialogue. It leads to voluntary mental manipulation of the ideal content based on the experience of the distance between one’s consciousness and its intentional object, connected with orientation of this process towards itself as an object of reflection. Such actions (looking at oneself from the outside) allow to see the maximum number of elements (variants) of state regulation and choose the optimal one which is adequate to situation. In this context, we should also distinguish differential aspect of the reflexive regulation of states associated with different focuses of consciousness orientation: on the external intentional object, on oneself, on oneself and the object. These actions involve self-distancing, the ability to look at oneself from outside and outside objects beyond the actual situation. We can assume that integration and extensiveness of these mechanisms in the structure of the reflexive regulation of states ensures its effectiveness in the life of the subject.

Interacting with mental states, the reflection creates a new quality – the awareness and experience of states. It enables students to predict the results they receive, correct their cognitive activity. For instance, the intensity of mental states in individuals with high rates of courage and determination increases with the growth of the level of reflection while the intensity of the states of “timid ones” decreases with the increase of reflection (Chernov, 2013).

The productivity and success of mastering the educational material by students, self-control of behavior and activity, as well one’s own state largely depend on the inclusion of reflection in the cognitive process.

1.3 Research objective

The objective of our research is: to identify the specifics of the relationship between the level of reflection processes and the intensity of cognitive states of interest, reflection and

enthusiasm; the identification of the specifics of the relationship between cognitive conditions of students in learning situations (lecture and examination) and reflexive processes; to reveal gender differences in the relationship between the processes of reflection and cognitive states.

2. Research methods

2.1 Research participants

The study involved students of humanitarian specialties of the Kazan Federal University (Volga Region) aged 18-21 92 people took part in the research.

2.2 Research methods and techniques

The intensity of cognitive mental states was determined using the technique called “mental state relief” (A. O. Prokhorov). Three methods were used to measure reflexive processes: the technique for diagnosing reflexivity (A. V. Karpov, V. V. Ponomareva), M. Grant’s technique and the original technique for diagnosing reflexive processes which reveals the features of recognition, awareness and identification (A. O. Prokhorov, A. V. Chernov).

2.3 The course of the research

The subjects retrospectively evaluated cognitive conditions, more often experienced in learning activity, *interest, reflection, and enthusiasm*. The research was conducted on lectures, seminars and examinations in the process of student learning activities. A single cognitive condition was evaluated during single meeting. In other meetings, respondents were given tests for reflection. The obtained data were included in the summary protocol and the correlation analysis was performed using SPSS 16 program. The analysis included only significant correlations ($p \leq 0.05$, $p \leq 0.01$, $p \leq 0.001$).

Structural analysis was carried out using the coherence index of structure (CIS). The coherence index is calculated as follows: the number of significant links multiplied by the significance level.

The data were grouped by gender and analyzed.

3. Results

3.1. The relations of reflexive processes and cognitive states in educational situations (lecture, examination)

It was discovered in the process of students’ educational activities that at the seminars the reflexive processes of recognition, awareness and identification are not connected with cognitive mental states. The opposite situation was revealed at the lecture where reflexive processes (identification, awareness and recognition) correlate with the indices of mental processes that make up the structure of cognitive states, and the results mostly refer to the reflection of one’s own experiences (Figure 1). This is explained by the fact that it is psychic processes that play the most important role in the structure of cognitive mental states of students during the lecture. We should also note that the identification processes during the lecture are associated with experience, physiological responses and the average value of all state indicators. In the structure of relationships the processes of awareness correlate with behavior as a constituent of the structure of cognitive states. Thus, the reflexive processes of identification,

recognition and awareness of one's own experiences are associated with actual cognitive states at the lecture.

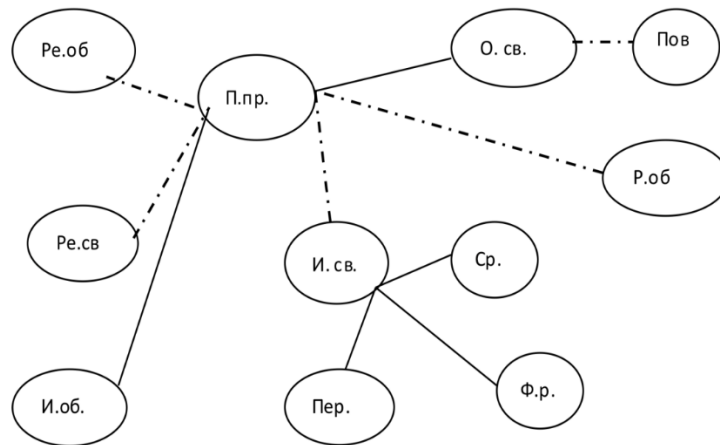


Figure 1. The relationship between the characteristics of cognitive states and reflexive processes of students at the lecture

Note: ----- $p \leq 0.01$; - - - - - $p \leq 0.05$.

Legend: R.o. – recognition of one's own experiences and motives of behavior, R.op. – recognition of other people's experiences and motives of behavior, A.o. – awareness of one's own experiences and motives of behavior, A.op. – awareness of other people's experiences and motives of behavior, I.o. – identification of one's own experiences and motives of behavior, I.op. – identification of other people's experiences and motives of behavior, G.r. – general recognition, G.a. – general awareness, G.i. – general identification, R.o. – reflection of one's own experiences and motives of behavior, R.op. – reflection of other people's experiences and motives of behavior, G.re. – general reflection, Be. – behavior in the structure of cognitive states, Exp. – experiences in the structure of cognitive states, Ave. – average indicator of the structure of cognitive states, P.r. – physiological responses in the structure of cognitive states, P.p. – psychic processes in the structure of cognitive states.

As for the exam, the relationship between reflection and cognitive states is as follows: for the students, the most significant were the scales of state recognition of another person (presumably the teacher), as well identifications of one's own state and overall intensity of the awareness processes (Figure 2). These scales presumably correlate with all the parameters of cognitive mental states of students and, in particular, with mental processes. Thus, the ability to recognize the mood of another person, to recognize and identify one's own experiences and motives, their general intensity affect the student's cognitive state during the exam. We should note that during the exam cognitive states are affected by reflexive processes, which emphasizes their special significance and influence on the structure of cognitive states in subject's difficult situation.

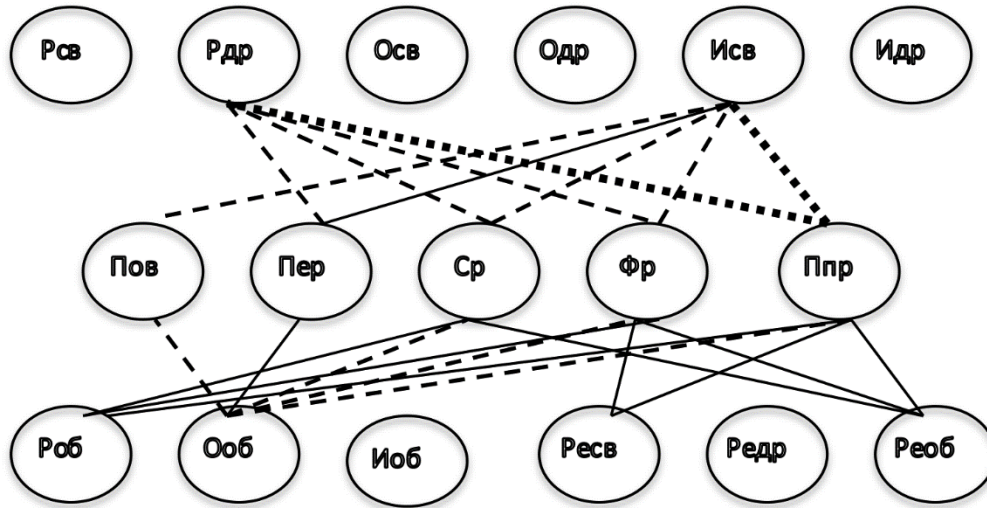


Figure 2. The relationship between the characteristics of cognitive states and reflexive processes of students during the exam

Note. ----- $p \leq 0.01$; - - - - $p \leq 0.05$; $p \leq 0.001$.

Legend: R.o – recognition of one’s own experiences and motives of behavior, R.op. – recognition of other people’s experiences and motives of behavior, A.o – awareness of one’s own experiences and motives of behavior, A.op. – awareness of other people’s experiences and motives of behavior, I.o. – identification of one’s own experiences and motives of behavior, I.op – identification of other people’s experiences and motives of behavior, G.r. – general recognition, G.a. – general awareness, G.a. – general identification, R.o. – reflection of one’s own experiences and motives of behavior, R.op. – reflection of other people’s experiences and motives of behavior, G.re. – general reflection, Be. – behavior in the structure of cognitive states, Exp. – experiences in the structure of cognitive states, Ave. – average indicator of the structure of cognitive states, P.r. – physiological responses in the structure of cognitive states, P.p. – psychic processes in the structure of cognitive states.

Let us address the integral results of structural characteristics (Table 1). The obtained results allow us to assume that during the examination there are more close interrelations of cognitive mental states and reflexive processes (15/37). The structure of cognitive states is somewhat permeated with reflection. This fact indicates that in a “difficult” situation reflexive processes are more actively involved in interaction with cognitive states than in the everyday learning situation.

The biggest number of correlation links in a lecture (10 of 15) occurs in the total (summary) characterization of mental processes in the structure of cognitive states.

The basic element in the structure of reflexive processes at the *lecture* is the identification and awareness of one’s own experiences and motives of behavior. More even distribution of values of the index of structure coherence (ISC) is observed at the exam: reflexive processes are closely related to the major aspects of the structure of cognitive states, however, the prevalence of mental processes remains. There are 3 main structure-forming elements at the exam: recognition of another person’s state, identification of one’s own experiences and general intensity of identification processes.

Table 1. Relationship between the constituents of structure of cognitive states and reflexive processes during lectures and examinations

Indicators	ISC at the lecture	ISC at the exam
Recognizing the experiences and motives of the behavior of another person	–	10
Awareness of one's own experiences and motives	3	–
Identification of one's own experiences and motives of behavior	5	10
General recognition (intensity)	2	3
General identification (intensity)	1	9
Reflection of one's own experiences and motives of behavior	2	2
General reflection (intensity)	2	3
Total ISC	15	37
<i>Mental processes</i>	10	11
<i>Physiological responses</i>	1	9
<i>Experiences</i>	1	4
<i>Behavior</i>	2	5
<i>Average by parameters</i>	1	8

Note: ISC – Index of structure coherence.

Depending on the *gender* characteristics of the subjects, the interaction of cognitive states and reflexive processes is as follows. In the group of men, the high rates of recognition of one's own experiences and motives of behavior correlate with the low intensity of the structure of cognitive states ($p \leq 0.05$). In the group of women, the awareness of one's own experiences is positively correlated with the generalized characteristic of behavior in the structure of cognitive states, the significance of the correlation is $p \leq 0.05$. That is, the decrease in the behavioral activity of women is associated with a decrease in the reflexive process of awareness of one's own experiences and motives of behavior.

Thus, the results indicate a situational mediation of the interaction between reflexive processes and cognitive states which, in turn, is related to the gender characteristics of the subject.

3.2. Interrelation of cognitive states of interest, reflection, enthusiasm and reflexive processes

The results of data analysis allowed us to discover that various characteristics of reflection form significant links with the characteristics of cognitive states. Retrospective reflection mostly determines behavioral reactions in the process of cognition. Reflection of actual activity, consideration of future activity, social reflection, identification of one's own experiences cause such characteristics of cognitive states as experiences, physiological and behavioral reactions.

As an illustration, let us take a look at the revealed correlations on the example of the state of *interest* (Figure 3).

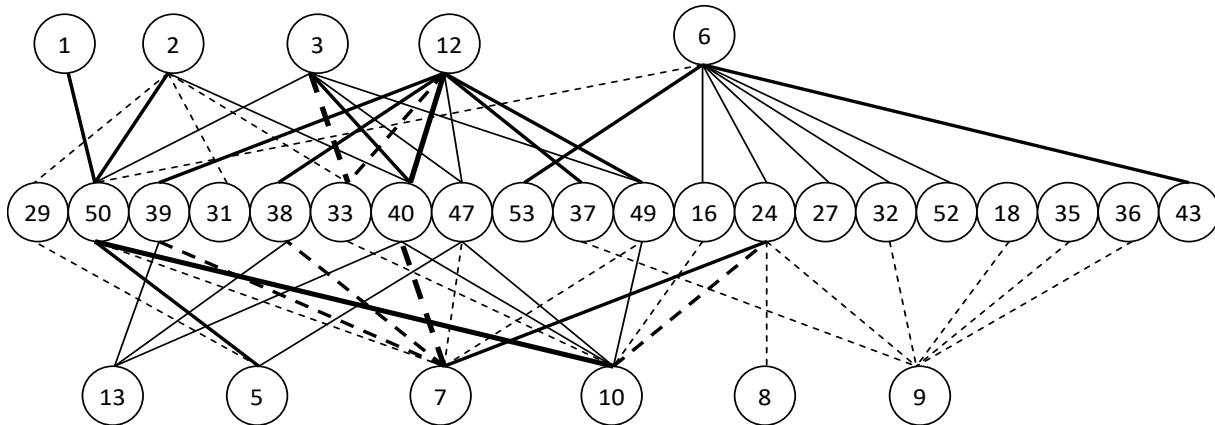


Figure 3. Interrelation of the processes of reflection with the cognitive state of *interest*

Note: — $p \leq 0.05$; - - - $p \leq 0.05$; — — $p \leq 0.01$; - - - - $p \leq 0.01$; — — — $p \leq 0.001$; - - - - $p \leq 0.001$.

Being in a state of interest, a high level of self-reflection determines the relaxedness of experiences, confidence, relaxedness and openness of behavior, motor activity, and clarity of memory. High level of social reflection, on the contrary, determines the tenseness of behavior, lethargy and immersion of experiences, rashness and inadequacy of behavior.

The difficulty in the appearance of images, pallor, coldness of the limbs, tenseness, deliberate and adequate behavior, elevated feelings in the state of interest contribute to a more clear awareness of one's own conditions. Cheerfulness, vivacity, activeness and highness of feelings, deliberate and adequate behavior in the state of interest cause correct identification of one's own conditions. In the state of interest, with a decrease in the intensity of a number of physiological parameters, in the process of thinking and in the strength of experiences, the probability of recognizing the states of other people increases.

We should note that such characteristics of the cognitive state of *interest* as relaxedness or tenseness, rashness or foresight of behavior, the orientation of experiences and temperature sensations determine the intensity of the processes of reflection (consideration of future activity, reflection of current activity, self-reflection and social reflection, awareness and identification of one's own conditions).

Analysis of the correlation of reflection with cognitive state of *reflection* showed the following (Figure 4).

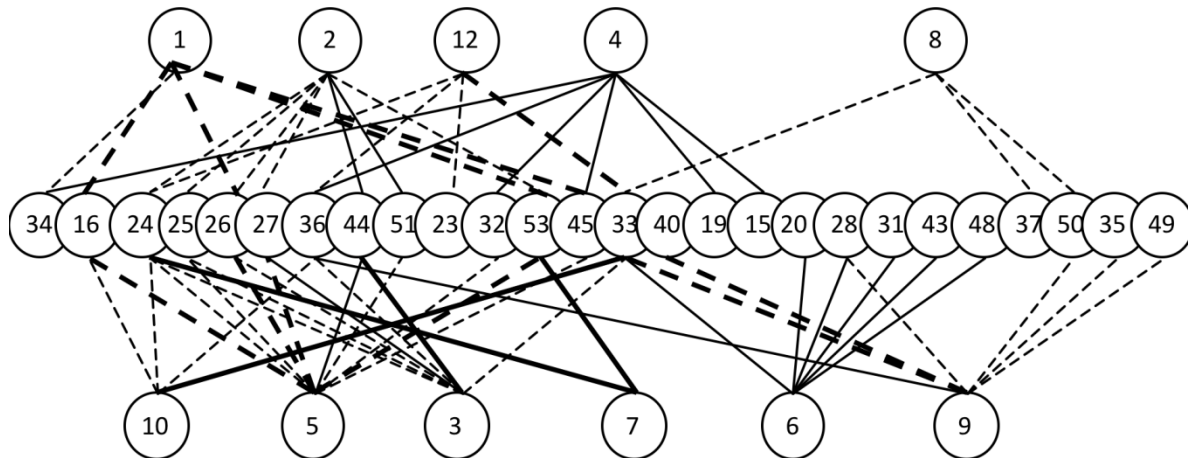


Figure 4. Interrelation of the processes of reflection with the cognitive state of *reflection*

Note: — $p \leq 0.05$; - - - $p \leq 0.05$; ——— $p \leq 0.01$; - - - - $p \leq 0.01$; ———— $p \leq 0.001$; - - - - - $p \leq 0.001$.

The biggest number of connections with the characteristics of the state of reflection has a general indicator of reflection, combining the retrospective reflection of activity, the reflection of current activity, the consideration of future activity, the reflection of communication and interaction with others. In the state of reflection in respondents with a decrease in the intensity of physiological processes and behavior, the effectiveness of the reflection of activity increases. That is, the reflection of activity (present, future, etc.) is caused by the difficulty of the appearance of images, the reduction of temperature sensations, muscle tone, coordination of movements and motor activity, as well as by closeness, instability, inconsistency and activity of behavior.

Being in a state of reflection, lowering of temperature sensations, motor activity, muscle tone and coordination of movements, activity and stability of behavior determine the reflection of current activity and consideration of the future one. Recognition of the states of other people is mediated by the specifics of experience and behavior (relaxation, decreased adequacy of behavior, immersion in experiences and their cheerfulness).

Analyzing the relationship between reflection and the state of reflection, we revealed that the indicators of the cognitive state (temperature sensations, sadness/cheerfulness of experiences) have a large number of connections with reflection. That is, their intensity is determined by consideration of future activity, awareness of one's own states and identification of one's own states.

Let us take a look at the correlation of reflection and cognitive state of *enthusiasm* (Figure 5).

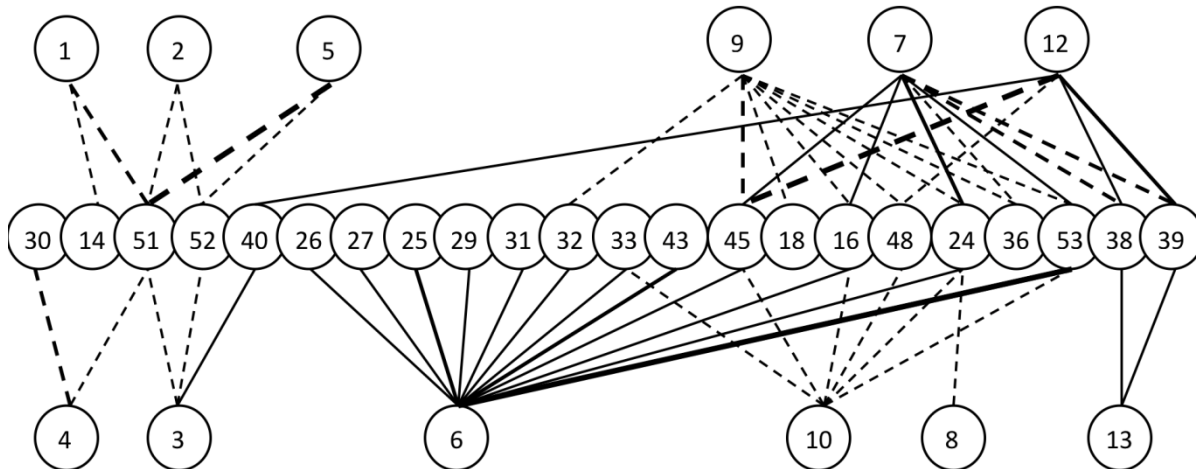


Figure 5. Interrelation of the processes of reflection with the cognitive state of *enthusiasm*

Note: — $p \leq 0.05$; - - - $p \leq 0.05$; ——— $p \leq 0.01$; - - - - $p \leq 0.01$; ——— $p \leq 0.001$; - - - - $p \leq 0.001$.

Looking at Figure 3, we can state that enthusiasm is hardly related to the processes of reflection. But there is another specificity. The biggest number of correlations of the state of enthusiasm is focused on self-reflection. In the state of enthusiasm, self-reflection is mediated by the intensity of physiological reactions (sensations in gastrointestinal tract, skin color, temperature sensations, the state of mucous membrane of the mouth, motor activity, muscle tone, respiratory effects, coordination of movements), by relaxed emotions, clarity and precision of representations and openness, consistency of behavior.

Recognition of the states of other people in the state of enthusiasm is associated with the characteristics of mental processes, physiological reactions, experiences and behavior. That is, the difficulty of the appearance of images, the decline of mental activity, temperature sensations and intensity of experiences, closeness, inconsistency and uncontrollability of behavior determine the recognition of mental states of other people. And social reflection is mediated by the clarity of the appearance of images, by the openness and consistency of respondents' behavior, as well as by immersion in the experiences.

The characteristics of the cognitive state of enthusiasm that have the greatest number of connections with reflection are revealed: instability/stability of behavior, inconsistency/consistency of behavior and temperature sensations. Changes in temperature sensations and in consistency/inconsistency of behavior are associated with self-reflection, social reflection, recognition of the states of others and awareness of one's own states. And the degree of stability of behavior in the state of enthusiasm is determined by the reflection of activity (retrospective reflection, reflection of current activity, consideration of future activity, reflection of communication and interaction).

4. Discussion

Reflection implies drawing the subject's attention to oneself and one's consciousness, in particular, to the products of one's own activity, as well as any of their reinterpretations. Speaking of reflection, we mean a thought process aimed at self-knowledge, the analysis of one's emotions, feelings, states and behavior. The level of reflection of mental states and the degree of its development determine the prospect of the regulation of states, the prospect of activity and interaction with others. Reflexive processes of the subject generate new meanings, creating and

defining emerging strategies and plans, ways and means of regulating mental states and behavior strategies.

With its signification, the mental state is objectified, becoming the object of reflection. Reflection and signification of mental state results in a certain meaning: reflection enables to recognize, assess, compare the actual states with the desired ones, to predict the states in various situations of life, rebuild the ways of actions, etc. The look “inside oneself”, the analysis of oneself is a process of cognition that is oriented on the inner world of the subject. That is, a person learns oneself showing cognitive activity thereby determining certain mental states that can be categorized as cognitive.

On the one hand, reflexive processes activate cognitive states; on the other hand, cognitive states are able to direct the subject's activity towards oneself and various spheres of life, reflecting on one's role in them, as well as on meanings, goals and results.

In our studies, we have identified frequently experienced states of students in educational activity and their connection with the processes of reflection. Our research has shown that the connection between reflection and the cognitive state of *interest* is determined through a series of characteristics of behavior and experiences that are manifested in the state and features of the reflection. Respondents, being in a state of interest, while reducing or increasing the intensity of certain characteristics of a given cognitive state, can activate the processes of self-reflection, social reflection, awareness and identification of their states and recognition of the states of other people.

Characteristics of the cognitive state of *reflection*, determining the course of physiological processes and sadness-cheerfulness of experiences, are most related to the processes of reflection. The reflection of actual activity, future activity, general indicator of the reflexivity of activity and recognition of the states of others are determined by the intensity of the cognitive state of reflection.

The cognitive state of *enthusiasm*, namely, the characteristics of physiological and behavioral reactions are more associated with reflection. In the actualization of certain characteristics of the state (reduction or increase of their intensity), students in a state of enthusiasm are capable of self-reflection of their actions, of social reflection, awareness of their states and their identification, as well as consideration of their future activities.

That is, being in this or that mental state belonging to the category of cognitive states, the subject of educational activity is capable of a certain reflection connected with human activity in the past, the present and the future, with the inner and the social world, with the processes of recognition, awareness and identification of their own states and states of other people. This relationship is based on a number of characteristics of the studied cognitive states, which reflect the specifics of the course of mental processes, experiences, physiological and behavioral reactions.

The relationship of cognitive states with reflexive processes is determined not only by the specificity of the cognitive states themselves and the intensity of their characteristics, but also by the situations of educational activity (lecture, examination). Reflexive processes during the lecture are correlated with mental processes included in the structure of cognitive states. This is quite understandable, since it is the mental processes (thinking, memory, perception, volitional processes, attention, etc.) that play an important role in the process of gaining knowledge in lectures, which is reflected in the structure of cognitive mental states of students. In the situation of the exam, which represents a stress factor for students, the leading role is taken by such reflexive processes as the ability to recognize the mood of another person, to recognize and identify one's own experiences, and motives, their overall intensity. Exactly these reflexive processes influence students' cognitive states during the exam.

That is, the situation of educational activities, depending on their level of stress, determines the specifics of the relationship between reflexive processes and cognitive states. It was also revealed that the structure of cognitive states is permeated with reflection. During the lecture, the students' reflection is more focused on themselves, on their own states and experiences, but during the exam reflexive processes are directed to recognize the states of others. Thus, we can state that the interaction of reflexive processes and cognitive states is situationally mediated.

5. Conclusions

The analysis of the research results aimed at revealing the specifics of the relationship between cognitive states and reflexive processes allows us to draw a number of conclusions:

(1) The interconnection of cognitive states and reflexive processes is caused by the intensity of the characteristics of cognitive states, by their structural organization, situations during educational activities and gender differences.

(2) In stressful life situations, the structure of communication and the inclusion of the components of reflection into relationships with states differs from everyday situations by greater frequency and complexity of interaction.

(3) Gender di-psychism is manifested in the fact that in men low intensity of states improves the recognition of one's own experiences and motives of behavior, whereas in women the awareness of experiences when actualizing the image of a state affects behavioral manifestations in life.

(4) In the educational situation of the lecture, the connection between reflection and the psychic processes that make up the structure of the students' cognitive states is most significant. In the situation of the exam, the ability to recognize the mood of another person, to recognize and identify one's own experiences, and the motives, their overall intensity, affect the cognitive states of students.

(5) The specifics of the relationship between reflection and cognitive states is revealed: the state of interest is associated with the processes of self-reflection, social reflection, awareness and identification of one's own states, recognition of the states of other people; a state of reflection with reflection of actual and future activity, general indicator of the reflexivity of activity and the recognition of the states of other people; a state of enthusiasm with the processes of self-reflection of one's own actions, social reflection, awareness of one's own states and their identification, as well as an analysis of one's own future activities.

Acknowledgments

The research was carried out with the financial support of the RFBR grant (Russian Foundation for Basic Research), project No. 17-06-00057 a.

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