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ORIGINAL ARTICLE

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In quest of the longest-lasting and most annoying pain for patients and for dentists. Quantitative and qualitative characteristics of temporomandibular myofascial pain dysfunction syndrome – a questionnaire study

BACKGROUND
Dysfunctions in the face, due to the psychological importance of the structures in the face and head, have long been a subject of interest for researchers exploring issues concerning health-related quality of life. The surprising results of previous clinical trials for myofascial pain dysfunction syndrome of the temporomandibular joints encouraged the present authors to plan a study focused on obtaining systematic knowledge of the issue.

PARTICIPANTS AND PROCEDURE
The study included 26 patients of the Masticatory System Disorders Laboratory of the Dental Prosthetic Clinic at the Jagiellonian University Medical College diagnosed with the painful form of muscle-related functional masticatory organ disorders. The study was part of a larger research project. The data to be analysed for this article was obtained in the course of a single questionnaire survey conducted prior to the start of the treatment process.

RESULTS
The results showed the quantitative characteristics of pain experiences in the clinical group, observed in the context of the circadian dynamics, psychophysical factors, and the location of pain, as well as their quality characteristics. The analyses showed negative covariances of the quality of life perceived by patients and the length of periods without pain, pain intensifying factors, and emotional image of pain. The strongest pain experienced by the patients negatively correlated with the quality of life related to the sphere of physical pain and mental distress, whereas the weakest pain correlated with the quality of life related to the social sphere. The lower quality of life occurred together with the frontal, zygomatic, mental, parotideomasseteric, and occipital region.

CONCLUSIONS
It is necessary to further analyse the issue on a larger sample in order to explain and clarify the obtained results.

KEY WORDS
chronic pain; temporomandibular disorders; myofascial pain syndrome; psychostomatology

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BACKGROUND

THE SIGNIFICANCE OF FACIAL PAIN EXPERIENCES ON THE PSYCHO-EMOTIONAL FUNCTIONING OF A PERSON

As stated by the International Association for the Study of Pain (IASP, 1994), pain should be seen as a psychosomatic phenomenon, i.e. in relation to its somatic sphere (sensation), psychological sphere (taking into account a cognitive and emotional component), and, connecting these two areas, the psychosomatic sphere (including a behavioural component). According to this reasoning, pain sensations are determined by a number of factors present both in the pain itself, its specificity and quality, and in the patient, their opinions about pain, previous experiences of pain, emotional assessment of pain situations, personality traits, or their structure (Ortenburger, 2008; Suchocka, 2008). Thus, pain located in different regions and having different aetiopathogenesis, although always inextricably linked with suffering, has a different psychological significance to a given person. Pain, especially chronic pain, experienced in the area of the mouth and face, seems to be all the more acute as it affects basic human activities, such as food intake or communication.

Due to the fact that the mouth and face are involved in these types of activities, the facial parts, with particular emphasis on the masticatory organ, can be considered key structures relevant to human survival. Their damage, often signalised by pain, prevents free food intake and often requires the help of another person, thus posing a threat to life, which in turn, raises legitimate fear in the patient, usually subconsciously (Eliasz, 2004). Such situations have further psychological consequences. Constant deprivation of physiological needs not only causes psychophysical discomfort, but also makes their satisfaction the primary driving force of human activities, resulting in the person's lack of interest in meeting higher-level needs (safety, love and belonging, esteem needs, and finally, self-actualisation). It also increases the sense of loss of control, affects dysregulation, or causes symptoms of anhedonia related to the loss of a number of sensory experiences (Maslow, 2013; Okeson, 2014; Patel & Schlundt, 2001; Ziółkowska, 2009; Ziółkowska & Mroczkowska, 2012). The mouth and face are also basic structures in the process of interpersonal communication, not only verbal but also non-verbal, expressed through facial expressions or eye contact between people participating in face-to-face interactions. The face can express as well as read expectations and opinions to build satisfying and meaningful relationships because it is a valuable source of information about the health and well-being of an individual. Social psychologists have pointed out that the face is more important in building interpersonal relationships than the first impression (which is nonetheless based on the face) (Asch, 1946; Oosterhof & Todorov, 2008; Vernon, Sutherland, Young, & Hartley, 2014). Thus, any experiences of pain in the face or mouth, especially in chronic form, threaten not only the possibility of effective, but also psychosocially satisfactory, interpersonal communication for the patient. These can result from a number of cognitive, emotional, and behavioural disorders linked to the experience of particularly severe and/or chronic pain (Engel, 1959; Flor & Turk, 2006; Gamsa, 1990). Therefore, the person who experiences pain within the craniofacial structures faces verification of their body image as a consequence; in other words, the way of self-perceiving, which in turn is an important component of the so-called self-image, is relevant to general well-being (Schwartz & Brownell, 2004). Distortion, asymmetry, and grimaces of pain noticeable in the appearance of the face, which might be caused by the evolution of masticatory organ dysfunctions, modify self-perception, contributing to considerable distress and mental strain. The change in self-perception is confirmed by the results of research in psychodermatology, indicating that patients with visible lesions in the face often suffer from depressive disorders with predominant symptoms of low self-esteem and mood as well as social withdrawal (Golchai et al., 2010; Öztürk, Deveci, Bağcioğlu, Atalay, & Serdar, 2013).

There are many psychological theories indicating the relationship between personality traits (understood in the terms of the emotional-cognitive-behavioural pattern) and life experiences, which influence the easiness of pain response to favourable factors and reinforce these responses to chronic conditions. Psychoanalysis is the concept that devotes a lot of attention to the facial region in this context, trying to relate all kinds of dysfunctions in this particular body region with disturbed psychosexual development. According to this concept, dysfunctions within the masticatory organ, as well as the way of experiencing pain related to them, are inextricably linked to the so-called oral stage of human development. This stage refers to the earliest period of human development, when one's first impulsive needs (such as hunger) are satisfied with work of the muscles in the region of the head, and above all, the muscles of the masticatory apparatus (Freud, 2011). Excessive needs deprivation in this period, e.g. related to early childhood diseases, physical or emotional absence of a parent, or a violent family situation, makes it easier for a person to respond with anger to the difficulties of everyday life while having difficulties expressing it. This is considered an important factor in the aetiological image of pain from masticatory organ dysfunctions (Mutlu, Herken, Güray, Öz, & Kalayci, 2002;

Thaller, Vrkljan, Hotujac, & Thakore, 1999; Von Korff, 1999). Interference in the course of oral stage development may also lead to a variety of disturbances within the masticatory organ, including impaired articulation of speech and the development of parafunctional habits within the masticatory organ (Nunberg, 1968; Shahraki, Yassaei, & Goldani, 2012). Experiencing pain secondary to masticatory organ dysfunctions in this group of patients appears to result in further psychological consequences, such as increased predisposition to react with sadness or increased irritability manifested in behaviour (Vickers & Boocock, 2005). The causes can be traced back to the characteristics of the pain experiences themselves, inscribed in the image of masticatory organ dysfunctions.

THE EXPERIENCES OF PAIN CHARACTERISTICS IN MASTICATORY ORGAN DYSFUNCTIONS

Pain inscribed in the masticatory organ dysfunctions is described, as proposed by the IASP (1994), as so-called myofascial pain dysfunction syndrome of the masticatory system (MPDS). Its diagnostic criteria include severe pain experiences, chronic or restricted to performing functional movements, and is often associated with limitation of movement of the jaw and acoustic effects when starting to use the temporomandibular joints. The concept was formed indicating that pain has a central place in the clinical image of this disorder (Laskin, 1969; Prusiński, 1996; Schwartz, 1959; Voss, 1964). Moreover, it seems that the presence of the experience of pain is more important than its intensity, which in fact appears to be higher for patients who experience pain due to the isolated parafunction of bruxism (excessive teeth grinding or jaw clenching), as well as for patients experiencing any sort of chronic pain (Dao, Lund, & Lavigne, 1994). The intensity of pain in MPDS is usually estimated at a value of 3-5 out of 10 cm on the visual analogue scale (VAS) (Bal & Celiker, 2009). What is characteristic of the general dynamics of the persistence of these kinds of experiences of pain is the fact that their level in these patients, who have been diagnosed correctly and subjected to adequate treatment, decreases at a significant rate; a significant reduction of pain is observed approximately one to two weeks after the start of treatment (Eliasz, 2004; Kino et al., 2005; Oliveira, 2005; Oliveira et al., 2003a; Van Grootel et al., 2005). However, whether or not the results obtained during therapy persist is debatable in this case. Lack of proper diagnostic and therapeutic activities may, in turn, cause the pain to consolidate, at the same time becoming less susceptible to traditional forms of treatment (Dworkin & LeResche, 1993; Dworkin & Massoth, 1994).

Today, attention is drawn to the diverse nature of the experiences of pain in the course of masticatory organ dysfunctions, related to their different pathomechanisms: musculoskeletal, skeletal, or muscular. Emphasis is put on the diversified characteristics, both quantitative and qualitative, of pain experiences depending on the aetiology of dysfunctions within the masticatory organ. According to the IASP (1994), when the bone is a significant component of the experience of pain, the patient usually describes the pain as sharp, acute, and penetrating. It is usually located in the temporomandibular joint and surrounding tissues. The pain is closely linked to chewing activities and is, typically, susceptible to analgesia using non-steroidal anti-inflammatory drugs. On the other hand, when the major contribution to pain is a muscle factor, it is characterised as diffuse and dull. Pain related to other anatomo-physiological areas is heterotopic; however, it is most frequently localised in the masseter muscles and muscle structures located around the ears. The most painful areas for patients seem to be ears, mandible/maxilla, and temples. Relevant mechanisms of pain include intraoral, jaw, supraorbital, and auriculotemporal regions, depending on the involved muscles and the intensity of the experiences of pain (Fricton et al., 1985; Simons, Travell, & Simons, 1999; Svensson & Graven-Nielsen, 2001; Wright, 2000). In cases when muscle is a significant component of pain, the region indicated by the patient might be different from the real source of pain. This type of pain is characterised by so-called "trigger points", which are hyperirritable muscle tissue groups (Travell & Simons, 1983). The previously mentioned study by Oliveira et al. (2003a) showed a significant correlation between the intensity of the experience of pain and the location of these trigger points. Therefore, when patients experience intense pain, the most painful area appears to be temporal, whereas in the case of moderate pain it is the region of the neck.

The emotional description of the pain experienced by patients who suffered from masticatory organ dysfunctions completes the characteristics of the experiences of pain within this group of patients. A few studies focused on this issue have shown significant differences concerning affective descriptions, which depend on the aetiological mechanism of dysfunctions. It was found that patients who suffer from a muscle-related functional masticatory organ disorder show significantly more emotional categories of the experiences of pain than patients who suffer from a bone-related form of these disorders (Mongini & Italiano, 2001). Importantly, the analysis of the terms chosen by the subjects to describe experienced ailments indicated that these terms vary depending on the experienced problem. In the case of muscle pain, patients often describe it as exhausting and intrusive (Watanabe et al., 2005). However, it turns out that differences in this respect, depending on the predominant pathomechanism of the disorder, might

be greater and localisation-related. Pihut et al. (Pihut, Szewczyk, Wiśniewska, & Gala, 2012) showed that there are some differences in the description of pain experiences by patients diagnosed with displacement of the articular disc (thus, bone-related) and by those with no apparent dysfunction of this type; in the first case, the patients' descriptions were significantly more emotional. The analysis of the data suggests a different level of comfort of everyday functioning of the patients, depending on the kind of experience of pain. Health-related quality of life is a construct that should include, among others, the psycho-emotional aspect of patient function.

PAIN IN FUNCTIONAL DISORDERS OF THE MASTICATORY ORGAN AND HEALTH-RELATED QUALITY OF LIFE

The concept of "quality of life" was introduced into medicine in the 1970s, referring in its form to social sciences. According to the World Health Organisation's definition, quality of life covers almost all aspects of human life, understood as an "individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, and standards determined by features of their environment" (1995, p. 1403). Therefore, today quality of life can be defined as an "individual's comprehensive evaluation of their physical health, psychological state, social relationships, level of autonomy and independence from other people, personal beliefs and convictions" (Tobiasz-Adamczyk, 1996, p. 36). Determined by the state of health, occurring diseases, and the natural aging process, it is based on a multidimensional concept of health-related quality of life (HRQOL). The concept was introduced by Schipper et al. (Schipper, Clinch, & Olweny, 1996), who defined it as "a functional effect of the disease and consequences of treatment perceived (experienced) by the patient".

There are many concepts that take different components of this definition of quality of life into account. For example, Siegrist and Junge (1989) point to three interrelated aspects: physical conditions (loss of performance, the presence of pain), psychological (depression, anxiety, mental state), and social (social isolation, behaviour during disease). Künsbeck et al. (1990) further developed this concept by dividing the components of quality of life into subjective ones, which categorised all the components addressed by Siegrist and Junge plus the interpersonal aspect (social support, interpersonal conflicts, interpersonal relations) as well as the objective ones, including the state of health evaluated on the basis of laboratory test results, psychopathological diagnosis, and socio-economic status (Tobiasz-Adamczyk, 2000). As noted by Tobiasz-Adamczyk (2006), a constantly progressive increase in interest in health-related quality of life concerns groups of patients experiencing various diseases. Inclusion of emotional experiences, mental state, and the ability to function in everyday life in the biological assessment of health seems to be particularly important in the context of these diseases, in which recovery is temporary or incomplete. It appears that functional disorders of the masticatory organ can be considered a disease of this kind.

As a disorder in the stomatognathic system, masticatory organ dysfunctions are considered in the context of the concept of oral health-related quality of life. Oral health, as indicated by Dolan (2013), is a state of comfortable and functional dentition, which allows an individual to fulfil their social roles. A broader definition was formed by, among others, the Canadian Dental Association (2001), whose members defined oral health as a state in which the oral cavity and related tissues and structures positively affect physical, mental, and social well-being, and allow an individual to speak, intake food, and participate in social life unhindered by pain, discomfort, or embarrassment. Oral health-related quality of life should be considered a multidimensional concept that changes over time. Similarly to the health-related quality of life, there are many definitions of the above-mentioned concept. For example, Inglehart and Bagramian (2002) distinguish physical functioning and the presence of pain, but also social and psychological aspects within the concept. In contrast, Sischo and Broder (2011) believe that the oral health-related quality of life perceived by patients is affected by the following factors: oral cavity health, functioning, environment, emotional and social factors, and satisfaction with treatment. A conceptual framework for measuring the oral health-related quality of life was formulated by Locker (1988), who tried to include all the possible functional and psychosocial consequences of oral cavity diseases in it. People who suffer from disorders in the stomatognathic system are, by definition, experiencing damage to the body. When these changes are extensive, they lose the ability to perform everyday activities, such as speaking freely or eating certain kinds of food, which indicates a functional limitation that, in consequence, leads to disability. As a result, the above-mentioned issues limit readiness to function in social relations, resulting in impairment. It is more likely for a disability to occur simultaneously with functional limitation and discomfort, whereas impairment is most likely to occur when disability, discomfort, and functional limitations coexist.

Considering quality of life related to painful masticatory organ dysfunctions, it should be noted that it will affect painless chewing of food in a functional or physical aspect. Regarding the psychosocial aspect, attention should be paid to the ability of free conversation with others, a mimic response proper

to the course of interaction not interrupted by pain, or, on the other hand, unhindered by embarrassment caused by wearing an occlusal splint to relieve the ailments. Moreover, the presence of chronic pain might lead to increased irritability and loss of attentiveness in interpersonal relations, as well as the tendency to avoid contact with other people, resulting from, among others, difficulties in performing the social function of eating. The painful form of masticatory organ dysfunctions determines everyday functioning, negatively affecting the quality of sleep or execution of daily tasks (Resende et al., 2013).

Systematic research dedicated to these issues indicates that pain experienced due to masticatory organ dysfunctions significantly reduces the quality of patients' functioning in the areas such as energy, physical mobility, sleep, emotional reactions, and, finally, pain (Bal & Celiker, 2009; Dao, Lund, & Lavigne, 1994). The dynamics of changes in the experiences of pain and progressive changes in other aspects of quality of life seem to be particularly interesting. Longitudinal studies (Alajbeg, Gikić, & Valentić-Peruzović, 2014) showed that the health-related quality of life of patients with masticatory organ dysfunctions, who suffer from myofascial pain, show regular improvement during stabilisation splint therapy – at least during the six-month period included in the study observations. Reduced intensity of pain together with better ability to open the mouth wider transpired to be an important factor determining improvement in the quality of life. Interestingly, the initial level of pain experienced, measured by the quantitative VAS scale, does not seem, in this context, to be an important factor, and nor were age or duration of dysfunction (Oliveira et al., 2003a, 2003b).

Another longitudinal study, covering a period of six months (Reisine & Weber, 1989), showed that although the measured level of pain experienced by patients reduced over time, functional aspects, and those associated with oral cavity health, did not undergo substantial improvement. This difference may be due to the relatively slow response of these parameters to the process of treatment, in contrast to the relatively fast response of pain. The same authors also described a relatively low estimation of well-being and high estimation of anxiety, which might indicate the psychological characteristics of this group of patients, as well as the interesting observation that persistent experiences of pain (even if there was a significant reduction of the symptoms) are associated with the lack of improvement in perceived quality of life. At the same time, there were no significant differences in symptoms of social isolation compared to the group of healthy subjects, indicating that these patients do not show problems related to the social sphere. However, other authors argue that social disorders are secondary to the unresolved disorders of a dental nature (Oliveira et al., 2003b).

In view of the above few empirical reports, the purpose of this study was to acquire broader knowledge of the specifics of the health-related quality of life among patients with muscle-related masticatory organ dysfunctions, with particular emphasis on the characteristics of experienced pain. Considerations about pain were extended to include its localisation and quality characteristics, which have not been addressed yet in the available publications dedicated to patients suffering from masticatory organ dysfunctions, and what the authors considered an important complement to the analysed issue. Thus, the study attempted to answer two key research questions:

- Which aspects of everyday function of patients with masticatory organ dysfunctions are the greatest nuisance for most patients?
- How does the image of the health-related quality of life in this group of patients change depending on the duration, localisation, intensity, and nature of pain?

PARTICIPANTS AND PROCEDURE

THE SUBJECTS

The study was part of a bigger, long-term research project that took place between June 2014 and June 2016. A total of 65 subjects began the project; however, 39 participants dropped out after the first phase of studies, and the retention rate was 40.00%. The dropout was related to chance events, which are not considered related to the clinical picture. The analysis eventually included the results of 26 patients (18 women and eight men) from the Masticatory System Functional Disorders Laboratory of the Dental Prosthetic Clinic at the Jagiellonian University Medical College. The average age of the subjects was 36 years (SD = 12.00), the youngest subject was 20, and the oldest was 68 years old. The subjects were recruited from patients who sought medical attention due to preauricular region pain and were diagnosed by a specialist in prosthetic dentistry with the painful form of muscle-related functional masticatory organ disorders. All patients were first-time visitors to the clinic with the purpose of diagnosis and complex specialist treatment, in generally good health, with complete dental arches, and without injury history over the preceding two years. Financial compensation for participation in the study was not provided; however, the patients had the opportunity to attend five psychoeducational meetings with a psychologist, aimed at increasing awareness of a psychogenic factor in functional masticatory organ disorders and better coping with stress by learning techniques for reducing the level of perceived psychophysical tension.

METHODS

The set of questionnaires consisted of three tools: Questionnaire Regarding Pain Sensations in Masticatory Organ Dysfunctions, Pain Evaluation Sheet, and Oral Health Impact Profile.

Questionnaire Regarding Pain Sensations in Masticatory Organ Dysfunctions is an original, self-descriptive tool consisting of nine questions, directed at obtaining basic socio-demographic data. Information regarding the frequency, dynamics, and intensity of pain, and taking into account decreasing and increasing pain, and the use of painkillers as well as the localisation of the experiences of pain.

Pain Evaluation Sheet modified by Szatanik (1985) allows the measurement of pain intensity based on the words chosen by the subject, which the most accurately describe their feelings at the moment. Additionally, it provides a qualitative measurement of the experiences of pain, taking into account sensory and emotional aspects. The tool consists of 43 words divided into 20 groups, taking into account two categories: items 1-15 are the sensory category, and items 16-20 are the emotional category.

Oral Health Impact Profile is a self-descriptive tool aiming to determine dysfunctions, discomfort, and disability attributed to the condition of the oral cavity. The questionnaire consists of 49 questions, of which three concern dentures, and, according to the authors' instructions, they are omitted in the case of patients who do not have this problem. Since most of the subjects who took part in the test procedure did not have dentures, which was also the case in the current study, the questions were omitted in the questionnaire presented to the subjects and, therefore, in the further analyses. The instructions to the questionnaire indicated that the next questions concern only those experiences that result from functional disorders of the masticatory organ. The questionnaire consists of a list of potential consequences of the experienced disorders and their impact on everyday functioning of the subjects in several areas, namely: functional limitations, physical pain, psychological discomfort, physical limitations, psychological limitations, interpersonal limitations, and disability/impairment concerning performance of social roles such as working. The subjects were asked to indicate on a Likert five-degree scale how often they experience particular problems in relation to the period of time indicated in the instructions; in the study it was one month. The possible answers are: 1 – *very often/all the time*, 2 – *quite often*, 3 – *sometimes*, 4 – *hardly ever*, or 5 – *never*. The questionnaire is characterised by high internal reliability; Cronbach's coefficient α in the analyses (Locker & Slade, 1993; Slade & Spencer, 1994; Slade et al., 1996) amounted to between .70 and .96 for all subscales, but in one study (58) it amounted to .37 for the subscale of disability. In our study, internal reliability was high, ranging between .74 for psychological discomfort and .92 for impairment of social roles.

PROCEDURE

The patients who, due to masticatory organ dysfunctions, entered the Functional Disorders Clinic for prosthetic treatment were invited by the attending physician to participate in the study preceded by a briefing with a psychologist conducting the test procedure. The main criterion to participate in the study was diagnosis of a painful form of muscle-related functional organ disorders in the clinical picture. The exclusion criteria were the patients' will and general diseases that prevent the planned test procedure.

After obtaining the patient's consent to meeting with a psychologist, which was intended to explain the purpose and procedures of the study, the psychologist asked the patients if they wanted to participate in the study, providing them with sufficiently detailed information about the project.

Subsequently, the subjects were invited to a meeting during which they were asked to fill in paper-pencil questionnaires, as established in the test procedure. The study was conducted individually and was held in the presence of a psychologist. The complete test procedure lasted approximately 20 minutes.

ETHICAL CONSIDERATIONS

The study protocol was approved by the Bioethical Committee of Jagiellonian University (decision number KBET/172/B/2014). Potential participants received a copy of the consent document to read before the screening visit. At the screening visit, the principle investigator reviewed the informed consent document with the potential participant, who then had the opportunity to ask questions. Each participant was informed that the study was conducted as part of a doctoral thesis in the field of psychology, and its goal was to study the issue of pain in masticatory organ dysfunctions as well as its impact on everyday life. The person informing participants about the study assured them that the study was anonymous and participation was voluntary, he/she also emphasised that the results would not be used in any way by the medical staff. Participation in the study were provided an opportunity to gain free prothetical diagnosis and psychoeducation on stress management. If an eligible patient decided to enrol in the study, the investigator then obtained written consent.

RESULTS

DESCRIPTION OF PAIN IN THE GROUP OF SUBJECTS

The vast majority of people surveyed (9 people) at the time of the study experienced pain associated with masticatory organ dysfunctions several times a day, and another three people less frequently, i.e. 1-2 times a day. Among the people surveyed were subjects who experienced pain in a continuous manner, i.e. all the time (three people). Four people experienced pain several times a week, while seven people experienced it several times a month or less frequently.

More than half of the respondents reported that the pain had not changed significantly since the first diagnosis of masticatory organ dysfunctions (15 people). Five of the subjects claimed that the pain increased, while six said that the pain reduced.

At the time of the study, the vast majority of the respondents estimated that the experienced pain was between two and six on the quantitative scale.

The subjects felt the strongest pain between 4 pm and 6 pm. It can be also observed that it began to systematically increase at 12 pm and gradually fall until 8 pm. Thus, pain was significantly less intense before 12 pm and after 8 pm. Relatively few people reported pain in the morning and at night. Thanks to the so-called spaghetti diagram, a precise observation of changes in pain pathways in individual subjects over time is possible. The presented diagram allows the observation that the previously described dynamics of pain in this studied group is relatively homogenous, although it is possible to identify a few people among the subjects who had a different pain pattern, but these are rather isolated cases. For example, there was a person among the subjects who felt the strongest pain during late evening and maximum pain intensity persisted until late night. A thorough analysis of the patient's medical records suggests that the bone component, in her case, takes a relatively greater part in the overall image of dysfunction in comparison to other subjects.

The factors indicated most frequently by the subjects as pain intensifying were: fatigue (19 responses), deliberate movements of the jaw (18 responses), food intake (18 responses), cough (15 responses), standing position and cold air (14 responses each), and noise (13 responses). The subjects chose significantly fewer pain reducing factors than factors that increase this kind of ailment; few responses included a lying position or caffeinated drinks (11 responses).

As many as 20 of 26 subjects experienced pain on both sides of the head and neck. Most of the subjects indicated the right side (15) and the left side (12) of the temporomandibular joint region, as well as the right side (12) and the left side (11) of the auricular region. Subsequently, the subjects indicated the right side (10) and the left side (9) of the parotideomasseteric region, and the right and the left side (9) of the posterior triangle of the neck.

The factors most intensifying pain were assigned to the infraorbital region; however, they were indicated only by one subject, who claimed that he/she felt pain in this part of the face. The regions of pain in which experienced pain was intensified by a significant number of factors and which were indicated by a minimum of 35.00% of the subjects were: the left and the right side of the posterior triangle of the neck, the right side of the parotideomasseteric region, and the left side of temporomandibular joint

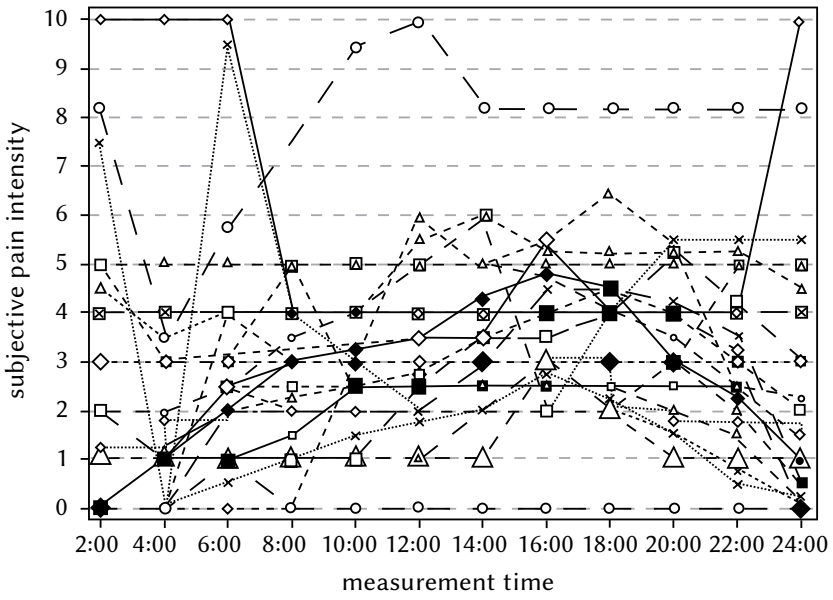

Figure 1. The spaghetti diagram illustrating paths set by the change in pain intensity within 24 hours for all the subjects.

Table 1

Factors increasing, reducing, or having no impact on the experiences of pain as indicated by the subjects. Colours used in table fields reflect intensity of a given factor in a given category, i.e. from intense green (no impact) to intense orange (strong impact)

	reduced pain	no impact	increased pain
	number	number	number
deliberate movements of the jaw	4	4	18
food intake	2	6	18
running	0	21	5
verticalization	0	21	5
hot air	1	20	6
warm food/drinks	1	21	4
standing position	2	21	3
vibrations	1	12	14
cold air	4	16	7
strong emotions	0	12	14
cold food/cold drinks	4	11	11
lying position	6	15	5
alcohol	11	11	4
massage/rubbing	6	11	9
fatigue	5	9	12
sudden movements	1	6	19
sitting position	3	13	10
cough	0	14	12
noise	0	11	15
caffeinated drinks	0	11	13
walk	11	14	1
physical effort	4	11	11
moisture	4	15	8
other factors	3	22	1

region (10 factors intensifying pain), followed by the right side of the temporomandibular joint region, the left and the right side of the auricular region (9 factors intensifying pain), and the left side of the parotideomasseteric region (8 factors intensifying pain).

The subjects indicated significantly fewer factors reducing pain in the specific anatomical regions of the head and neck than factors that increase the experiences of pain. Most responses regarding factors reducing pain, indicated by a minimum of 35.00% of the subjects, concerned the right and the left side of the posterior triangle of the neck, the left side of the temporomandibular joint, the left side of the auricular region (an average of 4 factors), followed by the right side of the parotideomasseteric region and the right side of the temporomandibular joint region (an average of 3 factors).

Analysis of the average of the medians of estimated intensity of pain experiences showed that the highest values were linked to the infraorbital region (M = 7.33) and the right side of the buccal region (M = 6.33) as painful; however, each response was given only by one person. The relatively high averages of the medians of the estimated pain experiences having a higher number of responses were related to the left side of the mastoid region (M = 5.67), the right side of the occipital region (M = 5.33), the left side (M = 5.17) and the right side (M = 5.00) of the parotideomasseteric region, the mental region (M = 5.00), the left side of the posterior triangle of the neck (M = 4.67), and the nuchal region (M = 4.33). The highest medians of the recorded values of pain experiences were linked to the right side of the buccal region (Me = 11.00) – estimated by one subject

Table 2

Number of responses indicating the pain regions and the percentage regarding pain localised in different regions of the face and neck (anatomical division after Aleksandrowicz and Ciszek [2013], completed and changed after an oral consultation with a physiotherapist, Piotr Kazana)

region of face	number of subjects	% subjects
nuchal	4	16.00
mental	3	12.00
infraorbital	1	4.00
suboccipital	5	20.00
occipital right	2	8.00
occipital left	2	8.00
posterior triangle of the neck right	9	36.00
posterior triangle of the neck left	9	36.00
mastoid process right	6	24.00
mastoid process left	7	28.00
parietal right	1	4.00
parietal left	1	4.00
frontal central	4	16.00
frontal right	2	8.00
frontal left	2	8.00
temporal right	8	32.00
temporal left	3	12.00
parotideomasseteric right	10	40.00
parotideomasseteric left	9	36.00
buccal right	1	4.00
buccal left	0	0.00
zygomatic right	5	20.00
zygomatic left	5	20.00
temporomandibular joint right	15	60.00
temporomandibular joint left	12	48.00
inferior mandibular ramus right	7	28.00
inferior mandibular ramus left	7	28.00
auricular right	12	48.00
auricular left	11	44.00
nasal	2	8.00
symptoms on both sides	20	80.00

– the right and the left side of the parietal region (*Me* = 10.00), the left side of the zygomatic region (*Me* = 10.00), the nuchal region (*Me* = 10.00), the left side of the mastoid region (*Me* = 9.00), the left and the right side of the parotideomasseteric region (*Me* = 9.00), and the right side of the auricular region (*Me* = 9.00).

Analysing the medians of the frequency of the pain experienced, it can be noted that there is a clear distinction between the regions in which the subjects observed the presence of pain several times a day, and the ones in which pain occurred less frequently – several times a week. The first group includes the right and the left side of the temporomandibular joint region, both sides of the auricular region, the right side of the temporal region, both sides of the mastoid region, both sides of the inferior mandibular

Table 3

Number of responses indicating the pain regions and the percentage regarding pain localised in different regions of the face and neck (anatomical division after Aleksandrowicz and Ciszek [2013], completed and changed after an oral consultation with a physiotherapist, Piotr Kazana)

region of face	number of subjects	% subjects
nuchal	4	16.00
mental	3	12.00
infraorbital	1	4.00
suboccipital	5	20.00
occipital right	2	8.00
occipital left	2	8.00
posterior triangle of the neck right	9	36.00
posterior triangle of the neck left	9	36.00
mastoid process right	6	24.00
mastoid process left	7	28.00
parietal right	1	4.00
parietal left	1	4.00
frontal central	4	16.00
frontal right	2	8.00
frontal left	2	8.00
temporal right	8	32.00
temporal left	3	12.00
parotideomasseteric right	10	40.00
parotideomasseteric left	9	36.00
buccal right	1	4.00
buccal left	0	0.00
zygomatic right	5	20.00
zygomatic left	5	20.00
temporomandibular joint right	15	60.00
temporomandibular joint left	12	48.00
inferior mandibular ramus right	7	28.00
inferior mandibular ramus left	7	28.00
auricular right	12	48.00
auricular left	11	44.00
nasal	2	8.00
symptoms on both sides	20	80.00

ramus, and the suboccipital region. The second group consists of both sides of the posterior triangle of the neck, both sides of the parotideomasseteric region, and both sides of the zygomatic region.

Analysing the pain reported by the subjects in terms of quality, the estimated intensity of sensory and emotional pain was converted so that it could reach the minimum theoretical value (0) and the maximum theoretical value (1). In order to do this, the raw score was divided by the maximum value of the given scale (i.e. 170 for sensory pain [34 questions × 5 points] and 55 for emotional pain [11 questions × 5 points]). Therefore, the obtained values are presented as a percentage of the maximum score. The estimates regarding emotional pain and the ones regarding sensory pain were attributed, to a large extent, to the same values, although in the case of emotional pain slightly higher estimates appeared as well. Moreover, a Spearman's ϱ correlation analysis showed that, on average, greater emo-

Table 4

Number of responses indicating factors increasing and reducing pain

Factors increasing pain		
anatomical area of the head/neek	number	average number of factors increasing pain
buccal left	0	–
infraorbital	1	11.00
posterior triangle of the neck left	9	10.67
mental	3	10.33
parotideomasseteric right	10	10.00
suboccipital	5	10.00
buccal right	1	10.00
posterior triangle of the neck right	9	9.89
temporomandibular joint left	25	9.73
temporal left	3	9.67
zygomatic right	5	9.60
temporomandibular joint right	12	9.25
auricular left	11	9.09
mastoid process left	7	9.00
auricular right	12	8.67
parotideomasseteric left	9	8.44
zygomatic left	5	8.40
mastoid right	6	7.67
nuchal	4	7.25
occipital right	2	7.00
frontal	4	6.75
frontal right	2	6.50
frontal left	2	6.50
nasal	2	6.50
inferior mandibular ramus right	7	6.29
inferior mandibular ramus left	7	6.29
parietal right	1	6.00
parietal left	1	6.00
temporal right	8	5.88
occipital left	2	4.50

(Table 4 continues)

tional pain reported by a subject correlated with greater sensory pain: $\varrho = .63$, $p < .001$.

PAIN AND QUALITY OF LIFE

To verify the statistical significance of correlation between variables: frequency of pain and quality of life, a series of Pearson's r correlations was performed, but it did not show any statistically significant differences.

However, it showed a weak tendency indicating that the longer the periods of time without pain the subjects experienced, the higher their average estimates of quality of life: $\varrho\ (24) = .41$, $p < .05$ (Fig. 2). Covariance proved to be statistically significant only for quality of life seen as a whole; there were no statistically significant covariances for the remaining categories of quality of life.

To find out whether the intensity of the strongest and the weakest pain experienced by the subjects at

Table 4

(Table 4 continued)

Factors reducing pain		
anatomical area of the head/neck	number	average number of factors increasing pain
buccal left	0	–
temporal left	3	5.00
buccal right	1	5.00
posterior triangle of the neck left	9	4.44
posterior triangle of the neck right	9	3.89
suboccipital	5	3.80
zygomatic right	5	3.80
temporomandibular joint left	15	3.73
auricular left	11	3.64
mental	3	3.33
parotideomasseteric right	10	3.10
infraorbital	1	3.00
mastoid process left	7	3.00
parietal right	1	3.00
parietal left	1	3.00
zygomatic left	5	3.00
mastoid process right	6	2.83
temporomandibular joint right	12	2.67
temporal right	8	2.38
parotideomasseteric left	9	2.22
auricular right	12	2.17
inferior mandibular ramus left	7	2.14
inferior mandibular ramus right	7	2.14
occipital right	2	1.50
frontal	4	1.50
nuchal	4	1.00
occipital left	2	1.00
nasal	2	1.00
frontal right	2	0.50
frontal left	2	0.50

the time of the study showed any covariance with the scores on the quality of life scales, further correlation analyses were performed. The obtained results, showing statistically significant negative correlation between the estimates of the strongest experiences of pain and quality of life, suggested that the higher the estimates of the strongest pain related to the masticatory organ dysfunctions, the lower the overall quality of life of the subjects: $\varrho\ (24) = -.40$, $p < .05$. The obtained results also showed a statistically significant negative correlation between the strongest pain and physical pain domain of quality of life: $\varrho\ (24) = -0.52$, $p < .010$, and the strongest pain and psychological discomfort domain of quality of life: $\varrho\ (24) = -.51$, $p < .010$. Thus, the higher the estimates of the strongest pain felt by the subjects, the lower the quality of

Table 5

Frequency of the experiences of pain localised in different regions

anatomical region of head/neck	frequency number
buccal right	1
posterior triangle of the neck right	9
posterior triangle of the neck left	9
parotideomasseteric left	9
zygomatic right	5
zygomatic left	5
nuchal	4
mental	3
temporal left	3
occipital left	2
occipital right	2
parietal right	1
parietal left	1
parotideomasseteric right	10
temporomandibular joint left	15
temporomandibular joint right	12
auricular right	12
auricular left	11
temporal right	8
mastoid process left	7
inferior mandibular ramus right	7
inferior mandibular ramus left	7
mastoid process right	6
suboccipital	5
infraorbital	1
frontal central	4
frontal right	2
frontal left	2
nasal	2
buccal left	0

life related to the experienced physical pain and the lower psychological comfort felt by the subject. The weakest pain felt by the subjects negatively correlated only with quality of life social dysfunctions: ϱ (24) = −.47, $p < .05$. This result shows that the lower the estimates of the weakest pain related to masticatory organ dysfunctions, the higher the quality of life related to social functioning. There were no statistically significant covariances between the estimates of currently experienced pain and quality of life.

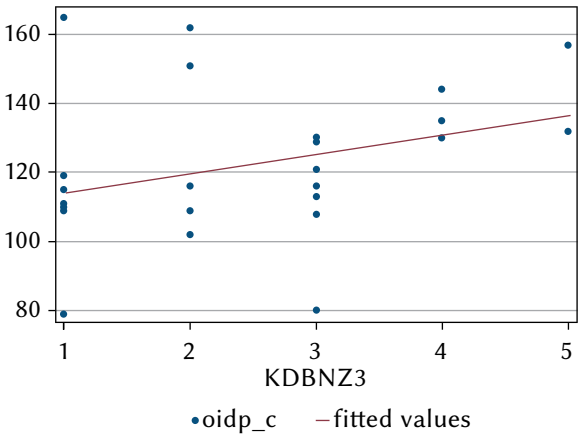

Figure 2. The length of period of time without pain and the estimated quality of life: ϱ (24) = .41, $p < .05$.

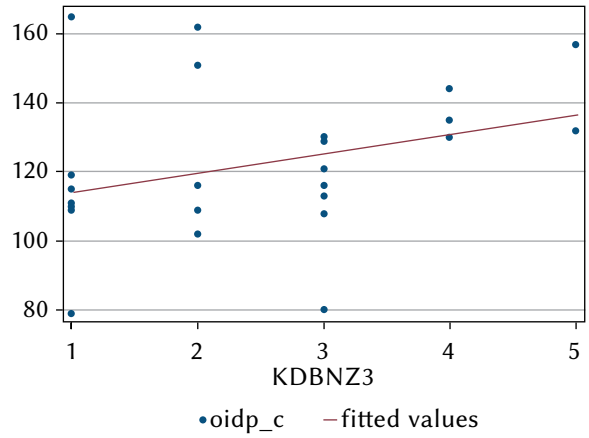

Figure 3. Number of indications localising the experiences of pain and quality of life: ϱ (24) = −.38, $p = .050$.

The expected covariance of quality of life and the number of factors that intensify or reduce pain experienced due to masticatory organ dysfunctions was confirmed by performing further Spearman's rho correlation analyses. Statistically significant but negative effects for factors reducing pain and quality of life as a whole were obtained: ϱ (24) = −.44, $p < .05$, and factors reducing pain and quality of life physical dysfunctions: ϱ = −.50, $p < .01$. At the same time, the analyses showed statistically significant negative correlations between the number of factors intensifying the experiences of pain and quality of life as a whole: ϱ = −.46, $p < .05$, quality of life functional limitations: ϱ (24) = −.41, $p < .05$, quality of life physical pain: ϱ = −.43, $p < .05$, quality of life physical dysfunctions: ϱ (24) = −.45, $p < .05$, and quality of life psychological dysfunctions: ϱ (24) = −.40, $p < .05$. Thus, the results of the analyses lead to the conclusion that the more pain intensifying factors in

the masticatory organ dysfunctions, the lower the overall quality of life and quality of life related to the experienced physical pain, physical functioning, and psychological functioning.

To determine whether quality of life showed covariance for both the sensory category of pain and the emotional category of pain, further correlation analyses were performed. They showed statistically significant effects only for the emotional category of pain. There was a negative correlation between quality of life as a whole and the emotional category of pain: ϱ (24) = −.47, p = .01. Therefore, the higher the emotional category of pain, the lower the overall quality of life of the subjects. Other statistically significant correlation analyses were related to quality of life physical dysfunctions: ϱ (24) = −.47, p = .015, and quality of life psychological dysfunctions: ϱ (24) = −.44, p < .05. These results indicate that the stronger the experienced emotional pain, the lower the quality of life viewed in terms of physical and psychological functionality.

Correlation analysis confirmed that the greater the number of localisations of pain indicated by the subjects, the lower the perceived quality of life: ϱ (24) = −.38, p = .055.

Observation of the average estimates of quality of life showed that people who experienced pain localised in the right and the left side of the frontal region, both sides of the zygomatic region, the mental region, the parotideomasseteric region, and the right side of the occipital region had the lowest level of quality of life. People having the highest quality of life had localised pain in the buccal region, the right side of the temporal region, the central part of the frontal region, the left side of the parotideomasseteric region, and the right side of the posterior triangle of the neck.

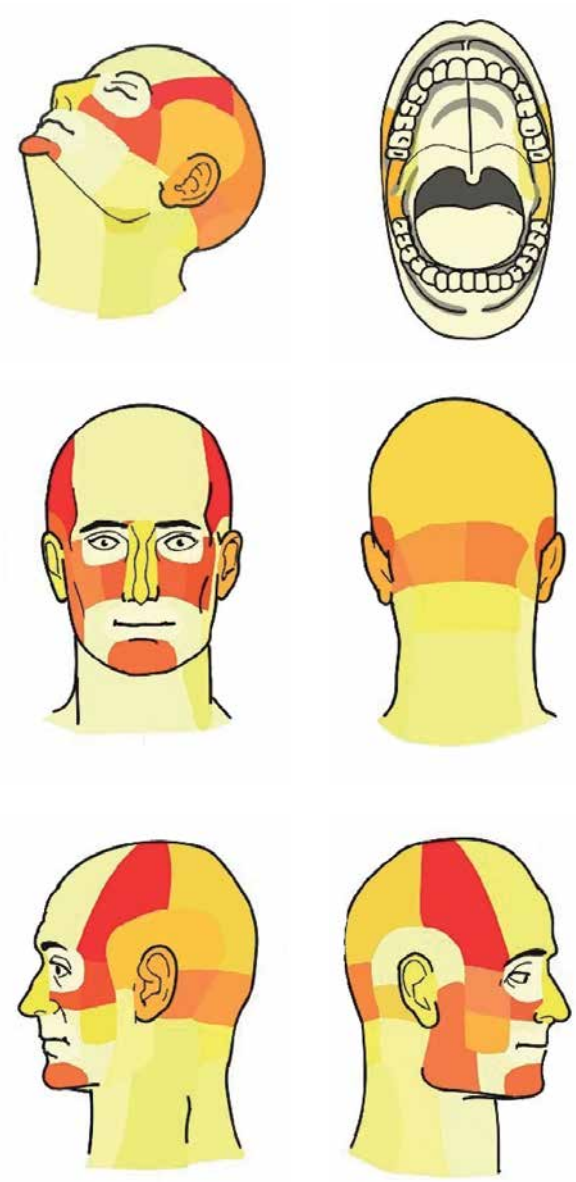

Figure 4. Face and mouth profiles illustrating correlations between different pain areas and quality of life. Less intense colours indicate worse quality of life.

DISCUSSION

The pain characteristic of the clinical group of patients suffering from masticatory organ functional disorders was described by the subjects as chronic, experienced several times a day. At the time of the study, most of the subjects reported persistent pain. This is consistent with the fact that all the subjects entered the clinic following an often long diagnostic process that was frequently preceded by previous therapeutic failures, and the study was directly preceded by the therapeutic process. Pain intensity estimated by the patients is consistent with previous reports, indicating moderate estimates of pain on the quantitative scales. However, contrary to previous reports, which indicated that pain was persistent in the evening, the studied group felt the most intense pain in the late afternoon. This interesting difference deserves intercultural considerations. The hours during which pain was the strongest, in the case of people working in Poland, were the hours at the end of the day shift. Pain seems to be correlated with a possible progressing physical and mental fatigue associated with fulfilling professional duties. Consistency of this interpretation can be emphasised by the fact that symptoms were reported to gradually build-up from the beginning of the day. This mechanism can be explained by a significant accumulation of the factors that intensify pain in a work environment. Taking into account only those listed in the study by the subjects, which might be associated with a work environment, the following can be listed: strong emotions, progressing physical fatigue, increased coffee consumption, physical effort, and/or sitting

Table 6

The average estimates of quality of life among groups of patients experiencing different frequencies of pain experiences in the given regions of the face and neck

anatomical region of head/neck	number	average	the standard error of the average	median	max	min
buccal left	0	–	–	–	–	–
buccal right	1	130.00	–	130.00	130	130
temporal right	8	126.38	7.60	115.50	162	109
frontal central	4	126.25	12.17	117.00	162	109
parotideomasseteric left	9	124.44	8.53	130.00	165	80
posterior triangle of the neck right	9	123.67	5.25	116.00	157	109
nuchal	4	122.25	18.14	122.00	165	80
inferior mandibular ramus right	7	120.86	10.94	113.00	162	80
inferior mandibular ramus left	7	120.86	10.94	113.00	162	80
posterior triangle of the neck left	9	118.00	3.51	116.00	135	108
suboccipital	5	117.80	14.12	110.00	162	80
auricular right	12	117.00	7.36	112.00	165	79
nasal	2	117.00	4.00	117.00	121	113
temporomandibular joint left	15	116.73	5.48	113.00	157	79
mastoid process right	6	116.33	10.80	109.00	157	80
parietal right	1	116.00	–	116.00	116	116
parietal left	1	116.00	–	116.00	116	116
temporal left	3	116.00	8.08	116.00	130	102
temporomandibular joint_ right	12	115.67	6.56	112.00	157	79
auricular left	11	114.64	7.12	113.00	165	79
occipital left	2	114.00	1.00	114.00	115	113
mastoid process left	7	113.29	7.67	109.00	144	80
zygomatic right	5	113.20	1.24	113.00	116	110
occipital right	2	113.00	2.00	113.00	115	111
parotideomasseteric right	10	111.70	7.67	109.50	165	79
mental	3	111.33	1.85	110.00	115	109
Infraorbital	1	111.00	–	111.00	111	111
zygomatic left	5	107.40	6.94	115.00	116	80
frontal right	2	100.50	20.50	100.50	121	80
frontal left	2	100.50	20.50	100.50	121	80

position. Review of the literature regarding the issue of stress provides an alternative explanation for this mechanism, indicating that physiological and emotional consequences of stress might be long-term and persistent despite the cessation of the stressor's impact. This, in turn, is consistent with numerous previous empirical reports, which indicated a role for the emotional factor in masticatory organ dysfunctions (Alves, Alchieri, & Barbosa, 2013; Buljan, 2009; Fillingim et al., 2013; Glaros, Williams, & Lauste, 2005; Makowiec-Dąbrowska et al., 2009; Pihut, Gierowski, Cerankiewicz, & Ferendiuk, 2015; Rugh, Woods, & Dahlstrom, 1993).

It should be noted that among the factors intensifying pain, as indicated by the subjects, were both physical factors, directly or indirectly influencing the stomatognathic system, and psycho-emotional factors, confirming that the experience of pain is multifactorial and multifaceted (Łazowski, 1989; Styczyński, 2001). The subjects indicated significantly fewer factors reducing pain than factors intensifying pain. This information allows indirect inference that people feel considerably helpless in the face of the experienced pain. Aside from the possibility that, in fact, more factors intensify pain experiences in masticatory organ dysfunctions than reduce them, it is important to emphasise the need to educate patients about things as basic as countermeasures against pain. The fact that all the subjects were taking significant quantities of painkillers suggests that, to a large extent, pharmacological agents are a remedy for pain for the subjects. This seems particularly dangerous because studies show the danger of addiction to painkillers in this group of patients (Baron, 2004). Finally, non-medical explanations of the results indicate that greater easiness in generating the factors increasing pain for the subjects can be traced back to the anchoring heuristic (Kahneman et al., 1982). When giving their opinions, people tend to relate to a reference point, in this case pain, which was multidimensionally described in the previous part of the study by the subjects. As a result, contexts with pain were cognitively more available than contexts without it. The analysis of the regions for which subjects generated the largest number of factors intensifying the experiences of pain is worth consideration. These are: the posterior triangle of the neck, parotideomasseteric, temporomandibular joint, and auricular regions. These indications overlap, to a large extent, with the indications of the regions chosen most often as pain regions. This, in turn, is part of the pathomechanism of masticatory organ dysfunctions with the analysed component, including the possibility of pain radiation to the relevant regions (Travell & Simons, 1983). On the other hand, these indications reflect the attentiveness of the patients and their significant awareness of their own symptoms and their mechanisms. Therefore, it can be inferred that the patients from the studied clinical group have a fairly good knowledge concerning the contribution of different factors in the development and intensification of the experienced pain, which in turn might result from the chronic nature of the pain. Interestingly, at the same time, the subjects had a considerable difficulty indicating factors reducing pain experiences in the same anatomical regions, which might reflect a sense of relatively little influence or, in other words, indicate a conviction of other-directedness in the pain region. Numerous studies dedicated to this issue clearly show that this situation can foster an attitude of resignation and hinder the patient's involvement in the therapeutic process (Kwan, Dimidjian, & Rivzi, 2010; Omeje & Chinenye, 2011; Richter & Hebgen, 2010).

In the course of muscle-related masticatory organ dysfunctions, the regions indicated as the most painful were located in one of the most innervated (via the trigeminal nerve) structures of the body, i.e. the facial area – mainly its central part downwards including the infraorbital, buccal, and mental regions, as well as the parotideomasseteric region towards the back of the head, i.e. the mastoid process, occipital region, the posterior triangle of the neck, and nuchal regions. It should be noted that these regions, to a large extent, do not coincide with the regions indicated most frequently as pain regions in the studied group of patients. Possibly, less frequent ailments in these pain regions make them more painful and chronic pain significantly reduces subjective perception of the intensity of pain through an expression of habitual underestimation of pain stimuli (Cohen et al., 1996; Naliboff & Cohen, 1989; Peters et al., 1992). The regions indicated as the most painful might additionally suggest that pain, at least in some regions, results from the effect of the so-called trigger points in structures not located in the face, e.g. trapezius muscle, which can result in pain in the posterior triangle of the neck, infraorbital, and mastoid process regions. The regions indicated by the subjects as the ones with particularly increased frequency of pain (several times a day) are the following: the temporomandibular joint, the auricular, temporal, and mastoid process regions, followed by the inferior mandibular ramus region, and both sides of the suboccipital region. Perhaps, it is the frequency of the experienced pain that makes these regions less painful, as shown in previous reports indicating that chronic pain reduces the subjectively perceived intensity of pain. Due to their location, it cannot be ruled out that at least some of the experiences of pain may be caused by trigger points located in other problematic muscle areas – e.g., the trapezius muscle, which might cause pain in the infraorbital region or in the lower neck area.

An interesting observation was made, indicating that longer periods of time without pain can lower

awareness of factors influencing pain experiences as well as lower levels of maximum and minimum pain, causing higher subjectively perceived quality of life in the patients (although not all the effects relate to the same areas of quality of life). These results seem to show the significance of two important factors determining a better health-related quality of life, i.e. 1) the presence of periods of time during which a patient is able to function relatively freely, unhindered by pain, and 2) the importance of psychological factors, in the form of previous patterns of pain experiences, and focus on the current somatic state (limiting freedom of behaviour by the sole need to perform or refrain from certain actions) for the experienced quality of life related to health dysfunctions. Interestingly, for a higher quality of life related to the patient as an individual, it was important that the maximum level of the experienced pain was as low as possible, whereas a higher quality of life related to the social aspect was associated with the lowest minimum pain experienced by the patient. This finding reflects the well-accepted idea that the experience of pain may respond to cultural rules and expectations (Lautenbacher & Fillingim, 2004; Melzack & Casey, 1962). Another study result, showing that more experiences of pain described in terms of emotional categories had lower estimates of quality of life, could be consistent with the knowledge that comes from research in cognitive psychology indicating the modifying influence of emotional pain on the perception of quality of life (Capraro et al., 2012). Chronicisation of pain suggests that pain experienced by patients is, generally, less intense than in the case of acute pain; however, when pain is chronic, anxiety or fear can transform into frustration, while sadness and low mood can transform into depression. It is important that this relationship refers to both spheres of physical and psychological functioning of patients. The greater the number of locations of the experiences of pain indicated by the subject, the lower the overall quality of life.

The relationship between the health-related quality of life and certain structures of the head and face require further research on a larger group. The obtained results allow for a modest assumption that lower quality of life relates more to facial regions located in the upper part of the face, i.e. the part where there is no muscle tissue (the frontal region and the temporal region). Further inference aimed to determine which factor is more important in this case: a physiological one (related to different sensations linked to different experiences of pain in these structures) or a psychological one (related to experiencing pain in the area associated with the efficiency of cognitive functions), which would make a valuable addition to the presented research.

LIMITATIONS OF THE STUDY

This study has several important limitations that must be taken into account when interpreting its findings. The key limitations include study design (non-controlled observational study) and the small sample size. The small sample size may have, for example, resulted in insufficient power to detect health-related quality-of-life predictors. It arose mainly from the difficulties in diagnosing pure, or at least clearly dominant, myalgic masticatory system dysfunction variants. Further difficulty was to maintain the sample because it covered people from different regions of the country, often distant from the place of study. This made it extremely hard to contact the people at the very same period of time from the beginning until the second measurement. For this reason, the results should be regarded as preliminary studies and need to be confirmed on a bigger sample. We would like to point out, however, that the effects not yet well described in the scientific lecture and stretched over time, such as quality of life among patients with myofascial pain syndrome related to functional masticatory organ disorders, are often reported as case studies. Therefore, although the dropout rate was noticeable, in light of the still unknown dynamic of quality of life among patients with myofascial pain syndrome in muscle-related functional masticatory organ disorders, it seemed accurate to make some comparisons that are not only qualitative. As the results show, thorough qualitative analysis, independent of replicating the effects on a bigger sample in order to establish the initial pain profile, should be the next step. It would be particularly interesting to expand the quantitative investigation by analysing semi-structured interviews with research participants. Linguistic analysis of narrative and textual pain experience descriptions should be very useful in gathering some more accurate pain specificity information, including its intensity typology and characterisation (Kałwak, 2011). Difficulty showing up for all the data collected leads to reflection that if the informed consent to participate in the research was obtained twice – before first phase of the study and then after the retest phase – it would allow analysis of the whole input material. Yet another weakness of the study is that the general quality of life input was not analysed with the psychoemotional state, because some effects might not be so specific for myofascial pain syndrome experience but rather for other conditions related to muscle-related function of masticatory organ disorders. All the same, it is also possible that the group of patients who eventually participated in the whole project are somehow specific. The fact that all of them participated in a psychoeducation programme is, certainly, not without significance.

CONCLUSIONS

The study enabled the description of the experiences of pain and quality of life displayed in a group of patients suffering from the muscle-related masticatory organ dysfunctions. The obtained results confirmed that patients with masticatory organ dysfunctions are more likely to have a lower sense of health-related quality of life. A higher health-related quality of life in the studied group was observed in those patients who: experienced longer periods of time without pain; did not recall any experience of particularly intense pain in the past; experienced pain that was limited to fewer structures of the face and head; generated a small number of factors influencing the experiences of pain (both intensifying and reducing); less intensively described pain using the emotional categories; and experienced pain localised in the buccal region, the right side of the temporal region, the central part of the frontal region, the left side of the parotideomasseteric region, and the right side of the posterior triangle of the neck. Further research should include a larger number of subjects to confirm the observed effects and greater diversity in the various areas of quality of life. The obtained information allows formulation of diagnostic and therapeutic recommendations. It seems that the focus on the above-mentioned effects (such as increasing periods of time without pain, limiting the range of pain, education, and therapeutic actions), aimed at reframing negative memory patterns regarding previous experiences of pain, should constitute one of the first and crucial challenges of personnel working with patients who are diagnosed with muscle-related masticatory organ dysfunctions.

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