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Optimal development of young male volleyball players through transformational coach leadership

Abstract:

Leadership styles of coaches affect athletes' sport and social skills. Recently, transformational leadership gained recognition as a beneficial, motivational and inspirational coaching style. Our study attempts to extend the understanding of transformational leadership in Polish youth sport through investigation of whether a transformational coach can lead a team effectively, while simultaneously contributing to athletes' well-being and high performance. A male volleyball coach and twelve male volleyball players (15–16 years old) participated in a study consisting of semi-structured interviews and participant observations. The results showed that characteristics of a transformational coach had an influence on athletes' intrinsic motivation and involvement in training, and they served as means of satisfying the needs for autonomy, competence, and relatedness.

Keywords:

transformational leadership, needs satisfaction, positive youth development, coach-athlete relationship

Streszczenie:

Styl przywódczy trenera może mieć istotny wpływ na rozwój sportowych i społecznych umiejętności zawodników. Wielu badaczy zainteresowanych zjawiskiem przywództwa transformacyjnego wskazuje, że ten styl pracy z zespołem sportowym może być niezwykle inspirujący i zarazem motywujący zawodników do osiągania przez nich ambitnych celów. Jako że w polskich badaniach do tej pory nie

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zajmowano się szczegółową analizą tego fenomenu, w artykule postanowiliśmy zaprezentować wyniki badań dotyczące zarówno rozumienia istoty przywództwa transformacyjnego w sporcie, jak i potencjalnych zasobów trenera w efektywnym zarządzaniu zespołem sportowym. W jakościowych badaniach opartych na częściowo ustrukturalizowanych wywiadach uczestniczył jeden trener piłki siatkowej oraz dwunastu zawodników płci męskiej, w wieku 15–16 lat. Wyniki wskazują, że cechy przywódcy transformacyjnego posiadane przez trenera miały pozytywny wpływ na zawodników. Wzmacniały ich wewnętrzną motywację, zaangażowanie w przebieg treningów , a jednocześnie skutkowały zaspokajaniem potrzeby autonomii, ich kompetencji oraz poczucia więzi z członkami zespołu.

Słowa kluczowe:
przywództwo transformacyjne, zaspokajanie potrzeb, pozytywny rozwój młodzieży, relacja trener-zawodnik

Introduction

Coaches play a crucial role in the development of youth athletes with whom they spend many hours, and over the years on the same team they share the ups and downs of athletic experience. For many coaches, reaching the athlete's full potential (physical and also psychological development) is the primary objective, and this objective fits the realm of transformational leadership (Bass & Bass, 2008). Only in the last 15 years have researchers started to explore transformational leadership in sport (Arthur & Tomsett, 2015), and in youth sport, the athletes' perceptions of transformational leaders have not yet been qualitatively examined. Alternatively, conditions for optimal growth and performance have been thoroughly investigated within psychology as part of SDT (Self-Determination Theory) through the postulate of satisfying autonomy, competence, and relatedness needs (Hollembeak & Amorose, 2005; see also Ryan & Deci, 2000b). Combining these two research areas, athletic potential and optimal growth, could shed new light on how coaching qualities support young athletes' holistic development and could provide answers to questions regarding how transformational leadership is perceived in a youth sport environment and what its role is in satisfying the needs for autonomy, competence, and relatedness by young sport participants.

Transformational leadership

A transformational leader (TL) is described as charismatic, inspirational, and passionate, takes interest in each follower individually, spends time to get to know them, motivates the subordinates to work hard and stimulates them to think more deeply about their work (Bass, 1990). Further, a TL promotes acceptance of a shared mission, encourages followers to prioritize the group goal ahead of individual goals, and inspires them to reach beyond expectations (Bass & Bass, 2008; Murray & Mann, 2001). A TL's motivation is filled with

a belief in each follower's abilities and usefulness to the group, with promotion of cooperation towards the common goals, and with inspirational cues for the challenges. TL's provide support and a positive vision of the future for their followers. In short, transformational leaders are characterised by individual consideration, inspirational motivation, intellectual stimulation, and idealized influence (Arthur & Tomsett, 2015). This style of leadership thrives on a unique connection between a leader and the followers, and results in optimal performance on both individual and team levels (Riemer, 2007).

Charbonneau, Barling, and Kelloway (2001) tested if transformational leadership affects sports performance indirectly, through intrinsic motivation. The results showed that two factors: intellectual stimulation and individualized consideration are related to all aspects of intrinsic motivation. Further, transformational leadership of a coach was demonstrated to be positively associated with team cohesion (Callow, Smith, Hardy, Arthur, & Hardy, 2009), positive developmental experiences of youth athletes (Vella, Oades, & Crowe, 2013b), the youth players' well-being and needs satisfaction (Stenling & Tafvelin, 2013), and extra effort (Arthur et al., 2011). Moreover, Arthur, Hardy and Woodman (2012) proposed the vision support and challenge model (VSC) as constituting an applied conceptualisation of transformational leadership in sport. VSC is based on a TL transferring an inspirational and engaging view of followers' futures, providing different types of support (e.g. emotional, tangible and informational) and providing challenges that support persistence in pursuing the vision. To date the VSC model has only been investigated qualitatively (Hodge, Henry, & Smith, 2012) and is required to be more empirically tested. The VSC model remains promising, especially taking into account that Chelladurai (2007) underlined that it is the coach's responsibility to create and present a vision while simultaneously convincing followers of their capability in fulfilling it and their irreplaceable role in the joint venture. Further, creating a vision together with inspirational communication, intellectual stimulation, individual and supportive leadership, personal recognition, demanding and directive leadership, or promotion of self-efficacy and self-esteem are parts of Chelladurai's description of leadership in the pursuit of performance excellence. Taken together, a good leader's attributes in sport coincide with the core of the TL profile, and the emerging body of sport psychology and coaching knowledge encourages further research based on transformational leadership theory (see also: Price & Weiss, 2013).

The transformational leadership concept is part of the Full Range Leadership Model proposed by Bass and Avolio (Hoption, Phelan, & Barling, 2007). Two remaining components are transactional leadership and laissez-faire. Transactional leadership style includes two components: contingent reward (promising rewards in exchange for completing an assignment) and management-by-exception. Management-by-exception has

two forms: passive, when a leader takes no actions to monitor deviances and takes corrective action only after the mistake has been made; and active, characterised by a leader actively seeking for errors and applying corrective actions. The augmentation hypothesis states that transformational leadership is built on the effects of transactional leadership (Judge & Piccolo, 2004), implying that rather than treating both styles separately, the interplay between them should be considered. Finally, laissez-faire can be understood as a lack of leadership when leaders delay their actions, do not get involved when needed, and ignore their responsibilities (Bass & Riggio, 2006).

Athletes' development

Having a positive experience with coaches is crucial to young athletes' optimal development (Larsson, 2000), especially given the fact that athletes describe their coaches along with parents as the most important people in their sports career (Wylleman & Lavallee, 2004). Danish, Petitpas, and Hale (1990) pointed to some advantages of sport participation including opportunities to develop emotional control, learning goal setting skills, practicing and learning teamwork, and taking a team goal and team perspective over the individual one. SDT is a theory of motivation which posits that people have an inherent tendency to grow and to fulfil their potential given the presence of a few critical conditions in the social environment (Ryan & Deci, 2000b). Namely, for optimal human development it is necessary to satisfy three psychological needs: autonomy, competence, and relatedness. Of special interest is the social context that can either facilitate or weaken intrinsic motivation (Niemiec & Ryan, 2009). The need for autonomy refers to the desire to become involved in activities aligned with one's values and directed by one's own choice, and to experiencing sense of volition. The need for competence is understood as the need to be effective, observe progress of one's own skills, and obtain outcomes that are personally valued. Finally, the need for relatedness refers to a desire to build and maintain meaningful connections with other people (Ryan & Deci, 2000b). In the sport context, a coach (initially a source of extrinsic motivation for athletes) may provide an environment for meeting the three needs and thereby facilitate athletes' intrinsic motivation (Hollembeak & Amorose, 2005). This outcome is more likely when athletes understand the meaning of a leader's vision and synthesize it with their own values, goals, and beliefs (Pelletier, Fortier, Vallerand, & Brière, 2001). Apart from contributing to young athletes' well-being and psychosocial development, a transformational leadership style has the potential to be a framework to teach life skills through sport. As Gould and Carson (2008) stated, sport psychology needs further research investigating the conditions required to develop life skills, to understand when and how they can and cannot be developed in different settings.

Present study

Taking into account the characteristics of transformational leadership and the postulates of the relevant elements of SDT, our study investigated whether within the environment of youth sport, a coach with aspirations to be a transformational leader can lead teams effectively by contributing to athletes' well-being and high performance outcomes. Further, what characteristics or behaviour of a transformational coach are important in satisfying needs necessary for reinforcing self-determination as experienced by athletes? Due to the fact that transformational leadership in sport has never been explored within Polish culture and to understand more deeply the connection between transformational leadership and satisfaction of basic psychological needs, interviews and observations were utilised for gathering data.

Materials and Methods

Participants

One male coach (31 years old) and twelve male volleyball players (age range: 15–16 years old) participated in the study. The athletes played together for at least one year and had been working with the coach for an average of 4.25 years. The team practiced six times per week, played one or two matches during most weeks of the season, and competed in local, regional, and national leagues.

Procedure

The connection between transformational leadership in youth sport and SDT has not been fully examined. Thus, the present study employed participant observations and semi-structured interviews to account for the exploratory nature of our study. Institutional Review Board approval for the study was obtained prior to data collection. In order to obtain an elementary understanding of the selected team, the primary researcher observed the team during two tournaments, six months and four months prior to the beginning of the study. All interview data collection procedures were pilot tested (interview with a sixteen-year-old female volleyball player) and improvements were introduced where required (e.g., reducing the number of questions, rewording several interview questions). Afterwards, the coach underwent an audio-recorded semi-structured interview that explored his coaching philosophy and leadership style as experienced in every-day coaching and interaction with the players. This interview allowed the researcher to become familiar with the team's culture as well as to form first insights to be explored further both in the upcoming interviews with athletes and participant and non-participant observations. The interview and contact sustained afterwards constituted a first step in gaining entry to the team. The researcher received a consent from the coach to conduct the re-

maining study during a pre-season training camp taking place three months later. Before leaving for the camp, the researcher was introduced to the team members and took part in three training sessions as an observer.

During the camp, observations and individual semi-structured interviews with the athletes were conducted and a demographic survey was administered. Eight players who had the longest relationships with the coach underwent individual semi-structured interviews (Patton, 2002). The interview with the coach lasted 44 minutes. The shortest interview with an athlete lasted 18 minutes, the longest 26 minutes with an average time of 21 minutes. The interviewer started with rapport building questions (e.g. "What is important to achieve success in volleyball?") and moved to a general open-ended exploration phase about the training environment (e.g., "What does your usual practice look like?"). The focused exploration part was based on theoretical constructs and included inquiries about characteristics of transformational leadership (e.g., coach-athlete interactions) and perceptions of satisfaction concerning the needs for autonomy, competency, and relatedness (e.g., "Do players decide about some team matters?"). The closing part of the interview aimed at finishing on a positive note (i.e., "Tell me about your biggest success?"). (The interview guide is available from the first author upon request.)

The primary researcher participated in ten days of the pre-season training camp and observed the interactions between the coach and athletes, as well as among the athletes. The observations were made during practices, meals, psychological workshops, and during leisure time. At the end of every day, the researcher's subjective perceptions and his characteristic behaviour, conversations, or situations were recorded and, if needed, were used in the follow-up questions during interviews to further understand structure in the multiple data collection encounters.

Data analysis

Data from the interviews with the coach and athletes, and participant observations were analysed separately and subsequently combined and integrated. After the interviewer transcribed the interviews verbatim, the transcripts were compared against the recordings to achieve a complete match between the audio and the transcribed text. In the first step, the primary researcher read the transcripts several times to acquaint herself with the data. Next, the most representative sentences were extracted from the transcripts; they were given a name, and were grouped into subcategories while maintaining the participants' language as much as possible (Coffey & Atkinson, 1996). Based on the emerging patterns in the subcategories, categories were identified in relation to the essential theoretical constructs of transformational and transactional leadership styles and satisfaction of SDT's three needs (Miles and Huberman, 1994). Third, the observation data was used to elaborate or extend the themes that emerged during the interview data collection (when

relevant, the insights were presented in the discussion section). The observations contextualised the emerging findings through the researcher's immersion with the goal of an enhanced understanding of the context. Subsequently, refining the emerging findings was achieved through integration of all data sets.

Results

Interviews with the athletes

Five categories emerged in the content analysis of the interviews: (a) characteristics of a transformational coach, (b) transactional behaviours of a coach, (c) coaching behaviours serving athlete self-determination, (d) factors strengthening coach-athlete relationship, and (e) characteristics of a positive team. All the results are presented in Table 1 and a representative quote is provided.

Interview with the Coach

Content analysis revealed that the coach's passion is his coaching, and is a form of self-actualization. The coach mentioned that it is important to him that his teenage athletes make progress, learn important life skills and learn how to cooperate with others. He wished to equip his volleyball players with skills which would help them cope easily with any kind of difficulties in the future; he said, "It would be nice if they could manage well in adult life; only a few of them will become professional volleyball players and will earn money from volleyball. But why shouldn't they have great experiences as adolescents?"

The coach mentioned that through modelling certain behaviours and by communicating his vision he was transferring values such as: industriousness, team-work and persistence. He dedicated time and effort to develop resilience in his athletes and change the meaning of a lost game from failure to a lesson learned. Moreover, he underlined the role of communication and the fact that there are many possibilities and venues to chat with athletes. Also, he treated conversations with the players as moments to teach them something new or to help them understand things better; for example:

> We talk a lot: after a game, before a game. Sometimes, after a game I give each of them a task to say what they failed to do during the game. I asked once a player that hadn't played one second of the game, and he said that he could have supported his teammates more. So they always search for possibilities to be better, even if they didn't play in a given match.

Communication played also a crucial role in building relationships with the athletes. It was observable during the pre-season camp that the coach was intentionally looking for moments to talk with volleyball players about numerous topics. Sometimes they

liked to simply chat about anything, tell jokes, or discuss upcoming training session. On other occasions, their conversations touched upon very important matters such as education or health. It was clear that the coach took an interest in each athlete individually and in all of them as a group. The coach fostered acceptance of team goals and included athletes in the goal setting process, which enhanced athletes' motivation and set a clear direction to work. He aimed to enhance the sense of belonging to the team:

> I say to them: "Listen mate, you are in this gymnasium on the same terms as your friend, you are no better and no worse than him. In the gymnasium, everyone is equal. It doesn't matter whether someone is a starting player or is a third wheel, everyone is on the same terms."

At that time, the coach was coaching this team for several years and he identified time as a very important factor in teaching his team rules and friendly behaviours towards each other, which in turn helped to develop high levels of group cohesion.

Discussion

The data collected from the interviews and participant observations revealed that the volleyball coach: possessed a number of a TL characteristics; presented two types of transactional behaviours; supported athletes' needs for autonomy, competence and relatedness; built and maintained effective coach-athlete relationships; and along with all the players contributed to creating a positive team. The positive motivational climate that was observed during the pre-season camp and that stemmed from the data gathered in the interviews could be partially perceived as the result of the coach's transformational influence for several years of coaching. According to Niemiec and Ryan (2009): "internalization of extrinsic motivation is essential for students' self-initiation and maintained volition for educational activities that are not inherently interesting or enjoyable" (p. 138). Conditions in which a person feels involved and connected to a group and which contribute to satisfying needs, facilitate internalization of the values that this group represents and owns (Deci & Ryan, 2008). In short, it could be hypothesised that during a few years of being on the team, the coach's influence was internalized and became an autonomous motivation composite: identified or integrated regulation. It is congruent with SDT principles which indicate that internalization is more effective when people experience a higher degree of their basic psychological needs satisfaction (Deci & Ryan, 2008). Moreover, Isoard-Gautheur, Guillet-Descas, and Lemyre (2012) underlined that SDT binds self-determined forms of extrinsic motivation with adaptive emotional, behavioural, and cognitive consequences, which could be observed among the interviewed athletes. Further, the coach established a team council, which can be seen as a way of sat-

isfying the need for autonomy. Including athletes in decision-making process allowed them to feel that they had control over their actions. Satisfied need autonomy can have further consequences; Taylor and Bruner's (2012) study on soccer players revealed that "players who feel autonomous, specifically, within the coach-player relationship may have the opportunity to further satisfy their need for autonomy by taking responsibility for their own actions in the larger soccer academy context" (pp. 393–394). Additionally, (on a dyad level) the autonomy fostering behaviours can be connected with individual consideration (i.e. one of the most prominent characteristics of TL) and can contribute to building respect and trust. In turn, these components enhance relationships of a good quality, which contribute to performance success and satisfaction (Jowett & Poczwardowski, 2006). The atmosphere of trust and care on the team added to the experienced sense of relatedness. It can be hypothesised that over the years of coaching, the coach continually communicated to the athletes his values, including: hard work, dedication, and striving for greatness. The athletes individually and the team collectively integrated these values into their own vision of sport participation, and through experiencing an increasing competence level, that process resulted in a high level of internal motivation (e.g. when asked in the interview about a successful volleyball player's qualities, the athletes' answers mirrored the view presented by their coach). Undoubtedly, high level of intrinsic motivation contributed to the high performance outcomes which this team achieved. Therefore, it can be concluded that the environment created by transformational coaches has the capacity to satisfy athletes' basic psychological needs and is oriented toward supporting young players' optimal growth.

Additionally, based on the interviews, we proposed two categories focusing on the (a) coach-athlete relationship and (b) the positive characteristics of the team. Firstly, 'Factors strengthening the coach-athlete relationship' was supported by communication that mediated between behaviours of the coach and its consequences, for example athletes' attitude towards the coach. Attitude was formed during years of training and was supported by good communication and the coach's behaviours. Sport demands sacrifices, dedication and hard work, and the interpersonal relationships that help overcome difficulties and sustain motivation may result in positive outcomes such as respecting and trusting those important others, in this case the coach. The second category, 'Characteristics of a positive team', constituted consequences of the coach's influence on the whole group. The coach's values internalised by the players and his positive behaviours towards the athletes contributed to a 'positive interplay among the players' (i.e., promoting equality) and a 'positive atmosphere'. Promoting equality and fair treatment is well nested in an optimal motivational climate. If it is known that everyone has a chance to be on the first squad, each athlete will do his best and work hard to earn this position. The

coach's behaviours, showing that he cares about every team member and making everyone feel needed, corresponds to the concept of individualized consideration in the transformational leadership model (Bass & Riggio, 2006).

The description of the training environment and some coaching behaviours during practices (noticed in the interviews with the athletes as well as during participant observations) corresponded to the transactional leadership style: contingent reward, active management by exception, and passive management by exception. As proposed by Rowold (2006) active management by exception might be seen as a prerequisite for transformational leadership (Bass, 1985), because only coaches who detect students' mistakes are able to help them correct these mistakes; while doing this, coaches interact with students directly, and therefore, have a better chance to transform their values. Further, in the context of positive team climate and productive coach-athlete relationships, the feedback targeting primarily mistakes did not influence self-esteem and self-confidence negatively. The buffering effect of the context might become an important consideration in future studies because multiple reports underlined an important role of appropriate (positive) feedback, which has not been an evident theme in our study. For example, Deci and Ryan (2000) claimed that effectance-promoting feedback is one of the methods to facilitate intrinsic motivation. Alternatively, the present data seems to support Smith, Smoll, and Curtis's (1979) findings that corrective feedback is a useful strategy in enhancing coach-athlete interactions. Based on the corrective feedback provided by the coach, the athletes developed a clear distinction between good and poor task execution. Therefore, it can be suggested that the coach's transactional behaviours, due to the buffering context of a mastery-oriented environment and the augmenting effect of transformational behaviours, were beneficial for the athletes and contributed to their development.

Limitations, Strengths, and Future Directions

One potential limitation involved is interviewing only eight athletes, regardless of the data saturation achieved. Perhaps conducting interviews with all team members of would have brought deeper understanding of the themes under consideration. Further, adding a quantitative aspect to the design, for example measuring transformational leadership and satisfaction levels of the three needs (i.e., autonomy, competence, and relatedness), could strengthen the overall findings. Mixed-method designs have been shown to respond to similar research questions in a more efficient way (Giacobbi, Poczwardowski & Hager, 2005). However, at the time the study was conducted, the relevant questionnaires had not yet been successfully adapted to the Polish language.

As mentioned, one strength of the study was that it used different data collection methods and two sources of interview data, which allowed for comparing and cross-examining the data. Additionally, the interview data allowed for exploring subjective mean-

ings that participants ascribed to different aspects of their experience (e.g. transactional behaviour was regarded as necessary for making progress). Further, the participant observations allowed for finely tuning emerging themes and enhanced trustworthiness of the findings. Our study suggests that paying attention to satisfying athletes' needs for autonomy, competence, and relatedness, while simultaneously developing in oneself characteristics of a TL, can be considered in the professional development for coaches in team sports; clearly an area for future investigations.

Conclusions

Athletes perceived their coach to present qualities of a TL along with ways of satisfying their needs for autonomy, competence, and relatedness. The results suggest that satisfaction of the basic psychological needs may constitute the mechanism through which transformational coaches transfer their positive effect onto athletes. Moreover, each volleyball player indicated a close relationship with a coach as a factor influencing their motivation and achievement orientation, but also this relationship was a factor in their life outside of sport. During years of collaboration and by being exposed to the coach's influence, athletes internalized his philosophy of work and life based on values such as industriousness, honesty, team-work and respect for others. Having in mind that this team performed highly successfully and also that there was a genuine concern for general well-being, it can be suggested that transformational coaching in youth sport has a capacity to teach life skills through sport whilst being oriented on high performance outcomes.

Such a holistic development view through sports also applies to Positive Sport (Poczwardowski, Nowak, Parzelski & Kłodecka-Różalska, 2012). Positive Sport underlines that two goals: an increase in sport quality performance as well as holistic development, can and should be obtained simultaneously. Therefore, a transformational coach can be seen as an emergent model of coaching in youth sport aligned with the principles of Positive Sport, and further research is needed to explore its potential in various countries, sports, gender combinations, and other contexts.

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Table 1. The results of the interview data with athletes.

Categories	Subcategories	Nr	Coach	Athletes' quote
Characteristics of a transformational coach.				
	1. Concern about athletes' non-sport matters.	7	C	"He [the coach] cares very much about our grades, personal issues, such as what is going on at home, so if anybody told him, he would certainly help him."
	2. Developmental opportunities	3	C	"So let's say I could go to some other club, a more reputable club, but I don't know if I would have there such possibilities for development as I have here."
	3. Individual approach towards athletes.	3		"If he [the coach] has a plan for a practice, and someone can't commit to something, because he is tired or is in pain during this exercise, then instead he can do something different; the athlete proposes that he can do something else because he thinks that this is necessary and important for him, and the coach then says it's okay."
	4. Coach's important characteristics.	5	C	"I like the situational jokes he makes, that he doesn't favour any players, he just thinks that everyone is on a similar level and that every person is needed on the team."
	5. Coach's openness towards athletes.	6	C	"I know he really listens to me when I talk about things that can help."
	6. Coach's involvement in practices and games.	8	C	"It is good that he is involved. We engage in the team and the coach engages in it as well, like emotionally, and the fact is that he helps us with everything we need".
Transactional behaviours of a coach.				
	1. Corrective feedback.	8	C	"It is important that he always expects the best from us. He expects us to improve and to master everything. So, when we do something well, he doesn't say anything. And when we do something poorly, he always corrects us."
	2. Task contingent rewards.	1	C	"So we went to the locker room and started changing into our playing kits. We were talking and motivating each other to perform the best we can. And our coach said that if we won, we would also get new track suits."
Coaching behaviours serving athlete self-determination.				
	1. Focus on skill development.	8	C	"He expects us to make constant progress so we can master everything [every skills]."

	2. Gradation of task difficulty.	4		"I started at some basics like everyone, just passing the ball or something like that, and when this element was mastered, we went to something more difficult."
	3. Informing athletes about the training process.	4	C	"[During training] the coach tells us why we do everything and what the purpose is."
	4. Setting clear and progressively challenging goals.	6	C	"[Goals were] to get as far as possible, to master one's individual skills, and as far as the concrete goals are concerned, we were supposed to win the Polish Championships, or at least to win a medal."
	5. Creating conditions to form close relations on the team.	8	C	"I think that some of my teammates are my best friends. We know each other really well and we spend lots of time together."
	6. Including athletes in the decision making process.	8	C	"To decide on what to do during our free time while at a camp, a coach gives us an idea, we analyse it and vote or someone else gives us a new idea, and then we do the voting."
Factors strengthening the coach-athlete relationship.				
	1. General communication.	8	C	"We spend so much time together. We sometimes talk about school, movies and we play cards together [with the coach]. And very often we talk about volleyball as well, for example about the professional league."
	2. Respect and Trust.	4	C	"We have really great respect for the coach"; "Coach is a person who I can trust for sure."
Characteristics of a positive team.				
	1. Positive motivational climate.	7	C	"When I go to play a game, I feel that I have to win, I mean – I don't have to, but I want to, it's such a feeling in my heart".
	2. Positive atmosphere.	6	C	"Nevertheless, the team atmosphere is probably the most important thing, if there wasn't such atmosphere, then I doubt that anyone would like to play, practice, slog during the trainings."
	3. Positive interplay among the athletes.	6		"We were supporting each other; it's the best when we show support. We thrived on keeping playing and fighting to the end. Because it is the best when someone supports you, then you do everything to win".

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The body self in women who practice aikido

Abstract:

Our thesis explores the experience of corporeality by women who practice aikido. The categories used by those women to describe their body self and its functions were analyzed. In order to explore the subject, quality research was implemented in the framework of grounded theory. Five women comprised the research group, all of whom had been practicing Birankai Aikido for nine or more years. Semi-structured interviews were carried out. Each interview contained five areas referring to practicing aikido, corporality, behavior and the connection between practicing aikido and corporality. Three areas emerged referring to the corporality construct, namely the body, emotions, and interpersonal contacts. The fields of the body and emotions were dominated by a functional dimension, whereas in the field of interpersonal contacts we noted a particularly strong feeling of group affiliation. Participants also displayed a strong need for self-realization, self-control, and persistence. The data collected give sufficient grounds for arguing that women who practice aikido on a regular basis tend to focus on the functional aspects of their bodies and emotions. In so doing they seem to motivate themselves to achieving greater self-realization in the process of studying martial arts.

Keywords:

corporal self, female body, aikido

Streszczenie:

Celem pracy jest zgłębienie zagadnienia doświadczania cielesności przez kobiety trenujące aikido. Analizie poddano kategorie tworzone do opisu ja cielesnego oraz jego funkcji. Prowadzone badania miały charakter jakościowy w ramach metodologii teorii ugruntowanej. Wzięło w nich udział 5 kobiet trenujących aikido w szkole Birankai od minimum 9 lat. Przeprowadzono wywiad semi-ustrukturalizowany, zawierający pięć obszarów odnoszących się do aikido, cielesności, zachowań i związków między aikido a cielesnością. W wywiadach pojawiły się trzy obszary odnoszące się do konstruktu cielesności: ciało, emocje oraz relacje interpersonalne. W obszarach ciało oraz emocje dominuje wymiar funkcjonalny,

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natomiast w racjach interpersonalnych wykazano poczucie silnej przynależności do grupy. Przejawiła się także potrzeba samorealizacji oraz silnej samokontroli i wytrwałości. Na podstawie osiągniętych rezultatów można wysunąć wniosek, iż kobiety regularnie trenujące skupiają się na funkcjonalnym wymiarze własnego ciała oraz emocji, motywując się w ten sposób do samorealizacji podczas procesu nauki sztuk walki.

Słowa kluczowe:
ja cielesne, kobiece ciało, aikido

Introduction

The body self is a theoretically complex concept, one that has seen a proliferation of models that focus on selected aspects of corporality and explore the body-mind connections (Bielefeld, 1999, as cited in Schier, 2009; Kowalik, 2003; Mirucka, 2003; Cash, 2004; Cash & Smolak, 2011; Mirucka & Sakson-Obada, 2013).

For the purposes of our study we used a definition proposed by Mirucka and Sakson-Obada (2013), which defines body self as a mental structure of a relational character that develops over the lifespan. This development is based on the sensations that occur at three levels: neural, mental, and reflexive, each having a corresponding dimension of scheme, image, and meaning. A representation within the first dimension is the body schema. It performs several functions by maintaining the perception of the body as a whole, providing the perception of integrity, spatiality and unity of the body with the person, as well as by coordinating and monitoring body movement. One of the representations within the second dimension is the perceptional image of the self, which is usually based on the wealth of the diverse sensations produced by all the senses. The intensity of experiencing these stimuli has a considerable influence on the perception of the body's boundaries, which may vary from distinctive and clear to blurred and difficult to specify. Functioning properly, the perception of the body's boundaries enables the development of one's sense of individuality. Moreover, the perceptional image of the self within this dimension also includes representations of bodily perceptions and needs, and representations of emotional states. The final dimension of the body self, which is of a relational character and is based on reflexion, is the dimension of meaning. It enables individuals to exercise control over the body self, their sensations, emotional states, and the perception of their physical needs. It also facilitates directing them all at will. People's ability to define their body self and endow it with meaning makes their body self distinctly individual, which impacts on the sense of their own body identity.

Gender differences in build and physiological processes allow women to perceive their bodies as relatively more ambivalent and multidimensional, making them also more

focused on the looks and physical attractiveness of their bodies. Conversely, men attach greater value to the efficiency and functionality of the body (Mandal, 2004). As a result, women's perception of their body self is less coherent and more fragmented, while they are also less satisfied with their looks and exercise a lower degree of control over their bodies (Kochan-Wójcik, 2003a, 2003b).

A review of the literature examining corporality in the context of practicing a sport shows that the majority of existing research is focused on comparing training and non-training individuals' motivation for exercise, subjective or objective perception of their bodies, and the degree of satisfaction with their corporal dimension (Frost & McKelvie, 2005; Abbot & Barber, 2010, 2011; Prichard & Tiggemann, 2008; Swami, Steadman, & Tovee, 2009). The few extant studies addressing the subject with a focus on practicing martial arts show that the followers of such sport disciplines are more satisfied with their bodies and find the training helpful in improving their self-control and overcoming shyness. In addition to positive changes in body fitness, other researchers have also observed changes in how individuals perceive themselves and the people around them (Zang & Xu, 2012; Lakes et al., 2013).

A sport discipline enjoying considerable and long-lasting interest in Poland, martial arts have recently witnessed a particular increase in popularity. Further analyses may bring a new dimension to the research question about the quality and direction of relationships between experiencing one's body and practicing a sport, while also giving a new character to the thesis about the differences in perceiving and experiencing one's body depending on the sport discipline followed. A paucity of relevant studies encourages an exploration of the subject. Aikido was chosen as the context for this study in view of the fact that one of the study's coauthors is a follower of this discipline.

The founder of aikido, Morihei Ueshiba, promoted the idea that mastering the technique is not the sole aim of training. Instead, he exhorted his followers to practice the principles of aikido in all aspects of life (Woźniak, 1991). In order to fully master the technique, the training person must be comprehensively fit and able to move in a relaxed, coordinated and flexible manner. A key element of aikido training is the development of becoming accustomed to pain and becoming more relaxed, which helps to stretch the joints and the body. In aikido, strength comes from the movement of the entire body and is associated with looking for the opponents' dead points and making them lose their footing. The training focuses on making the body more flexible, developing the ability to relax, and using one's body in a well-balanced and efficient way. Importantly, the relaxed body makes for a peaceful mind and the training is directed at self-development and reaching for a full integration of one's body and mind. Otherwise, instead of eliciting confidence and composure, a stress situation will trigger one's old habits of escape and aggression. Hence, practicing aikido demands that its followers face adversities and

conflict, with an additional emphasis put on exercising control over one's emotions and behavior so that any potential conflict is resolved in the best manner possible. Fighting is not altogether eliminated, of course, but directed in such a way that the opponent comes to no or little harm (Gembal, 2004).

Cynarski and Litwiniuk (2000) enumerate psychological predispositions for success in martial arts: psychological resilience, ability to maintain emotional balance in situations of high mobilization, as well as being a success-oriented, strongly motivated and ambitious person. In their opinion, motivations for practicing aikido involve the desire for improvement in physical fitness, comprehensive development, feeling joy derived from physical exercise, and the ability to defend oneself against an assailant. The primary motivation for women is the chance to reduce stress by relieving emotions, that is, to self-regulate while also striving for psychophysical integrity (Cynarski, 2001).

Method

Our aim was to gain insight into how women who practice aikido think about and experience their bodies. Narrowing the area of exploration, we wanted to learn about the conceptual categories these women create for the purpose of describing their corporality. Moreover, we attempted to find out what they thought about their bodies and the body-mind relationships, and what functions they wanted their bodies to perform. For these reasons, we conducted qualitative research within the grounded theory framework. In line with this framework, multiple data collection was performed in order to complement the emerging categories, show how they refer to the reality, and use them to develop a broader analytical framework (Sliverman, 2010; Konecki, 2000). This method is induction-based – a middle-range theory is built based on systematically gathered empirical data that is directly related to a specific aspect of social reality. The hypotheses, categories, and concepts developed in the course of such research are liable to multiple modification and verification. Under grounded theory, data verification is merely a stage rather than a goal in itself; therefore, theoretical systematization of the material is preferred to statistical presentation and collection of data.

Within the grounded theory framework, the main procedure in theoretical data collection is the constant comparative method, one that is based on a comparison of cases for the purpose of determining their shared categories and exploring how they are connected, developing new hypotheses, and identifying the theoretical properties of the concepts. This is done by comparing these concepts against empirical data and with each other in order to assign them to the relevant categories.

Participants

Participants were five women aged between 27 and 50, who had been practicing aikido for a minimum of nine years. Hailing from the two Polish cities of Wrocław and Gdańsk, the participants were followers of an aikido style called Birankai. Two of them were married, two were single, and one was in a relationship.

Procedure

The interviews were conducted by one of the authors of our paper, who had also been a follower of aikido Birankai for about 2.5 years. In a series of phone calls, the interviewer provided participants with basic information on the research, including its procedure, the purpose of collecting the data, and the protection of participants' personal data. The interviews were then arranged to take place in Wrocław at the participants' convenience.

We chose to collect the data using semi-structured interviews (Flick, 2012; Jemielniak, 2012). Drawing on the literature, in particular on the idea of the body self by Mirucka and Sakson-Obada (2013), we created a concept map with the following main areas of the interviews:

1. "I" – open questions about participants ("Tell me something about yourself"). It was left to participants to decide what to say and how to present themselves during the interviews, with a view to determining how they defined themselves.
2. "Aikido" – we asked the women to describe their training experience and to define the role aikido played in their lives. Representing the experience shared by participants and the interviewer alike, this topic was also intended to build rapport.
3. "Corporality" – we asked participants to define the word "corporality" and describe their own perceptions of corporality.
4. "Behavior" – another group of questions referred to the women's health and how they took care of it, and their eating habits. We also asked them to define the word "emotionality" and to describe their preferred strategies for regulating emotions.
5. "Aikido – corporality" – here we attempted to find a connection between participants' experience in practicing aikido and their perception of corporality. We also asked questions about relationships between physical training and corporality.

Given the exploratory character of this research, the interviewer was open to the order in which particular topics were raised during the interviews, adapting to each participant's speed and way of expressing ideas. At the end of each interview, which took approximately 30 minutes to complete, participants were asked to briefly summarize their ideas. The interviews were tape-recorded and subsequently transcribed word-for-word

including extraneous utterances and the observations made by the interviewer about the participants' behavior.

Results

The interviews were coded in order to develop a theoretical network with key points for each subject area. Under grounded theory, the aim of coding is to determine categories that complement a given area conceptually, rather than to order and classify data relative to already-accepted categories (Konecki, 2000; Gibbs, 2011). According to Kvale (2010), the purpose of coding in qualitative analysis is to reveal relationships existing between the codes and the consequence of a broader context in which the study and its participants are embedded. Having this in mind, we decided to give a graphical representation to the codes and their connections. Carrying out the procedure of theoretical coding (Konecki, 2000), we integrated the codes identified through selective coding by placing them on the maps. Such a graphical representation allowed for immediate access to the codes and their interconnections, as well as for determining the frequency with which each code appeared in the participants' utterances. This greatly facilitated constant comparison, and consequently, also the conceptualization of the interconnections between the codes, as well as formulating new hypotheses. Based on the emerging network of concepts related to the central subject, we were then able to develop three code maps referring to corporality, emotionality, and interpersonal contacts. Following this division, we systematized the data obtained as follows.

Subject no. 1 – The Body

The discrepancies in how participants defined "coporality" and that they had to develop that construct "on the fly" as the interviews progressed may both indicate that the notion has a complex cognitive structure, as well as having no immediately available corresponding category. As a result, participants may have difficulties in integrating this notion, which could also exert an uncontrolled influence on how they act toward their bodies and how they act by using them.

> *"Um, coporality. Um er how can I put it (...) I don't know, it's my body (...) taking care of it, paying attention to what happens to it, how it reacts and um er some sort of um well, monitoring yourself."* (Interview no. 5)[3]

> *"Er corporality I think this is something, er at least for me um this is h how I feel my own body."* (Interview no. 2)

[3] Given the limited length of this article, only selected aspects of the analysis are illustrated with excerpts from the original interviews.

At first, corporality was associated with physicality and appearance, then progressed towards issues related to feeling the body, to the functions the body performs and learning them, getting to know the limitations and capabilities of one's own body, learning more about it and taking greater care of it. The recognition of the physical changes brought about in their bodies by training and developing the sense of one's own limitations was associated with the women's feeling more confident in their bodies. Participants observed they had better learned their reactions to stimuli and started to work on controlling the impulses coming from their bodies, and to overcome their physical limitations. Interestingly, the changes taking place within their bodies were seen as a process associated with expanding the awareness of one's corporality. One of the respondents described a transition from intensive training, excessively straining the body and disregarding its needs to achieving balance, becoming calmer, and eventually also taking greater care of her body:

> *"I started practicing aikido in high school and I trained a lot, and hard. This took its toll mainly on my knees (...) I thought that everyone should decide for themselves how they want to train and it's none of my business really, so I stopped looking at other girls and just started to satisfy the needs of my body (...) Yes, well, maybe it's because I started training as a teenager that I've changed my approach to aikido so much, like it was the case with that pushing my body too hard, comparing myself with others, and so on. But this is also part of training, I guess."* (Interview no. 5)

Coporality was also associated with taking care of oneself and with hygiene. One of the respondents described the aesthetic aspect of taking care of her body and the process of preparing for training with others on the mat, including taking a shower and shaving her legs. While she also expressed a general conviction that women take care of their bodies in the aesthetic sense, other participants focused more on the functional dimension of corporality.

The body was described as first and foremost a tool, one which is expected to function efficiently, whereas ensuring that it operates at full throttle was perceived to be the training person's individual responsibility. This dimension was mainly associated with the issue of sustained contusions. Measures that protect against contusions include avoiding people keen on overstepping the limits and respecting one's own limits:

> *"But I now feel that I have some sort of a brake which makes me stop and maybe I don't train exactly as I would want to, but there is this um well, there is this kind of, I feel these brakes which somehow make me more secure."* (Interview no. 3)

> *"On the mat... so, it's best to avoid people who are quick to injure others (...) You're bound to get a contusion, and I don't want to train with people who don't take similar care of their bodies as I do."* (Interview no. 4)

Training aikido had greatly contributed to increasing the women's self-awareness, leading in turn to making them feel more confident about their bodies. This manifested in the need – repeatedly expressed by participants – for taking care of one's body, and in the greater perceived control of their own bodies. We observed a division of monitoring the condition of one's body and health into an independent variant (in the case of serious health issues, including contusions) and one where participants depended on specialists (in the case of monitoring the general state of the organism). Additionally, respondents mentioned broadening their knowledge on healthy dieting.

Subject no. 2 – Emotions

We noted a strong division into positive and negative emotions, although emotionality was predominantly associated with the category of a problem and obstacle. Further, emotionality was connected with the function of emotions and their physiological aspects.

> *"For me emotionality is a curse. Um it has always been with me. (...) So very many emotions in my life, um they are a real bother."* (Interview no. 1)

> *"It's some kind of a clue, probably um what I must, what I need to do, but sometimes it's so hard to understand (...) And some of them are worse, they often lead me down the garden path, but some are actually quite (...) illuminating."* (Interview no. 3)

All the positive emotions, such as joy and pride, were associated with training and were closely related to the body and physiology. Participants were keenest on describing the joy derived from training aikido. They also frequently mentioned feelings of comfort and surges of energy from training as well as from simply being in the dojo. A functional dimension of emotions appeared – a faster and more efficient functioning driven by positive emotions, also leading to making fewer mistakes.

In turn, the category of negative emotions included a broader spectrum ranging from sadness and anxiety to anger, frustration and irritation, but also excessive emotional tension described as a state of feeling quite overwhelmed by emotions during the training. We observed a notable influence of such situations on the behavior of participants, who described themselves in such a context using an array of expressions, from aggressive to being paralyzed and excessively exploiting their bodies. It is worth paying attention to the sources of the various negative emotions: while participants thought fear was associated with the risk of damaging one's body, the roots of anger lay in the potential exclusion from the social group and a hindrance to one's development as a result

of sustaining a contusion. Emotions also featured in statements referring to situations outside the training grounds. These included stressful situations at work, a setting where participants recognized a need for keeping their composure and stability, and the sense of no fulfillment and feeling empty stemming from lack of personal interests.

Participants' attempts at controlling their emotions proved to be no easy task, which they strove to tackle through intensive training and creating increased amounts of endorphins in the organism. Interestingly, at this point the women did not refer to physiological aspects of experiencing emotions but rather to cleansing oneself from them.

> *"I'm cleansing myself from emotions, from what has already happened um, I don't know, by noon at work I'm cleansing myself because someone at home was bugging me all morning; I'm cleansing myself whether I like those people or not, it doesn't really matter who I train with, I always train the same way."* (Interview no. 2)

We observed a variety of defensive mechanisms that included ignoring information likely to elicit negative emotions, verbalizing and sharing problems with closest friends, and using relaxation techniques, such as counting down and breathing exercises. Participants found it useful to impose self-control upon themselves during the training. This is, so to speak, a conscious way to force oneself into taking up and fulfilling the intended task. Participants noted that this invariably led to an increase in control over their emotions, also improving their capacity for containing them.

> *"When you are somewhere, I don't know, at home or at work, or wherever, you can always go away, I don't know, to the bathroom or somewhere, and spruce yourself up, calm down... and here, on the mat, if things go wrong, or even when they go very, very well, you can't hide it, you can't just disappear for a moment, leave the room and be right back... I can now hold this uncomfortable tension within for much longer (...) I can somehow extend this in time or um somehow, how should I put it, close it within myself for some time, all these bad emotions and let off steam when I'm alone somewhere (...) Anyway, what I can say for sure is that aikido and training helped me a bit to control myself, especially to control my emotions."* (Interview no. 5)

Subject no. 3 – Interpersonal Contacts

Two issues emerged in the interviews with reference to the predominance of the male aikido followers and their superior physical strength: that of gender dominance and that of men and women being treated differently in the dojo. Several codes emerged in relation to the gender stereotypes of a weak, submissive female who is also more aware of her body, and of a strong, dominating male. Other issues that emerged with regard

to men included those related to sexuality, of women striving to compete with their male training partners, and an opportunity for further development through training with men.

> *"It's just that men are more self-confident (...) they feel so powerful (...) And I need to be cautious not to get a contusion, I really need to be careful (...) Um to be in constant sync with my body um and men just don't feel it this way, it's not so easy for them. (...) Or they do feel it, but then it's already too late and they've just got a serious contusion."* (Interview no. 3)

The character of aikido training makes it necessary to practice in larger groups, to work with them, get to know them better and, with time, also become friends. Participants were careful to point out the issues of competing but also comparing oneself with others while training. Interestingly, each respondent associated practicing aikido with meeting new people, making friends, and even finding a partner. This dimension is related to corporality and physical contact as well as to emotions triggered by the people around. Moreover, the women emphasized a very strong sense of belonging to the group of aikido followers and the cultural consequences of a division into the male and female elements.

They were also very consistent in presenting a sense of group belonging and its associated aspects: entering the group, having an extensive network of fellow aikido followers, maintaining these relations outside the training grounds, and working together to keep the dojo tidy. Each woman either has or had an aikido practicing partner. What is worthy of note, participants made a clear division between the women who practice aikido and those who do not, presenting the latter in an unfavorable light as women lacking in endurance and perseverance, and who are also possessive as well as more feminine-looking.

When talking about physical contact, respondents highlighted the process of overcoming their shyness and becoming more open to interpersonal contacts, especially to those with men. The unavoidable physical contact during the training, which is necessitated by the nature of aikido, made the women more familiar with and eventually also accustomed to being touched by others. It is worth pointing out that women who practice aikido decide to do so fully aware of the male predominance in the dojo – it is their informed choice and intention to enter the aikido social group and, while remaining in that group, to develop a strong sense of belonging. In this context, respondents also underlined the division into comfortable physical contact during training and uncomfortable contact taking place outside the social group. Furthermore, participants also emphasized the positive influence training had had on their behavior in conflict situations, which offer opportunities to practice patience and to hold to one's opinions while also taking account of others' points of view.

"I became more open to other people er and I make friends much easier now (...) I just had to communicate with those people. This definitely teaches you (...) some sort of openness, I guess." (Interview no. 4)

"When I train, about say 95 percent of people on the mat are men, so also in interpersonal contact, in contact with men, I mean, I'm now a bit more confident." (Interview no. 2)

"But I have this feeling I'm now able to give um more in um say some kind of a conflict situation (...) I'm now able to wait a bit longer and um give someone a second chance (...) And also look at the situation from another angle, see how things develop (...) I'm able to understand the other person a bit better." (Interview no. 3)

Discussion

We conducted this study with a view to exploring how women who practice aikido think about and experience their bodies. Moreover, we wanted to find out what participants thought about their bodies and the body-mind relationships, and what functions they wanted their bodies to perform. The data obtained was analyzed within the grounded theory framework, which allowed for distinguishing three key areas encompassing the construct of corporality: the body, emotions, and interpersonal relations.

Participants' diverse definitions of "corporality" and the fact they had to develop that construct "on the fly" may both indicate that the notion has a complex cognitive structure and has no immediately available corresponding category. On the other hand, when exploring the changes they experienced through training aikido, participants invariably mentioned a sense of increased control over their bodies resulting from feeling more confident in the body. These, in turn, stemmed from the women's increasing self-awareness developed and influenced by training situations. Furthermore, the changes experienced through training included an improved overall fitness at the physical level, and developing self-discipline and perseverance at the mental level. Also worth emphasizing is the way participants perceived their bodies, which were described as tools expected to function efficiently; and while training, the person perceived that their smooth operation was her individual responsibility.

The predominance of the functional dimension was observed in the body as well as in emotions. Participants used emotions, irrespective of their value, not only to motivate themselves to achieve self-fulfillment but also to support their conviction of being a persistent person. Overcoming the excessive negative emotions, which manifest in a strong

emotional tension and a desire to quickly reduce that tension, proved conducive to eliciting new, positive emotions. Rather than following an impulse, participants reduced their tension through means that had become fully accepted in that social group, such as partaking in intensive training and observing rigid, self-imposed principles. It was through such tension reduction that the women were able to feel positive emotions. Also worth pointing out are other factors that play a key role in respondents' self-development, such as increased self-awareness, improved emotional self-regulation, as well as attributing major importance to development and self-perception as a persistent person. Similar observations and conclusions were also made by Lakes (2013), and Zang and Xu (2013), who were already mentioned.

Explorating the interpersonal relations area yielded two subjects: a strong sense of belonging to the group of aikido followers and the cultural consequences of a division into male and female elements. With respect to the former subject, participants clearly distinguished between women who practiced aikido and those who did not, presenting the latter in an unfavorable light. A sense of group belonging was also confirmed by participants' establishing and maintaining close relationships with other aikido followers as well as their desire to attend the training regularly. The women's culturally-determined role of and their lack of a natural predisposition to fight were given as the main reasons for male predominance among those who practice aikido. Furthermore, participants pointedly presented gender stereotypes of a weak, submissive female and of a strong, dominating male, and described the gender differences focusing on male versus female biological and physical features, as well as the differential functional aspects of their bodies. Despite such a disadvantage of this discipline's female followers, participants admitted they wanted to compete with and rival men in training, as a result becoming more self-disciplined and persistent in fulfilling their goals.

Interesting to note, women who practice aikido decide to do so fully aware of the male predominance in the dojo. Similarly to when they discussed the subject of learning how to self-discipline the body (where the women intentionally engaged in situations demanding them to keep composure), when exploring interpersonal relations, participants also emphasized the deliberate intention to overcome their shyness and force themselves to establish and maintain contact with others. Putting themselves in situations beyond their control and following self-imposed principles facilitate the participants' constantly developing self-discipline and a resulting sense of self-fulfillment and satisfaction. In view of the current trends in corporality therapy, this conclusion might offer an interesting perspective for therapeutic models based on developing self-discipline and self-control. It is probable that if used to expand the spectrum of therapeutic strategies, such an approach (physical activity based on regular training and self-discipline, as well as ex-

ploring the limits of one's body in direct contact with other people) might allow for more efficiently working with patients whose currently used strategies prove ineffective.

Another issue worth investigating is the reasons behind the women's choice of a discipline dominated by men. The influence of culture on developing the body self has been highlighted by Thompson et al. (2005) and Smolak (2004), among others. Our study's findings demonstrate that emphasizing gender differences and the culturally-determined differential treatment of the male and female aikido followers plays a double role: first, it motivates those women to greater persistence in training through their desire to compete with men; and second, it leaves the women with a safety zone which allows them to explain their failures by invoking the stereotype of the weaker and more dependent woman. At the same time, building relationships with men additionally helps those women to distinguish themselves from their non-training counterparts, who also represent a more distinctively feminine scheme of psychological gender.

A first step in developing a grounded theory of experiencing corporality in the context of training martial arts and aikido, this study suggests the need for a complex and comprehensive approach to corporality, one that takes account in its physiology, the functionality of the body, emotionality, and the context of interpersonal relationships. The qualitative perspective on the subject has allowed for distinguishing a number of categories and their interconnections. It has also indicated that women who have been practicing aikido for several years are characterized by considerable self-awareness in respect to their corporality, focusing more on functionality rather than on image. They also explore and face their limitations, which in turn contributes to their self-development.

Of course, the subject under investigation demands further exploration not only within the qualitative but also quantitative paradigm. Further research on the corporality of women who practice aikido could use the subject group expanded, thus allowing for more developed comparisons that are the basis for building a grounded theory. In this context, it is worth broadening the scope of the research to include women with relatively shorter experience in practicing aikido, as this could deliver new data on the perception of one's corporality, shed new light on the motives behind women's choice of physical activity, and expand the knowledge on the predispositions that make people train persistently or drop out quickly. Further, current empirical data could be used to extend the scope of research by switching the focus from not just the followers of aikido but to a broader group of people practicing other martial arts that combine fighting with spiritual development, such as the popular MMA (Mixed Martial Arts), Muay Thai, and kickboxing.

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Marital quality and religiousness of couples parenting children with autism

Abstract:

A number of research projects have shown that both religiousness and quality of the marital relationship are important resources that can be used by parents rearing children diagnosed with autism. Our article brings up the link between religiousness of parents who have children with autism and the quality of their marriage. Fifty-three married couples (106 persons) living in Poland and bringing up children diagnosed as having autism were surveyed. Results obtained indicate that there is a relationship between parents' religiousness (personal religiousness) and their marriage quality. These results can help family therapists, social workers and priests supporting couples parenting children with autism.

Keywords:

religiousness, marriage, parenthood, autism

Streszczenie:

Szereg badań pokazuje, że zarówno religijność, jak i jakość relacji małżeńskiej to ważne zasoby, którymi dysponują rodzice wychowujący dzieci z autyzmem. Tekst podejmuje problem związku między religijnością rodziców dzieci z autyzmem, a jakością ich małżeństwa. Badaniami objęto 53 małżeństwa (106 osób) z dzieckiem z diagnozą autyzmu, zamieszkujące na terenie Polski. Uzyskane wyniki wskazują na związek między szczególnym typem religijności rodziców – religijnością personalną, a jakością ich małżeństwa. Rezultaty mogą być przydatne dla terapeutów rodzinnych, pracowników socjalnych oraz duszpasterzy, wspierających rodziców dzieci z autyzmem.

Słowa kluczowe:

religijność, małżeństwo, rodzicielstwo, autyzm

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Introduction

Currently about 1% of children are diagnosed with autism (Baxter et al., 2015). Thus, many families have to meet such a challenge like caring for a child suffering from this disability. Autism involves deficiencies in the following functional areas of the child: verbal and non-verbal communication, imagination and social relations as well as existence of fixed behaviour patterns (Zimmerman, 2008). Additionally, the child can have problems with sleeping, eating as well as sensory integration disorder, attention deficit hyperactivity disorder and both aggressive and self-aggressive behaviours (Maskey et al., 2013). Raising a child with autism involves serious stress that the child's parents must wrestle with (Altiere & von Kluge, 2009; Andreica-Săndică et al., 2011; Harper et al, 2013). And this stress is more intense than in the case of families who bring up healthy children or ones suffering from other disorders (Dąbrowska & Pisula, 2010; Bitsika, Sharpley & Bell, 2013; Shobana & Saravanan, 2014). Chronic, permanent stress can cause a parent to fall into depressive and anxiety disorders (Shtayermman, 2013; Bitsika, Sharpley & Bell, 2013), can result in exhaustion or destroying their powers (Seymour et al., 2013), lead to health problems (Benjak, Mavrinac & Simetin, 2009) or even to marital breakdown (Hartley et al., 2010).

Except for intense pressure, being a parent of a child suffering from such a serious disorder breeds a question about the sense of such an experience. In their search for an answer, striving for acceptance and wrestling with stress interpretations offered by culture and in particular by religion may be helpful (Siller et al., 2013; Brown & Rogers, 2003; Kheir et al., 2012). A number of research projects have empirically verified this observation. In their study P. Coulthard & M. Fitzgerald (1999) expressed the meaning of prayer and faith as internal coping resources possessed by the child's parents and organised religion as an institutional resource. This research indicates that sources of support which parents of children with autism draw on are first of all their religious beliefs and their prayers; organised religion helps them to a much less considerable degree. N. Tarakeshwar & K. Pargament (2001) highlighted the fact that parents who bring up disabled children (including those with autism) and wrestle with stress, may apply both positive and negative religious strategies. And in the first case rearing children with autism is interpreted as a kind of vocation and a chance to develop spiritually, deepening the relationship with God and cooperating with Him out of concern for the child's best interests. In the other one – as being forsaken by God, doubting His mercy or even experiencing a more or less well-deserved punishment sent by a stern Lord. Only the first case can be a source of support, hope and sense.

Research by N. Ekas, T. Whitman & C. Shivers (2009) were devoted to religious beliefs (as an expression of the attitude to God), religious activities (involvement in religious observances) and spirituality (feeling a closeness to and harmony with God) of mothers parenting children with autism. They have shown that religious beliefs and

spirituality are linked with a lowered symptoms of depression and lowered intense parental stress. It is intriguing that respondents more deeply involved in religious practices have experienced more intense parental stress and shown more symptoms of depression. It can result from the fact that either mothers become particularly intensively involved in religious activities when they are in difficult or critical situations or that attending Mass with the child is stressful and/or religious institutions do not support the mothers appropriately. Or maybe it results to a certain degree from the aforesaid negative religious strategy accepted according to the parent's religious maturity level and putting it into practice but not necessarily by their conscious and rational choice. Other research (Lee et al., 2008) has shown that families of children with autism take part in church services more rarely than those who have healthy children or children with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder). In general parents avoid such activities (like other outside activities) due to the child's problem behaviour, the necessity of devoting to him or her all their parental attention and their conviction that the outsiders do not understand their child's behaviour.

As mentioned above, positive religious strategies applied by parents of disabled children are grounded on a feeling of cooperation (and more widely – a relationship) with God. It involves a certain kind of religiousness. There are many psychological and sociological attempts to characterise this phenomenon, among them a paradigm of an attitude towards God (Hutsebaut, 1980). Conceived personal religiousness worked out by R. Jaworski alludes to this paradigm. While considering conclusions drawn from Catholic theology and psychology as well as his own psychological research, R. Jaworski (1987/1998; 1989; 1998; 2006) has described two extreme varieties of religiousness: personal and impersonal. "Personal religiousness" means "[…] involving a human being's relationship with personal God. A human as the person taking part in a religious conversation between two partners involves all his or her "being" in a direct and actual encounter with "You" of the Deity. In their action the humans consider themselves free and creative and aware of their aim and their own Christian dignity. They consciously shape their attitude towards God and feel responsible for it. The Person of God integrates an entire human's world of values. The essential feature of the relationship between God and humans is mutual dynamic presence and love. And this relationship constitutes a central, long-lasting and stable value and doesn't destroy any receptiveness to new knowledge and experiences" (Jaworski, 1989, page 67). "Impersonal religiousness", in turn, means "[…] a way of experiencing a relationship between a human being and God who is treated as "a thing" or "an instrument" satisfying a human's egotistic needs. It most often constitutes a unilateral monologue. Forms of impersonal religiousness are based on emulation and bring out superstitious features (magic). Communication with the Deity is subjected to objectives and oriented toward attaining values different from God's. In the relation-

ship with God the human often feels an external compulsion or behaves passively or indifferently. Lacking a sense of responsibility for the relationship exempts him or her from deepening it creatively and seeking new forms to express it. Religion and God become outer, marginal values that are isolated from other spheres of life. For people who treat religiousness impersonally it is not a source for finding dignity (self-esteem). Religious practices constitute here an instrument for achieving other goals. And generally they are not oriented towards direct and actual contact with God" (Jaworski, 1989, pages 67, 68).

Jaworski's concept corresponds to the Roman Catholicism in Polish religiousness. First of all, the contact between a human being and God not only engages the human personally but develops his relationship with God as well. Deity is perceived as the Person you can make direct, emotionally close and even intimate contact with. A relationship experienced this way enables one who believes in God to meet and start a dialogue with Him. A person's chief qualities for believing in God are autonomy and respect for Him as well; moreover they feel responsible for their receptiveness and readiness for feeling ties with God in any situation in life. In any situation, therefore in just such a situation that affects parents of children with autism.

At the same time research has suggested that, apart from religiousness, quality in the marital relationship is a significant resource for parents with children with autism. High marital quality involves lower parental stress and a lower number of depression indicators (Kersh et al., 2006). J. Ramisch & E. Onaga (2014) analysed strategies used for maintaining and strengthening marriage bonds. They have found that key factors are communication with the spouse and the married couple's shared (mutual) expectations regarding their marriage as well as – concerning women – spending time with their husbands.

When you consider the aforesaid, while preparing programmes for comprehensive support for parents of children with autism it is worth asking the following question: *Is there any relationship between religiousness and the quality of their marriages?* Our paper constitutes an initial attempt to answer this question.

Method

Our respondents lived in two provinces in eastern Poland (Podkarpackie and Lubelskie Provinces). We surveyed married couples who had brought up at least one child diagnosed with autism. We reached them through specialised educational institutions as well as centres and associations rendering therapy services to our respondents' children. Before we started a poll our pollsters had asked both the management of a given institution and the married couple for permission to conduct the poll. The polls were confidential. After incomplete or incorrectly filled-out questionnaires (several dozen) had been re-

jected, data and information given by 53 married couples (106 persons) bringing up children with autism were qualified for further analyses. The surveyed couples had been married for three to 37 years and the median was 14. Children were between two and 20 years of age, the median was seven years. Twelve couples (22.6% of all respondents) had one child, 27 couples (50.9%) – two, seven couples (13.2%) had three children and another seven couples (13.2%) – four.

The following research tools were used:

1. In order to evaluate both the level and type of a married couple's religiousness the Personal Religiousness Scale (the PRS) explained by R. Jaworski (1989) was employed. The PRS covers instructions and 30 statements. Accuracy of the tool was checked using the retesting method; for individual answers to questions and statements it was within the range $0.69 \leq$ Spearman's rho ≤ 0.85. Verification of theoretical accuracy was presented in details in R. Jaworski's works (1989, 1998). The PRS includes four aspects: *faith (F)* – i.e. strength of a relationship with God treated as the Being that gives meaning to a human's life; *morality (M)* – an aspect determining the extent of compliance between moral behaviour and religious beliefs; *religious practices (RP)* – means the level of involvement with God through prayer, contemplation, broadening knowledge of God; and *religious ego (autoidentification, RE)* – means how close the human feels to God and a sense of pride in "being a Christian". The surveyed person was to indicate on a scale of 1 to 7 the degree to which their beliefs comply with the meaning of individual statements. The conviction that the Deity is the Person you can get in touch with is defined as the sum of coefficients (numerical weights) calculated by adding all weights related to answers while considering a key that takes into account the individual statements. The maximum score – 210 points – means highly personal religiousness. The lowest score – 30 points – indicates impersonal religiousness.

2. Well-Matched Couple Questionnaire (the WMCQ-2) by M. Plopa & J. Rostowski was used for evaluating marital satisfaction. It includes the following aspects: *intimacy* (i.e. close relationship between a married couple, or the belief that both spouses love each other); *self-realisation* (marriage as a relationship enabling each partner to realise themselves and – in consequence – an important part of satisfying life); *resemblance* (the extent to which there is unanimity among husband and wife relating to important aims in their married and family life, e.g. leisure, developing their matrimony, family tradition, rearing children, and family life organisation); and *disappointment* (belief that marriage restricts to a certain degree the partner's independence and autonomy or that the spouse is trying to renege on and escape from the relationship and does not want to take responsibility for it). A detailed description of psychometric features of the tool: accuracy of the aspects (from 0.80 to 0.90), discriminatory power position (0.38 up to 0.75), and the questionnaire's theoretical correctness were presented in the M. Plopa's publication (2008).

3. Conjugal Communication Questionnaire (the CCQ) by M. Plopa & M. Kaźmierczak – this tool serves to examine communication behaviours towards the spouse. The questionnaire consists of two forms: first, to appraise one spouses' behaviour and, second, to appraise the other spouse's behaviour. Each form contains 30 items, both of which serve to examine three main aspects of conjugal communication: *support* (appreciating the spouse's efforts, interest in his or her problems and readiness to solve them jointly); *involvement* (showing feelings to each other and talking about them, aiming for a compromise and harmony); and *depreciation* (criticism, unpleasant comments, controlling the spouse and aggression towards him or her). The surveyed person takes a stance on each statement based on a scale of 1 to 5. A detailed description of the tool's psychometric features: the questionnaire's accuracy (from 0.77 to 0.93), power of discriminatory position (0.25 up to 0.81), and its theoretical correctness were presented in M. Plopa's publication (2008).

Results

Most respondents declared themselves to be believers of the Roman Catholic faith (fathers – 81% and mothers – 86%). Scores obtained are presented in Table 1.

Table 1. Comparison between responses provided by respondents to the following question: *„Are you a believer accepting basic dogmas of the Catholic faith?"*

	Yes		No		It's hard to say	
	N	%	N	%	N	%
Mothers of children with autism	46	86.8	6	11.3	1	1.9
Fathers of children with autism	43	81.1	7	13.2	3	5.7

Table 2. Pearson's correlation coefficients between scores resulting from Well-Matched Couple Questionnaire (the WMCQ-2) and Personal Religiousness Scale (the PRS) among mothers of children with autism (*N*=48).

	Faith	Morality	Religious practices	Religious ego	Total score
Intimacy	0.39**	0.37*	0.46**	0.50**	0.52**
Disappointment	−0.44**	−0.34*	−0.43**	−0.38**	−0.47**
Resemblance	0.33*	0.34*	0.41**	0.42**	0.43**
Self-realisation	0.30*	0.29*	0.42**	0.47**	0.42**
Total score	0.35*	0.32*	0.49**	0.47**	0.49**

** correlation substantial at a level of 0.01

* correlation substantial at a level of 0.05

Among the mothers all subscales of the PRS correlated with WMCQ-2. The correlation coefficient value fluctuated between 0.286 and 0.525. As regards scores presented in the subscales, strong correlations were found between *religious ego* and *intimacy, religious*

ego and *self-realisation*, *religious practices* and *intimacy*, *faith* and *disappointment* (negative correlation), *religious practices* and *disappointment* (negative correlation), *religious ego* and *resemblance*, and between *religious practices* and *resemblance*.

Table 3. Pearson's correlation coefficients between scores resulting from Well-Matched Couple Questionnaire (the WMCQ-2) and Personal Religiousness Scale (the PRS) among fathers of children with autism (*N*=47).

	Faith	Morality	Religious practices	Religious ego	Total score
Intimacy	0.29	0.29*	0.31*	0.38**	0.38**
Disappointment	−0.20	−0.12	−0.20	−0.31*	−0.25
Resemblance	0.34*	0.39**	0.30*	0.43**	0.40**
Self-realisation	0.20	0.39**	0.38**	0.38**	0.39**
Total score	0.28	0.36*	0.29*	0.36*	0.40**

** correlation substantial at a level of 0.01

* correlation substantial at a level of 0.05

Among the fathers a number of statistically substantial correlations were found. The value of the correlation coefficient fluctuated from 0.292 to 0.435. The strongest correlations were found between the following subscales: *religious ego* and *resemblance*, *morality* and *resemblance*, *morality* and *self-realisation*, *religious ego* and *intimacy*, and *religious practices* and *self-realisation* as well as between *religious ego* and *self-realisation*.

Table 4. Pearson's correlation coefficients between scores resulting from Conjugal Communication Questionnaire (the CCQ) and Personal Religiousness Scale (the PRS) among mothers of children with autism (*N*=48).

	Faith	Morality	Religious practices	Religious ego	Total score
Support (appraisal of own behaviour)	0.29*	0.33*	0.26	0.33*	0.24
Involvement (appraisal of own behaviour)	0.21	0.20	0.17	0.33*	0.19
Depreciation (appraisal of own behaviour)	−0.04	−0.09	−0.18	−0.15	−0.21
Support (appraisal of spousal behaviour)	0.31*	0.17	0.32*	0.225	0.35*
Involvement (appraisal of spousal behaviour)	0.16	0.02	0.22	0.19	0.16
Depreciation (appraisal of spousal behaviour)	−0.15	−0.05	−0.23	−0.14	−0.23

** correlation substantial at a level of 0.01

* correlation substantial at a level of 0.05

Interrelationships of a coefficient exceeding 0.3 related to the following subscales: *morality* and *support* (appraising one's own behaviour), *religious ego* and *support* (apprais-

ing one's own behaviour), *religious ego* and *involvement* (appraising one's own behaviour), *religious practices* and *support* (appraising the spouse's behaviour) as well as *faith* and *support* (appraising the spouse's behaviour).

Table 5. Pearson's correlation coefficients between scores resulting from Conjugal Communication Questionnaire (the CCQ) and Personal Religiousness Scale (the PRS) among fathers of children with autism (*N*=47).

	Faith	Morality	Religious practices	Religious ego	Total score
Support (appraisal of own behaviour)	0.39**	0.37*	0.35*	0.43**	0.40**
Involvement (appraisal of own behaviour)	0.30*	0.28	0.37*	0.29*	0.35*
Depreciation (appraisal of own behaviour)	−0.21	−0.22	−0.24	−0.34*	−0.29*
Support (appraisal of spousal behaviour)	0.26	0.25	0.31*	0.37*	0.37*
Involvement (appraisal of spousal behaviour)	0.14	0.11	0.30*	0.27	0.27
Depreciation (appraisal of spousal behaviour)	−0.19	−0.19	−0.18	−0.30*	−0.26

** correlation substantial at a level of 0.01

* correlation substantial at a level of 0.05

Comparatively strongest correlations (not less than 0.37) related to the following subscales: *religious ego* and *support* (appraising one's own behaviour), *faith* and *support* (appraising one's own behaviour), *religious ego* and *support* (appraising spousal behaviour), *religious practices* and *involvement* (appraising one's own behaviour) as well as *morality* and *support* (appraising one's own behaviour).

Discussion

1. Results above indicate a relationship between religiousness of parents bringung up children with autism and their marriage quality. Mothers who show a higher level of personal religiousness declare as well that they have a closer and more satisfactory intimacy, resemblance and self-realisation with their husbands and feel relatively less disappointed in their marriages. An analogical relationship can be seen among the surveyed fathers, although its statistical significance has not been explicitly determined, perhaps because fathers tend to blame mothers who gave birth to autistic children. The reason for this opinion, in turn, may result not only from natural rights of physiology but – regrettably – from a popular stereotyped way of thinking as well, although the fathers may not be fully aware of this fact (Cook, Cusack & Dickens, 2010).

The level of personal religiousness is also explicitly linked with features of conjugal communication which in turn obviously corresponds to married life quality (e.g. Caroll et al., 2013). Thus, the women in judging their conjugal communication behaviour are of the opinion that they give their husbands a lot of support, that they are very much involved in communicating with their husbands and do not belittle them. However, though their husbands appreciate such support the statistical significance of involvement and depreciation have not been sufficiently confirmed. Observations regarding the surveyed fathers are exactly the same.

To sum up, the higher the extent of the married couple's personal religiousness, the more satisfactory the quality of their marriage is. The same or even more is in the case when they have to bring up a disabled child.

2. Catholic religiousness says matrimony between a woman and a man is a sacramental bond and that's why it implies some specific consequences; for instance, there is the doctrinal inability to dissolve it. Thus, even for this reason it can be assumed that religiousness may constitute a resource which a married couple can draw from in many fields of their lives. One can imagine that this stability (Call & Heaton, 1997) resulting from the lack of an alternative constitutes unity which imposes, as it were, cooperation on married couples and forces them to act jointly in order to seek solutions when in difficult situations or in facing adversities.

3. Of course a married couple's (parents') religiousness cannot be limited to the sacramental aspect of matrimony only. Manifesting religiousness can be achieved in varying intensities, at various levels of maturity, and in any possible area in an active married life – and we think here about conjoined activities (like caring for and rearing children, taking part in the local community's social life, concern for housekeeping, prayer, sexual relations, handing down cultural values and traditions from generation to generation, etc.) and the individual activity of each spouse (a career, developing passions and interests, forming friendships, etc.). The religiousness – developed and cultivated by husband and wife not only individually but also (and maybe first of all) mutually – can play a significant role, especially in a situation where the couple face the challenge of rearing child with autism.

4. It is worth emphasizing that family religiousness can be an important resource for not only married couples but for their children as well. In their research E. Liu et al. (2014) attempted to answer the following question: what is the importance of religion and faith in the life of teenagers and young adults suffering from developmental disorders (including autism) and how do those people perceive their disabilities in the context of their religious faith? They surveyed 20 persons suffering from autism and intellectual disability whose parents were avowed Christians. Importantly, only children answered (in each case to the extent that their disabilities enabled them to give replies). All respondents owned that they prayed, some hint-

ing at their own religious experiences. They positively appraised a religious community as a circle where they didn't feel different from persons who were good to them. And finally, in the context of faith, most positively perceived themselves and even their disabilities. Their answers lead to an important conclusion: parental religious involvement translates into involvement of their children with autism contributing to creating an important circle that can be a resource and support for the whole family.

5. Conclusions presented herein can be of help to many specialists: family therapists, social workers and priests supporting parents of children with autism. While working with religious parents who identify themselves as Christians and who bring up children with autism it is worth – leaving aside many other forms of support – developing personal religiousness, especially in shaping both the religious ego (autoidentification) and a sense of closeness, as well as in feeling that one is cooperating with God.

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Coping styles and empathy in professional burnout: A study of physical therapists

Abstract:

The profession of a physical therapist is among so-called social professions, which are particularly exposed to high risks of burnout. Our paper analyzes the relationships between professional burnout in physical therapists and their perceived levels of stress, the strategies they use to cope with stress, as well as their levels of empathy and professional satisfaction. The following questionnaires were used in the study: the Burnout Scale Inventory (Okła & Steuden, 1998); the multidimensional coping inventory COPE (Carver, Scheier, & Weintraub, 1989); and the Questionnaire Measure of Emotional Empathy (Mehrabian & Epstein, 1972). Varying levels of professional burnout were observed in a sample of 76 physical therapists, who demonstrated no significant relationships between burnout and empathy levels. Higher burnout levels were found in participants working in public compared to privately-owned health centers, while those scoring higher on job satisfaction also had lower burnout results. Further, participants with higher professional burnout also reported higher levels of stress at the workplace and at home, as well as using avoidance coping strategies. The results of our study call for further investigation into the determinants of burnout in physical therapists and for implementing preventive measures.

Keywords:

burnout, stress, coping, empathy, physical therapist

Streszczenie:

Zawód fizjoterapeuty należy go grupy tzw. zawodów społecznych, w których obserwuje się zagrożenie procesem wypalenia. Artykuł analizuje związki wypalenia zawodowego u fizjoterapeutów z odczuwanym stresem, stosowanymi strategiami radzenia sobie z nim, empatią oraz satysfakcją zawodową. Zastosowano kwestionariusze: Skalę Wypalenia Zawodowego SWS (Okła i Steuden, 1998), Wielowymiarowy Inwentarz do Pomiaru Radzenia Sobie ze Stresem COPE (Carver, Scheier i Weintraub, 1989), Skalę Empatii Mehrabiana i Epsteina (1972). U 76 badanych zaobserwowano zróżnicowany poziom wypalenia zawodowego. Nie stwierdzono istotnych związków wypalenia z poziomem empatii w grupie badanych. Osoby pracujące w ośrodkach publicznych cechowały się wyższym poziomem wypalenia niż pracujące w ośrodkach prywatnych. Bardziej usatysfakcjonowani z pracy uzyskali niższe wyniki wypalenia. Wyższy poziom stresu w pracy i w miejscu zamieszkania oraz stoso-

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wanie unikowych strategii radzenia sobie ze stresem występowało u osób z wyższym poziomem wypalenia. Wyniki badania sugerują konieczność prowadzenia dalszych badań nad uwarunkowaniami zjawiska u fizjoterapeutów oraz wdrażanie działań profilaktycznych.

Słowa kluczowe:
wypalenie zawodowe, stres, radzenie sobie, empatia, fizjoterapeuta

Introduction

Social professions, also called helping professions, impose considerable demands on those who serve them, as direct contact and interpersonal involvement account for a substantial part of their work. While offering specialist help, such professions also focus on qualitative contact, bringing rehabilitation and health benefits to the patients, as well as mobilizing and activating them (Diebelt, 2009; Dibbelt, Schnaidhammer, Fleischer, & Greitemann, 2009; Kelly-Irving et al., 2009). However, if such work delivers much satisfaction to the professional who chooses it intentionally, with a view to helping people in need, it also poses an increased risk of professional burnout.[2]

Social professions feature physical therapy, in which interpersonal contact with the patient is coupled with a host of therapeutic activities, including passive and active exercises. Indeed, a majority of physical therapists (Janaszczyk & Leoniuk, 2009) are aware that they participat in and share co-responsibility for social, rather than merely physical, patient rehabilitation. They recognize their active involvement in the structure of social support (Janaszczyk & Leoniuk, 2009). The more comprehensive the approach to rehabilitation that therapists use, the stronger the effects of their work. However, there is also a flip side to this greater responsibility for the patients and active involvement in their rehabilitation, as they also expose the therapist to an increased stress load.[3]

According to Sęk, the burnout risk in social professions invariably rises in times of fast civilizational changes, with its progressive dehumanization of professions and increases alienation at the workplace (Sęk, 2000). Exploring burnout among physical therapists is sub-

[2] The problem of professional burnout has been the subject of extensive psychological exploration since the 1970s. *Professional burnout* results from the accumulation of several factors, including prolonged emotional exhaustion, dehumanizing the people one has professional relations with, lack of job satisfaction, decreased involvement in one's work, and chronic physical fatigue (Bielecki, 2008; Fengler, 2000; Freudenberger, 1974; Sęk, 2000). Several theoretical approaches to the burnout phenomenon have been developed so far (Maslach & Jackson, 1981; Maslach, 2008; Sęk, 2000, 2007; Okła, 1994; Okła & Steuden, 1998, 1999).

[3] Under the cognitive-transactional model, stress is defined as "a relationship with the environment that the person appraises as significant for his or her well being and in which the demands tax or exceed available coping resources" (Lazarus & Folkman, 1984, p. 19). Hobfoll (1989) considers stress to be a reaction to the environment in which there is a loss of resources, a threat of a loss of resources, or a threat of a resource gain (Sęk, 2002, p. 17).

stantiated by the sheer volume of changes taking place in their closer and further environment, which lead to growing workload levels under those changing working and living conditions. The numbers of people requiring rehabilitation – the elderly, the disabled and the chronically-ill patients – are on the increase; meanwhile, welfare benefits continue to be underfinanced. As a result, physical therapists' working and financial conditions, not unlike those serving other helping professions, leave much to be desired. Furthermore, greater social awareness and care for one's health and fitness leave a growing number of patients seeking private physical therapy services.

For the sake of the patients, who require maintained interpersonal contact with the therapists, it is essential to monitor the therapists' resources so as to prevent burnout. In this profession, the effect of any action are rarely observed in the short-time perspective, making these professionals prone to a generalized feeling of having achieved little or no success. This, in turn, strengthens their conviction about being unable to cope with stress at work, reduces positive work experience and reinforces the belief that they do not meet their work goals, all of which lead to a high risk of professional burnout (Sęk, 2000, 2007). Requiring therapeutic help themselves, burned-out physical therapists lose their helping potential, becoming in effect a "hindrance" to the patients' rehabilitation process. This may likely generate particularly high social costs.

There are multiple factors affecting burnout (Heszen & Sęk, 2007; Maslach, 1998, 2003; Sęk, 2000, 2007; Okła & Steuden, 1998, 1999; Tucholska, 2009), including subjective as well as environmental ones. Among the former, a key role is attributed to effective coping (Okła & Steuden, 1998, 1999; Sęk, 2000, 2007),[4] as the ability to use adequate coping strategies may prevent the onset of burnout. The strategies focusing on problem-solving and involving a task-oriented approach are reported to be particularly effective measures against burnout (Sęk, 2007; Bielecki, 2008), as is the use of feedback at work, recognizing self-efficacy, exercising control over events, focusing on positive experiences, and receiving social support (Sęk, 2007).

The extensive model by Okła and Stueden examines burnout with regard to both the giver and the receiver of support (Okła, 1994, 1998, 1999), and attributes a significant role to the workplace, including the stress level at the workplace as a dominant factor leading to professional burnout. The external factors include group belonging as well as organizational and institutional variables, such as job expectations, work effectiveness and work or-

[4] Coping processes are triggered upon the evaluation of an event as a stressful one. These processes include all cognitive and behavioral attempts made at overcoming the challenges that threaten or exceed the resources of the individual (Heszen-Niejodek, 2000; Sęk, 2007). Carver, Schaier & Weintraub (1989) put together Lazarus's relational theory of stress and the model of behavioral self-regulation, which led them to distinguish between *coping styles* and *coping strategies*. The ability to cope with stress effectively is also reported to be conducive to higher life satisfaction (Juczyński, 2006; Juczyński & Ogińska-Bulik, 2006; Zalewska et al., 2003).

ganization. A significant role in the burnout process is also attributed to the subjective features of the working individual (Okła, 1994; Okła & Steuden, 1998, 1999). In turn, the relevant internal factors include the individual's emotional maturity, level of empathy,[5] and ability to cope with stress (Okła & Steuden, 1999).

Impacting on the motivation for undertaking prosocial activities, a high level of empathy is particularly desired in people working in the helping professions (Hoffman, 2006, after Wilczek-Rużyczka, 2008; Dibbelt et al., 2009), as it places the support and care in a moral context, making the therapist more sensitive to the patient's suffering (Wilczek-Rużyczka, 2002, 2008). Both the patient and the helping personnel greatly benefit from enriching their relationship with empathy-based affective contact, whereas the opposite is true when this relationship is limited to providing impersonal service and merely transmitting information in an uninvolved manner (Dibbelt et al., 2009; Qien, Steihaug, Iversen, & Råheim, 2010). Hope-Stones and Mills (2001) showed low empathy levels in nurses working with cancer patients to be accompanied by higher levels of experienced stress (after Wilczek-Rużyczka, 2008). Marcysiak (2008) confirmed a relationship between empathy and two burnout components: sense of personal achievement correlates positively, while a tendency to depersonalize patients correlates negatively with empathy (Kliś & Kossewska, 1998; Marcysiak, 2008). A study carried out among American nurses showed that high levels of burnout have a deleterious impact on empathic behavior (Bradham, 2009).

Aims and hypotheses

Taking into account the multifactorial burnout determinants, our study was conducted among physical therapists working in times of fast civilizational changes. It was carried out with a view to analyzing the relationships between therapists' professional burnout and their empathic levels, perceived stress, the strategies they used to cope with stress, and selected organizational variables, namely, length of service and type of workplace. Prolonged exposure to work-related stress resulting from work overload, inadequate work organization, time pressure, and personnel and equipment shortages have all become part and parcel of a physical therapist's work (Mikołajewska, 2014; Pastułka-Piwnik et al., 2014). For this reason, the means used for coping with stress may prove to be critically important in the development of burnout. Research on the burnout syndrome among med-

[5] There are three psychological approaches to empathy. Emotional empathy is understood as the ability to "feel into" the emotional states of others. Cognitive empathy involves entering into others' roles – understanding their motives and thoughts, and predicting their behavior. In turn, cognitive-emotional empathy is defined as the ability to recognize and understand the emotional states of others, and to perceive the world from their perspective (Knowska, 1986). Mehrabian and Epstein define empathy as "a vicarious emotional response to the perceived emotional experiences of others" (Mehrabian & Epstein, 1972, p. 525).

ical personnel has emphasized a positive role for active strategies in coping (Sęk, 2007), allowing for the hypothesis that, in the sample under examination, burnout should show a negative relationship with problem-solving strategies, and a positive relationship with strategies based on avoidance behavior. Existing research provides grounds to the prediction that empathy should play a buffer role against professional burnout among medical personnel (e.g. Wilczek-Rużyczka, 2008). A paucity of research on burnout in physical therapists indicates that the organizational and personal determinants that are specific to this particular professional group should be looked for more actively. In addition, demographic changes related to an aging society and the growing demand for physical therapy services reinforce the need for more thorough exploration of this issue.

Participants

Participation in our study, which involved a sample of randomly-chosen physical therapists working in Poland, was voluntary and anonymous. The sample consisted of 76 persons, 59 females and 17 males, with 48 therapists working in public medical centers and 28 in privately-owned centers. Participants' age ranged from 23 to 67 years (M = 34.71; SD = 9.65); the mean age was 34.22 years for females (SD = 9.17) and 36.41 years for males (SD = 11.25). The mean length of service for the whole sample was 10.91 years (SD = 9.12), with considerable discrepancy in service periods between the shortest (0.5 year) and the longest (42 years).

Variables and methods

The following variables were measured to verify the proposed hypothesis: five professional burnout dimensions, empathic level, and types of strategies used to cope with stress. Moreover, sociodemographic variables were measured using an original survey, which included the levels of stress at the workplace and at home, job satisfaction, and perceived efficacy at work.

a. The Burnout Scale Inventory (BSI) by Steuden and Okła (1998). The scale comprises 66 statements presented in a table, with a 5-point response scale ranging from "yes" to "no". The statements concern respondents' work-related experiences, their involvement, and fatigue. The following five factors were distinguished based on empirical research: 1. Deterioration in emotional control (DEC; 22 statements); 2. Loss of personal involvement (LPI; 15 statements); 3. Reduced personal efficacy (RPE; 12 statements); 4. Narrowing of social contacts (NSC; 10 statements); and Physical fatigue (PF; 7 statements). The DEC and LPI factors concern losing emotional abil-

ity to cope with stress and the losing subjectivity in one's actions, respectively, and correspond to two of the three aspects concerning burnout defined by Maslach and Jackson (1981): emotional exhaustion and depersonalization. The remaining three BSI factors (RPE, NSC and PF) concern the loss of ability to cope with one's tasks efficiently, the reduced belief in one's capabilities, and physical fatigue. The BSI allows for obtaining a general burnout index (GBI) and a configuration of burnout factors in particular individuals and groups.

b. The multidimensional coping inventory COPE (Carver et al., 1989) in the Polish adaptation by Juczyński and Ogińska-Bulik (2009). The inventory comprises 60 statements describing people's reactions to demanding and stressful life situations, with a 4-point response scale describing how often a person behaves in a particular way (*almost never* to *almost always*). The method consists of 15 scales describing 15 theoretically distinguished coping strategies (4 items per scale):[6] *Active coping* – taking action to eliminate a given stressor or to reduce its consequences; *Planning* – thinking about how to handle the problem; *Seeking social support for instrumental reasons* – seeking support, advice and information; *Seeking social support for emotional reasons* – seeking moral support, sympathy and understanding; *Suppression of competing activities* – putting aside other activities in order to concentrate on the problem; *Turning to religion* – turning to religion for emotional support and guidance toward positive reinterpretation and growth; *Positive reinterpretation and growth* – looking for an opportunity to grow in what is happening and trying to see it in a more positive light; *Restraint coping* – restraining oneself from acting too quickly and waiting for a better moment to act; *Acceptance* – accepting that what has happened is irreversible and getting used to it; *Focus on and venting of emotions* – getting upset by emotions and tending to let them out; *Denial* – refusing to believe what has happened and pretending it has not; *Mental disengagement* – avoiding to think about the consequences of what has happened and turning to other activities to think about it less, such as sleeping and watching TV; *Behavioral disengagement* – feeling helpless and putting no effort into reaching one's goals; *Alcohol-drug disengagement* – using alcohol and drugs to suppress unpleasant emotions; *Sense of humor* – using humor to reduce unpleasant emotions. These scales can also be grouped into three factors (coping styles) encompassing problem-focused coping strategies, emotion-focused strategies and seeking support, and avoidance behavior.

[6] The inventory is used for measuring both dispositional coping styles as well as situational coping responses. For the purposes of the present study, the tool was used for measuring dispositional coping, that is, typical responses toward demanding situations. This was motivated by the tool's multidimensional character and satisfactory reliability, with Cronbach's alphas ranging from 0.48 to 0.94 for particular scales.

c. The Questionnaire Measure of Emotional Empathy (QMEE; Mehrabian & Epstein, 1972) in the Polish adaptation by Rembowski (1989). This instrument is used for measuring the level of empathy, understood as the ability to assume the other person's perspective while also being able to recognize, understand and experience their own emotional reactions (Wilczek-Rużyczka, 2008). The statements included in the questionnaire are related to the cognitive-emotional aspects of empathy, although the tool's authors attribute greater significance to the emotional component. The scale consists of 33 items describing behavior and a 9-point response scale ranging from 1 – *fully agree* to 9 – *fully disagree*. Following the theoretical assumptions of result interpretation, the level of empathy is interpreted as a numerical indicator that summarizes all the responses.
d. An original survey. Developed by the Author of our study, this survey comprises two parts. Part 1 includes a form for collecting basic sociodemographic data, namely, sex, age, type of workplace, and length of service. Part 2 is problem-based, asking participants to estimate their stress level experienced at work, sense of efficacy at work, and job satisfaction on a 5-point scale ranging from 1 – *low* to 5 – *high*.

Results

1. Analysis of professional burnout in the sample

Professional burnout scores were calculated by obtaining the BGI and separately for the five dimensions of Deterioration in emotional control, Loss of personal involvement, Reduced personal efficacy, Narrowing of social contacts, and Physical fatigue. The mean BGI among physical therapists was M = 115.84, with a considerable discrepancy between the lowest and the highest results (66 and 256 points, respectively; SD = 41.59).

Table 1. BSI: mean burnout values for the entire sample

Burnout Scale Inventory (BSI)	M	SD	Minimum	Maximum	Scale range
General burnout index (GBI)	115.84	41.59	66	256	66–330
Deterioration in emotional control (DEC)	35.34	15.92	22	110	22–110
Loss of personal involvement (LPI)	27.05	10.23	15	57	15–75
Reduced personal efficacy (RPE)	20.11	7.86	12	41	12–60
Narrowing of social contacts (NSC)	16.25	5.96	10	41	10–50
Physical fatigue (PF)	17.12	6.95	7	34	7–35

The Mann-Whitney U test results for burnout levels showed differences with respect to the type of workplace. The GBI was significantly higher in therapists employed at public centers (M = 124.40; SD = 45.30) than in those working in privately-owned ones (M

= 101.18; *SD* = 29.66). Significant differences were also found regarding the three dimensions of Loss of personal involvement, Narrowing of social contacts, and Physical fatigue. The therapists working in public medical centers demonstrated higher burnout levels on these dimensions that did those who worked in privately-owned centers (see Table 2).

Table 2. BSI: burnout levels and type of workplace

	Public centers (n=48)		Privately-owned centers (n=38)		Mann-Whitney *U* statistic	
	M	SD	M	SD	U	p
GBI	124.40	45.30	101.18	29.66	462.50	0.02*
DEC	37.75	17.50	31.21	11.95	519.00	0.10
LPI	28.71	10.71	24.21	8.81	504.50	0.07***
RPE	21.50	8.72	17.71	5.47	519.50	0.10
NSC	17.85	6.68	13.50	2.92	352.50	0.00**
PF	18.58	7.38	14.61	5.38	476.50	0.03*

*$p < 0.05$; **$p < 0.01$; ***trend, $p < 0.08$

Analysis of Spearman rank correlation coefficients showed no significant correlations between burnout and participants' age and length of service.

2. Professional burnout and coping styles and coping strategies

Analysis of Spearman rank correlation coefficients was performed to verify the hypothesis about the relationship between professional burnout and coping strategies. The results are shown in Table 3.

Table 3. Spearman rank correlation coefficients between professional burnout (BSI) and coping styles (COPE)

	GBI	DEC	LPI	RPE	NSC	PF
Problem-focused coping	$r = -0.03$	$r = -0.02$	$r = 0.01$	$r = -0.12$	$r = 0.01$	$r = -0.06$
	$p = 0.82$	$p = 0.84$	$p = 0.93$	$p = 0.31$	$p = 0.92$	$p = 0.61$
Avoidance behavior	$r = 0.38$***	$r = 0.30$**	$r = 0.36$**	$r = 0.33$**	$r = 0.35$**	$r = 0.26$*
	$p = 0.0007$	$p = 0.008$	$p = 0.001$	$p = 0.002$	$p = 0.001$	$p = 0.02$
Emotion-focused strategies and seeking support	$r = 0.19$	$r = 0.14$	$r = 0.21$	$r = 0.21$	$r = 0.22$	$r = 0.13$
	$p = 0.72$	$p = 0.59$	$p = 0.91$	$p = 0.89$	$p = 0.95$	$p = 0.62$

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Correlation analysis showed that avoidance behavior significantly and positively correlated with both the GBI as well as particular burnout factors. Correlation coefficients between burnout and the remaining coping styles proved to be statistically non-significant.

The results showing the relationship between burnout and coping strategies are given in Table 4. A moderate positive correlation was observed between burnout and the strategy of Focus on and venting of emotions. Participants declaring more frequent use of the coping strategies focused on emotions scored higher on both the GBI and particular burnout factors. Moreover, a weak positive relationship was also found between the strategy of Seeking social support for instrumental reasons and both the GBI and the Loss of personal involvement factor.

Table 4. Spearman rank correlation coefficients between professional burnout (BSI) and coping strategies (COPE)

	GBI	DEC	LPI	RPE	NSC	PF
AC	0.03	0.04	0.06	−0.02	0.01	0.03
P	−0.14	−0.11	−0.09	−0.19	−0.13	−0.11
SSIR	0.25*	0.21	0.28*	0.21	0.22	0.19
SSER	0.04	0.04	0.06	0.07	0.04	0.09
SCA	0.07	0.12	0.11	−0.05	0.10	0.01
TR	−0.02	−0.05	0.00	0.03	0.09	−0.12
PRG	−0.23	−0.17	−0.19	−0.30**	−0.14	−0.22
RC	0.20	0.17	0.19	0.14	0.19	0.15
A	0.03	0.00	−0.03	−0.05	0.11	0.04
FVE	0.35**	0.33**	0.31**	0.32**	0.38***	0.32**
D	0.37***	0.28*	0.37***	0.40***	0.38***	0.22
MD	0.25*	0.20	0.26*	0.22	0.20	0.15
BD	0.30**	0.25*	0.24*	0.37*	0.36*	0.22
ADD	0.37**	0.30**	0.39***	0.27**	0.19	0.37**
SH	0.15	0.16	0.23	0.13	0.05	0.03

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Correlation analysis revealed a significant positive relationship between burnout and the four strategies making up the avoidant behavior style: Denial, Mental disengagement, Behavioral disengagement, and Alcohol-drug disengagement. Thus, the hypothesis was confirmed that a higher frequency of using these coping strategies should be accompanied by higher scores on the GBI and particular burnout factors (see Table 4).

3. Professional burnout and empathy

Participants' emotional empathy levels were measured as the overall score on the QMEE, with possible scores ranging from 1 to 297 points. Mean empathy level for the entire sample was $M = 211.79$ ($SD = 21.57$), while a substantial discrepancy was also observed between the lowest and the highest scores: 171 and 246 points, respectively. Analysis of Spearman rank correlation coefficients was performed to test the hypothesis about the relationship between empathy levels and professional burnout. The results for the entire sample showed no significant relationship between empathy levels and burnout scores on both the GBI and particular burnout factors.

4. Analysis of professional burnout in the context of other independent variables

Table 6 shows relationships between burnout scores on both the GBI and particular burnout factors, and selected independent variables. Analysis of Spearman rank correlation coefficients showed a significant negative relationship between job satisfaction and burnout on both the GBI and particular burnout factors. Moreover, the GBI and the RPE and NSC factors were correlated with a lower job satisfaction level, while participants with high scores on particular burnout factors also reported higher levels of stress at the workplace and at home.

Table 5. Spearman rank correlation coefficients between burnout (BSI) and selected independent variables

	GBI	DEC	LPI	RPE	NSC	PF
Stress at workplace	0.33**	0.31**	0.34**	0.20	0.14	0.39**
Stress at home	0.50***	0.45***	0.50***	0.39***	0.46***	0.42***
Job satisfaction	−0.48***	−0.40***	−0.47***	−0.36***	−0.32**	−0.53***
Sense of efficacy at work	−0.23*	−0.22	−0.19	−0.27*	−0.25*	−0.13

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

5. Analysis of physical therapists' burnout profile

Regression analysis was dispensed with since there were no initial predictions about the relationships between burnout and the two empathic and length of service variables. Given the substantial discrepancy in burnout levels observed for the entire sample, two homogeneous groups were distinguished with a view to performing a more detailed analysis of burnout and its particular factors. To that end, *k*-means clustering analysis was conducted, which allows for classifying participants into homogeneous groups based on multiple characteristics. It combines several factors, rather than a single isolated variable, that leads to the development of the burnout syndrome (Okła & Steuden, 1999). The results of classifying participants into two groups are shown in Table 7 and Figure 1.

Table 6. Results of variance analysis for the groups classified by *k*-means clustering

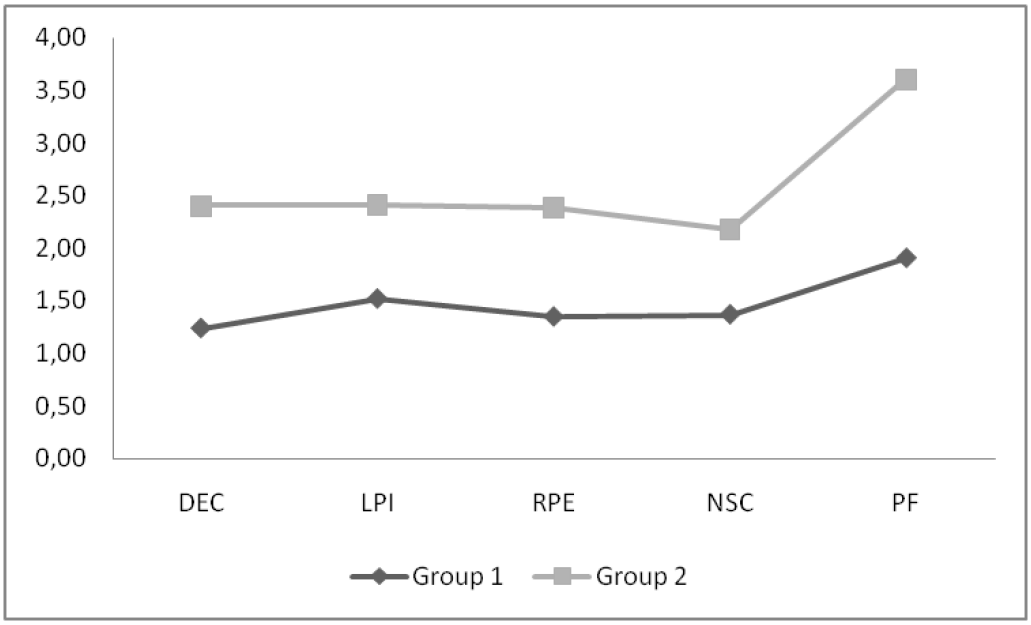
	Group 1 (n = 52)		Group 2 (n = 24)					
	M	SD	M	SD	Between-group SS	Within-group SS	F	p
DEC	1.24	0.24	2.41	0.78	22.38	16.88	98.14	0.00***
LPI	1.52	0.45	2.42	0.70	13.19	21.68	45.01	0.00***
RPE	1.35	0.35	2.39	0.60	17.68	14.51	90.19	0.00***
NSC	1.37	0.28	2.18	0.72	10.77	15.87	50.23	0.00***
PF	1.91	0.56	3.61	0.68	47.33	26.54	131.97	0.00***

Mean scores for each factor are expressed as a weighted mean (sum of points divided by the number of statements) to enable a direct comparison of means for particular factors;

***$p < 0.001$

Group 1 (n = 52) comprised participants with a burnout profile characterized by significantly lower scores on all burnout factors and Group 2 (n = 24) comprised participants with higher scores on all burnout factors. The most considerable differences between means for the two groups were found for Physical fatigue (F = 131.97; $p < 0.001$), suggesting this factor made for the main criterion for belonging to the cluster.

Figure 1. Mean burnout profiles for the two groups classified by *k*-means clustering



DEC – Deterioration in emotional control; LPI – Loss of personal involvement; RPE – Reduced personal efficacy; NSC – Narrowing of social contacts; PF – Physical fatigue

Next, the groups were analyzed with respect to variables that were considered as contributing to burnout (see Table 8).

Table 7. Comparison of the groups classified by *k*-means clustering

	Group 1 (n = 52)		Group 2 (n = 24)			
	M	SD	M	SD	U	p
Age	33.98	9.82	36.29	9.25	531.00	0.30
Length of service	10.10	9.21	12.69	8.85	500.00	0.17
Empathy	207.88	23.18	202.04	22.00	522.00	0.26
Problem-focused strategies	2.79	0.33	2.78	0.38	602.50	0.81
Avoidance behavior	1.77	0.35	1.96	0.43	448.50	0.05*
Emotion-focused strategies and seeking support	2.69	0.52	2.74	0.44	597.00	0.77
Stress at workplace	2.51	1.05	3.22	1.00	371.00	0.01*
Stress at home	1.84	0.86	2.74	0.96	290.50	0.00**
Job satisfaction	4.06	0.68	2.74	1.18	280.50	0.00**
Sense of efficacy at work	1.84	2.74	3.87	0.87	513.50	0.40

*$p < 0.05$; **$p < 0.001$

This analysis revealed a significantly higher frequency of using avoidance coping strategies by the participants with the high-burnout profile than by their low-burnout profile counterparts. Furthermore, as well as scoring higher on perceived stress at the workplace ($U = 371.0$; $p = 0.01$) and at home ($U = 290.50$; $p < 0.001$), the physical therapists in the high-burnout group also declared significantly lower levels of job satisfaction ($U = 280.50$; $p < 0.001$). No statistically significant differences were found between the two groups with respect to service length and empathy levels.

Discussion and conclusions

Characterized by considerable physical strain and emotional involvement in the healing process of another human being, the physical therapy profession is exposed to high stress and burnout risk. Our results showed a substantial diversification in the burnout levels and its particular factors among participants, showing the exploration of this phenomenon to be a worthwhile endeavor.

Higher levels of burnout were found in therapists working in public compared to privately-owned health centers, an observation that is consistent with research findings conducted abroad. A study carried out in Cyprus (Pavlakis, Raftopoulos, & Theodorou, 2010) revealed that almost 46% of physical therapists regarded their work as stressful, with those working in public centers reporting relatively higher stress levels. This gives grounds to the observation that, in our contemporary reality, working in the public health care sector is associated with a greater number of responsibilities, lower financial satisfaction and a need for taking up additional work. These, in turn, lead

to a reduction in the time available for one's family life, social interaction and rest, which are vital factors in preventing professional burnout (Śliwiński et al., 2014). Higher burnout levels in therapists employed at public medical centers point to the direction of further research. Such research ought to be designed to analyze the specific work character in public medical facilities that occasion additional stress.

The present study showed no relationship to exist between burnout levels and length of service. Although some findings indicate that longer service in home rehabilitation and the medical professions is associated with higher professional burnout levels (Pavlakis et al. 2010; Mikalauskas et al., 2012), no unambiguous relationship between burnout and the physical therapists' length of service has so far been found. On the one hand, lengthy service is accompanied by prolonged exposure to stress at work, likely leading to overexertion and fatigue; whereas on the other, longer work experience is often accompanied by higher levels of knowledge and competence, which may translate into better results at work and higher job satisfaction. A large body of research shows that younger, less experienced workers are by far more exposed to professional burnout (Maslach & Schaufeli, 2001; Oyefeso, Clancy, & Farmer, 2008). In a previous study conducted on a Polish sample, physical therapists with 15+ years of service declared higher life satisfaction than did their less-experienced counterparts (Śliwiński et al., 2014). At the same time, the study showed the level of professional burnout to decrease with growing life satisfaction. The ambiguity of findings in this area suggests that length of service may be an important factor in choosing a strategy for preventing stress and professional burnout (Mikołajewska, 2014).

Our findings confirm the positive influence of empathy on the quality of medical care and patient satisfaction (See also Omdahl & O'Donnell, 1999; Seaberg, Godwin, & Perry, 2000; Hojat et al., 2004; Mercer et al., 2005; Eide et al., 2004), which in turn impact on physical therapists' job satisfaction. Extant research has also demonstrated the protective function of empathy against developing professional burnout in other professions as well (e.g. Astrom et al., 1990; Bradham, 2009; Kuremyr et al.,1994; Lee et al., 2003; Larson, 2005; Marcysiak, 2008). Our study did not reveal a significant relationship between empathy and burnout. Under its theoretical assumptions, the QMEE is primarily used for measuring the emotional component of empathy – which is understood as the ability to "feel into" the emotional states of others, focusing on the cognitive and behavioral components to a much lesser extent. As Maslach (1998) observes, an unrealistic model of an ideal caregiver-caretaker relationship prevails in the helping professions, which calls for a paradox: medical personnel are required to show care for and feel compassion toward, the patient on the one hand, and maintain emotional distance on the other. A lack of balance between emotional distance and emotional involvement with the

patient may lead to excessive mental stress. In such a therapeutic context, the role of compassion may perhaps be surpassed by that of the cognitive component of empathy, one related to the medical personnel's capacity to appreciate the perspective of others and objectivize their feelings. A promising avenue of research would be to explore the relationships between physical therapists' burnout and empathy levels by using methods for assessing all the components of empathy at the same time.

On account of the considerable diversity in the participants' burnout levels, our sample was divided into two homogeneous groups with high and low burnout profiles, with Physical fatigue subsequently turning out to be the key differentiating factor between the two groups. Physical strain related to therapists' responsibilities – such as performing massages, kinesitherapy, and lifting and carrying the patients – as well as exposure to physical factors, including radiation and various temperatures, all contribute to excessive overload of the skeletal and muscular systems (Mikołajewska, 2014). Research has shown many physical therapists to experience chronic pain associated with work-related strain (Krause, Regland, Fisher, & Syme, 1998), while an additional source of pain may also be sought in stress at the workplace. A key issue is the low wages that make the medical personnel take on extra work in privately-owned centers. Our findings show physical fatigue to be a major problem in this profession, one that demands certain organizational solutions for preventing work-related exhaustion and overload.

A leading factor contributing to professional burnout (e.g. Potter, 2006), stress is unavoidable in the social professions. Participants with the high burnout profile reported higher levels of stress at the workplace and at home. Family life satisfaction, good relationships with family and friends, and support of the people around them could play a crucial role in preventing stress at work (see also Mikołajewska, 2014; Śliwiński et al., 2014). Moreover, our study demonstrated that the type of mechanisms used to cope with stress is another important factor contributing to the burnout level. By showing that individuals who use avoidance-focused strategies are at greatest risk of professional burnout, our study provides a premise for planning and implementing preventive action in the future. It demonstrates the necessity to educate physical therapists on stress and burnout prevention as well as to help them develop effective abilities to cope with stress.

Under the model by Potocka and Waszkowska (2013), job satisfaction depends on job demands, job resources, and individual resources of the worker. Allowing the worker access to job resources (e.g. sense of control at work, support of the superiors, communication, and opportunities to develop) and individual resources is conducive to lowering the number of stressors and increasing job satisfaction. Apart from family life, job satisfaction is ranked among the determining factors in preventing professional burnout (Mikołajewska, 2014). Low job satisfaction observed in physical therapists with

high burnout levels suggests a possibility of bidirectional action in the future, targeted at both developing competencies (individual resources) and identifying adverse working conditions. Such an approach is in keeping with the postulate given by Sęk et al. (1997), claiming that burnout prevention can be realized using both positive and negative strategies. Whereas the positive approach is focused on strengthening social skills, communication competencies, coping strategies, and similar other abilities, the negative approach is directed at reducing the risk factors contributing to the development of burnout, including low wages and organizational shortcomings (in this case: identifying and improving the adverse working conditions in public medical centers).

A significant limitation of our study is the small sample size. However, similarly to previous research, these findings also confirmed that physical therapists do indeed experience professional burnout. They constitute the third largest group of health care professionals (Mikołajewska, 2014). Given the aging of societies and the growing demand for physical therapy services, the burnout problem affecting this profession is becoming a global issue that needs to be carefully addressed. Burnout is becoming ever more prevalent in the contemporary world, having pronounced effects at both the individual level – including symptoms of depression (Li Calzi et al., 2006) and cardiovascular diseases (Blackmore et al., 2007; Clays et al., 2007), and the organizational level – for example, increased absence from work and staff turnover, decreased productivity of workers and their frequent giving up work (Śliwiński et al., 2014). It is a situation that demands further research on burnout phenomenon determinants and urgently calls for implementing appropriate preventive programs.

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Anxiety intensity levels of children suffering from bronchial asthma and how they cope

Abstract:

Bronchial asthma is the most frequent chronic pulmonary disorder in the world. Population studies indicate about 10% of children in Poland suffer from it. Nowadays, the illness is mild and rarely severe due to specialized treatment. Regardless of how the illness develops, recurring asthma attacks can cause a person suffering from it to feel stigmatized, and result in tension and stress. When under stress, a sick person activates their own characteristic coping strategies, which help them to reduce discomfort. Our paper analyzes both the anxiety intensity levels experienced by children suffering from bronchial asthma and how they cope. Seventy-one children diagnosed with chronic respiratory condition, aged 12–15, were examined during their sanatorium treatment, using the State-Trait Anxiety Inventory for Children (STAIC) by Spielberger, adapted by Sosnowski, Iwaniszczuk, and Spielberger, and the *Jak Sobie Radzisz?* (*How Are You Coping?* – HAYC) Scale by Juczyński and Ogińska-Bulik. Thirty-eight per cent of the examined children had a high anxiety level, and 33% were diagnosed with a high anxiety-as-a-trait level. The results show significant differences between boys and girls on the anxiety trait scale, focusing on emotions strategy and seeking social support strategy. Girls have higher results on the above-mentioned scales. It was observed in the whole group of examined children that there is a statistically significant positive interrelationship between anxiety-trait results and focusing-on-emotions strategy in a dispositional stress-coping style. It is recommended to include psychotherapeutic assistance for children in standard bronchial asthma treatment.

Keywords:

asthma, anxiety, coping with stress, children

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Astma oskrzelowa jest liderem przewlekłych schorzeń dróg oddechowych na świecie. Populacyjne badania wykazują, że występuje u około 10% dzieci w Polsce. Obecnie przebieg choroby dzięki ukierunkowanemu leczeniu jest łagodny lub umiarkowany, rzadko ciężki. Niezależnie od przebiegu choroby, nawrotowość stanów zapalnych dróg oddechowych w większym lub mniejszym stopniu może stygmatyzować chorych, wywoływać stan napięcia i stresu. W sytuacji stresu chory uruchamia swoiste dla siebie strategie radzenia sobie pomagające mu obniżyć przeżywany dyskomfort. Celem pracy stała się analiza nasilenia lęku i przejawianych stylów radzenia sobie ze stresem u dzieci z astmą oskrzelową. Przebadano 71 dzieci w wieku 12–15 lat ze zdiagnozowaną przewlekłą niewydolnością oddechową podczas ich leczenia sanatoryjnego. Wykorzystano do tego Inwentarz Stanu i Cechy Lęku dla Dzieci STAIC Spielbergera w adaptacji Sosnowskiego, Iwaniszczuk i Spielbergera oraz Skalę *Jak Sobie Radzisz*? (JSR) autorstwa Juczyńskiego i Ogińskiej-Bulik. Trzydzieści osiem procent badanych dzieci charakteryzuje wysoki poziom lęku stanu, zaś u trzydziestu trzech procent zdiagnozowano wysoki poziom lęku jako cechy osobowości. Wyniki wskazują istotne różnice pomiędzy chłopcami i dziewczętami na skali lęku, strategii koncentracji na emocjach oraz strategii poszukiwania wsparcia społecznego. Dziewczynki uzyskują wyższe wyniki w wymienionych skalach. Odnotowano również w całej badanej grupie dzieci istotną statystycznie dodatnią zależność między wynikiem lęku jako cechy a strategią koncentracji na emocjach w dyspozycyjnym stylu radzenia sobie ze stresem. Wskazana jest psychoterapeutyczna interwencja w standardowym postępowaniu wobec dzieci z astmą oskrzelową.

Słowa kluczowe:
astma, lęk, radzenie sobie ze stresem, dzieci

Introduction

Bronchial asthma is the most frequent chronic respiratory tract condition in the world. Population studies indicate, about 10% of children in Poland suffer from it, as well as more than 10% of the population in developed countries (Talarowska et al., 2009). Despite progressing development in diagnosis and treatment techniques, asthma negatively affects patients' life quality, and its chronic character limits significantly a person's physical and psycho-social functions. Nowadays, the course of the illness is mild and rarely severe due to specialized treatment. Regardless of how the illness develops, the recurring asthma attacks can cause a person suffering from it to feel stigmatized, and result in tension and stress.

According to research into psychopathological symptoms exhibited by persons suffering from bronchial asthma, more than 10% of the patients have an increased anxiety level (Ciesielska-Kopacz, 1992; Nowobilski, De Barbaro & Furgał, 2002). Talarowska and others (2009) report that as many as 28–49% of children with asthma suffer from an anxiety disorder. Previous studies of patients with bronchial asthma's personality traits show that they are more anxious, less domineering, more self-aggressive, and more depressive than persons from the control group; they have stronger reactions to stress and show a tendency to repress emotions (Nowobilski, De Barbaro & Furgał, 2002). The patient's subjective feelings, for

instance anxiety, sadness, shortness of breath, play a major role in their life quality (Peeters, Boersma & Koopman, 2008; Marsac, Funk & Nelson, 2006). Shortness of breath and anxiety are the main causes for patients' complaints (Nowobilski, 2000). What is more, many children and adults suffering from asthma show a serious anxiety disorder (Katon et al., 2004). It is also observed that there is a significant relationship between a high anxiety level and intensified pathological changes in a patient's respiratory system (Nowobilski, 2000). Thus, one comes to conclusion it is necessary to provide psychological treatment for patients with asthma to relieve their anxiety. According to Nowobilski's research (2000), respiratory treatment based on prolonged contact with a physiotherapist, including psychological therapy (for example, relaxation), is more effective in treating patients with high anxiety levels than impersonal treatment devoid of relaxation. It is also known that psychological factors and a patient's family often decide whether or not doctor's recommendations will be followed. Thus, it is crucial to identify during diagnosis and treatment persons with high anxiety levels and to provide them with proper treatment including psychotherapy, and their families – with an educational program.

Facing illness – and tension and stress, which accompany it – a sick person uses their own characteristic coping strategies which help them to reduce discomfort. Coping means managing negative emotions (resulting from the fact of being sick and the character of that sickness) and being capable of experiencing positive emotions (for example, joy), which neutralize negative emotions. The strategies, characteristic of a given individual and being at their disposal, part of which is activated to cope with the stress – an illness – is termed "coping style" (Heszen-Niejodek, 1996). In activating a solution a person tries to solve a problem and reduce tension accompanying the problem. Endler and Parker have distinguished (Szczepaniak, Strelau & Wrześniewski, 1996) three coping styles:

1. Task-oriented coping style (TOC) – a person makes an effort to solve a problem by means of cognitive conversions or attempts to change the situation (in our paper this style's equivalent is Active Coping)
2. Emotion-oriented coping style (EOC), in which a person acts to reduce uncomfortable emotions; it is characteristic of persons inclined to focus on themselves and their emotional experiences, to fantasize, and with a tendency towards wishful thinking. These actions are aimed at relieving emotional tension but sometimes they may lead to intensification of sadness and tension, and, paradoxically, increase stress.
3. Avoidance-oriented coping style (AOC) – it can have two forms:
   - activities aimed at distracting oneself from what causes stress, namely, engaging in substitute activities (ESA), for example, watching television, overeating, sleeping.

- searching for social support (SSS) – characteristic of persons who, when facing a stressful situation, are likely to avoid thinking about and experiencing the difficult situation.

So, coping is a process in which a person tries to meet specific external or internal demands connected with exhausting one's personal resources by cognitive, emotional, and behavioral means (Kuczyńska & Janda-Dębek, 2002).

Our paper analyzes anxiety (as a state and as a trait) intensity and stress-coping styles among children with bronchial asthma. Such wording of our aim leads to a number of questions: What percentage of the examined children have high anxiety intensity levels? Is there a statistically significant interrelation between a given anxiety intensity level and a corresponding coping style? What final conclusion does our research indicate in terms of therapeutic implications?

Material and methods

Our team's research is part of the statutory research into patients' life qualities with regard to their respiratory illnesses, conducted by the Institute of Psychology at the University of Wrocław, in co-operation with Wrocław Medical University. The research participants were 71 children (34 boys and 37 girls) suffering from bronchial asthma, taking part in a six-week sanatorium treatment program in Polanica Zdrój. The research was conducted individually by a psychologist working at the sanatorium. The researched group is homogenous in respect to age and the place of residence; children's ages vary from 12 to 15, with all of them coming from rural areas.

Two methods were used: State-Trait Anxiety Inventory for Children (STAIC) (by C.D. Spielberger, C.D. Edward, R.EE. Lushene, J. Montouri, and D. Platzek) in the Polish adaptation by Sosnowski, Iwaniszczuk, and Spielberger (1987); and the *Jak Sobie Radzisz?* (*How Are You Coping?*) Scale by Juczyński and Ogińska-Bulik (2009). STAIC is used for examining anxiety as a state (C-1) resulting from circumstances, and from anxiety as a personality trait (C-2) occurring relatively constantly, regardless of the factors in an environment which activate anxiety and fear; it is to be applied in the examination of children. It comprises two parts, each of them containing 20 positions with answers on a three-point scale (1–2–3). The C-1 and C-2 scale results constitute the sum of points received for the answers in all positions. The minimal result possible to receive in each scale is 20, and the maximal – 60. The raw results can be ascribed to the 'Standard Ten' scores scale, where a sten score 1–3 means lack of anxiety, a sten score 4–6 is a sign of an average anxiety intensity (the norm), and a sten score 7–10 – a high anxiety intensity.

The HAYC (*How Are You Coping?*) scale is, referring to the paradigm of Lazarus and Folkman's research, used to examine situational and discretionary stress-coping styles employed by children. It constitutes two parts; in the first, the examinee is to take a stance towards a standard situation described in the instructions (the result received will inform about the discretionary style of coping with stress, namely, a strategy selection characteristic for an individual or a method for dealing with a difficult situation); and in the second part – towards a difficult situation experienced in the course of the preceding year described by himself/herself (the result received will inform about the situational style of coping used in a specific stress situation. The scale measures three strategies: Active Coping (AC), Focusing on Emotions (FE), and Search for Social Support (SSS). The strategies enumerated above are measured in every part of the Scale. Every part includes nine statements in the present tense (in the first part – discretionary) or in the past tense (in the second part – situational). The assessment is performed on a five-level scale, where each answer is given zero to four points; in the first part zero means 'almost never', and four – 'almost always', while in the second part zero means 'definitely no', and four – 'definitely yes'. In the discretionary part the result received includes frequency of applying a specific behavior pattern (strategy), whereas in the situational part it indicates how strong a given response (strategy) is.

Results

The STAIC examination allows one to receive a raw result reaching from 20 to 60 points, both in the first part, C-1, and in the second part, C-2. The average C-1 research result for the whole group equals 31.89, and the girls' result was lower. The result in C-2 for the whole group is 32.80, and the statistically significant differences between girls (35.20) and boys (30.32) should be mentioned. In the girls' group anxiety as a trait intensification is significantly higher.

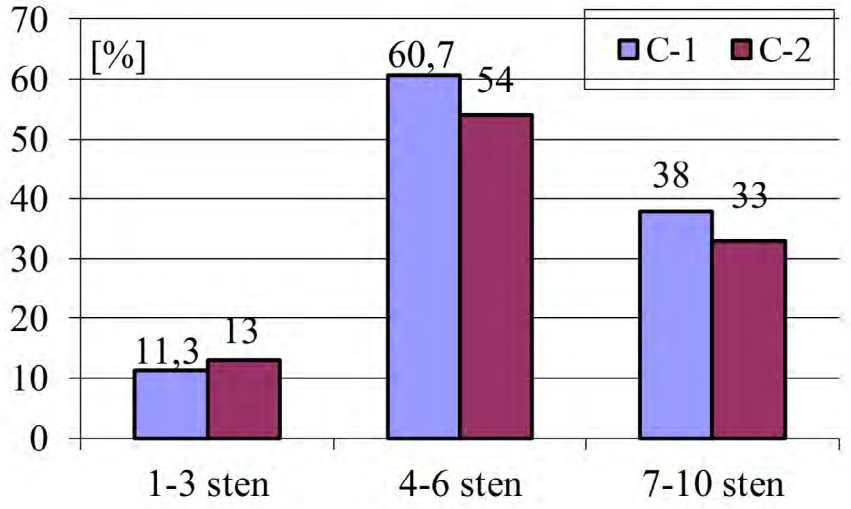
Table 1. Results of the average values in STAIC for the whole group and the subgroups of boys and girls.

	Sex	M	SD
C-1	Girls	31.29	8.50
	Boys	32.59	10.19
	All	31.89	9.19
C-2	Girls	35.20*	7.22
	Boys	30.32*	6.39
	All	32.80	7.21

* t=2.966 p<0.01

Distinction in numbers between anxiety as a state and anxiety as a trait (Figure 1) indicates that the smallest percentage of children are in the low values category (sten score 1–3) – 11.3% C-1 and 13% C-2, while more than half of the examined pupils achieve results in the average values category signifying a norm. A high proportion is characterized by a high level of anxiety as a state – 38% and anxiety as a trait – 33%.

Figure 1. The percentage of subjects achieving the values in C-1 and C-2 in sten intervals.



Results of coping styles were presented as weighted means (the points sum for each of the three strategies divided by the number of statements, namely, by three) in Table 2. Mean value comparisons in the discretionary coping style examination shows that highest values were given to the Active Coping strategy, next by Search for Social Support, and lastly by Focusing on Emotions. This order is visible in all participant groups as well as in the subgroups of boys and girls. It is worth pointing out that the AC strategy occurred most frequently in the boys' group (AC=1.9), where its result approximates the value two on the scale from zero (almost never) to four (almost always). The differences between the means statistics indicate that in difficult situations girls apply the Focusing on Emotions and Search for Social Support strategies more often than boys.

In the situational coping style the three strategies have similar average weighted values (not exceeding the value of two), the most marked is the AC strategy in the whole group and in the boys subgroup, while FE prevails in the girls subgroup. No statistically significant differences between boys and girls were observed while taking into consideration the application of these strategies.

Table 2. Mean values results on the HAYC Scale in the dispositional (1AC, 1FE, 1SSS) and situational (2AC, 2FE, 2SSS) coping style.

Sex		1AC	1FE	1SSS	2AC	2FE	2SSS
Girls	M	1.79	1.61**	1.62**	1.61	1.69	1.40
	SD	0.87	0.99	0.96	1.32	1.44	1.21
Boys	M	1.90	0.94*	1.14*	1.89	1.26	1.36
	SD	1.14	0.80	0.95	1.29	0.95	0.96
All	M	1.84	1.25	1.38	1.74	1.46	1.38
	SD	1.03	0.96	0.98	1.30	1.23	1.09

* $t(67)=3.079$, $p=.003$

** $t(67)=2.102$, $p=.039$

Factor analysis using the Varimax rotation method was applied in order to conduct a more detailed analysis of results variance for the discretional and situational HAYC Scale. The results are presented in Table 3.

The three identified factors relate to three distinguished coping strategies (1f/FE, 2f/AC, 3f/SSS). The highest percentage of the results variability for the discretional coping style is explained by the Focusing on Emotions factor (1f/FE) – 31.7%, and the lowest – the Search for Social Support factor (3f/SSS) – 14.54%. All three factors explain the 63.34% total variance. The three factors in the situational version explain the 64.41% total variance, including the Focusing on Emotions factor (1f/FE) – 32.93%, the Active Coping factor (2f/AC) – 16.88%, and the Search for Social Support factor (3f/SSS) – 14.59%. In the light of the above analyses it follows that Focusing on Emotions shows the greatest significance in explaining the variance results from both HAYC Scale versions .

Table 3. Variance analysis results and coefficients of reliability values for specific strategies in the dispositional and situational coping style.

Styles	Factors	% variance	% cumulated	Cronbach's Alpha
Dispositional	1FE	31.67	31.67	0.67
	1AC	17.13	48.80	0.64
	1SSS	14.54	63.34	0.65
Situational	2FE	32.93	32.93	0.69
	2AC	16.88	49.81	0.71
	2SSS	14.59	64.41	0.54

Pearson's correlation coefficients indicate one bilateral relation significant from the statistic viewpoint; it refers to anxiety as a trait (C-2) and the coping strategy consisting in Focusing on Emotions (FE). The correlation coefficient value is very high $r(71)=.494$, $p<.001$, and it proves that in the entire group of children the increase in anxiety-as-a-trait intensity is accompanied by a more frequent application of the Focusing on Emotions

strategy in difficult situations. The indicated interrelation occurs only in the discretional coping style (1FE). Other interrelations between anxiety as a trait (C-2) and the strategies available to an individual, both in the discretional and situational coping styles (1AC, 1SSS, 2AC, 2FE, 2SSS), are very insignificant.

All received coefficients of correlation between anxiety as a state (C-1) and all strategies occurring in both examined coping styles are insignificant from the statistical viewpoint (tab. 4). It is only worth mentioning that in this case the Pearson's r coefficient values are negative (excepting the relation between C-1 and 2FE), which indicates a rising trend in anxiety as a state occurrence accompanied by a decreased occurrence in the described strategies in the discretional as well as in the situational style of coping with difficult situations.

Table 4. Pearson's correlation coefficients between C-1, C-2 and stress coping strategies in the dispositional and situational coping styles for all children.

		1AC	1FE	1SSS	2AC	2FE	2SSS
C-1 (n=71)	r	−0.02	−0.04	−0.17	−0.02	0.09	−0.07
	p	0.859	0.755	0.148	0.864	0.432	0.563
C-2 (n=69)	r	0.20	0.49**	0.07	−0.07	0.06	−0.19
	p	0.091	0.000	0.550	0.581	0.606	0.124

** p<0.001

In the girls group (Tab. 5) the discretional coping style showed a statistically significant interrelation between anxiety as a trait and the Focusing on Emotions strategy. Correlation between anxiety as a state and the Focusing on Emotions strategy in the situational version of the scale approximates statistical significance (Tab. 5). In other cases correlation coefficients have a statistically low value.

Table 5. Pearson's correlation coefficients between C-1, C-2 and stress coping strategies in the dispositional and situational coping styles for girls.

		1AC	1FE	1SSS	2AC	2FE	2SSS
C-1 (n=37)	r	0.22	0.20	−0.08	0.25	0.32	0.06
	p	0.191	0.227	0.626	0.135	0.053	0.702
C-2 (n=35)	r	0.26	0.66**	0.02	−0.13	0.02	−0.26
	p	0.134	0.000	0.891	0.452	0.891	0.125

** p<0.001

In the boys group (Tab. 6) no correlation coefficients were statistically significant. However, the negative direction between anxiety as a state (C-1) and coping strategies, occurring in both versions of the HAYC Scale is worth mentioning.

Table 6. Pearson's correlation coefficients between C-1, C-2 and stress coping strategies in the dispositional and situational coping styles for boys.

		1AC	1FE	1SSS	2AC	2FE	2SSS
C-1 (n=34)	r	−0.20	−0.26	−0.23	−0.28	−0.16	−0.22
	p	0.246	0.133	0.181	0.103	0.354	0.204
C-2 (n=34)	r	0.23	0.08	−0.06	0.08	−0.03	−0.12
	p	0.192	0.650	0.753	0.631	0.854	0.504

Discussion

It is noteworthy that 38% of the children have a high anxiety-as-a-trait intensity level (7–10 sten), and 33% have a very high anxiety-as-a-state intensity level. Other research programs into patients suffering from asthma confirm these findings; according to them more than 10% of examined patients show high anxiety intensity symptoms , as presented by, among others, Vamos and Kolbe (1999), Ciesielska-Kopacz (1992), and Yanxia et al. (2012). The high anxiety intensity level may be a consequence of failure to cope with problems and manifests itself psychopathologically, for example through bad moods or illnesses (Juczyński & Ogińska-Bulik, 2009). Moreover, anxiety as a state, which accompanies pulmonary disorders, may modify anxiety as a trait, which predisposes patients to responding with anxiety as a state more frequently (Talarowska et al., 2009).

Differences regarding sex were observed in the anxiety-as-a-trait occurrence pattern; girls scored higher than boys. This tendency was also noticed by other researchers, for instance Spielberger et al. (as cited in Jaworowska, 2005), Krain and Kendall (2000), Jacques and Mash (2012), who used the original version of STAIC and did not find differences regarding anxiety as a state between girls and boys but did find that girls' anxiety-as-a-trait results were higher than boys'. Similarly in Polish research (Sosnowski, Iwaniszczuk & Spielberger, 1987): there was no difference between sexes regarding anxiety as a state, but anxiety-as-a-trait intensity was significantly higher in the groups of 9- and 12-year-old girls. Polish normalization research (Jaworowska, 2005) into STAIC gave the following result: middle school (age 13–15) girls (33.00%) had significantly higher anxiety-as-a-trait results than boys (31.6%). In our research girls suffering from asthma show an even higher anxiety-as-a-trait level (35.0%) than those in the normalized group. Possibly, asthma, with which children are often diagnosed in early childhood, and which is related to numerous occasions when a child is separated from their family, causes high anxiety intensity levels, present in a child's life from its earliest stages (Stewart et al., 2011). Moreover, patients with bronchial asthma show signs of anxiety level pathologically higher than do healthy persons or other outpatient clinic patients (Sreedhar, 1989). Life is not stabley when there is the necessity for frequent medical interventions or hospitalization, constant fear of expected shortness of breath. These factors are not conducive to feeling safe and

secure, safety being the fundamental factor influencing ill children and their families' quality of life. This was confirmed in the latest University of Illinois research[4]; it appears that regularity and predictability of, for example, regular meals with parents and their support are crucial factors for improving children with bronchial asthma's health and for reducing their anxiety. Children feel safer then, and the impression of being organized, which accompanies a meal with their family, brings relief.

Our paper indicates a connection between specific coping styles and anxiety intensity. It was proven that there is a relation between high anxiety-as-a-trait intensity level and the focusing on emotions strategy. Such interrelation is confirmed by the latest research into children with anxiety disorders results (Legerstee et al., 2010). According to this research, these children's coping styles consist mostly in thinking about negative life events in terms of a disaster (*catastrophizing*) and pondering on negative life events (*rumination*); children focus on these events' negative aspects more intensely than children from the control group. Apparently there is a positive correlation between *catastrophizing* and *rumination* strategies, and anxiety symptoms also among young people and adults (Garnefski et al., 2002). Results in our paper confirm a positive correlation between high anxiety intensity and focusing on emotions. This interrelation can be observed in the girls group suffering from asthma. It can be expected, therefore, that a more intense anxiety experience will trigger focusing on emotions strategy.

Our results indicate that the children use an active coping strategy more often in trying to find solutions to their problems. However, girls more frequently search for social support and focus on emotions. According to Band and Weisz (1988), stress related to medical procedures causes tendencies to cope using focusing on emotions strategy, whereas stress connected with social situations activates other strategies. It is so, because psychological factors influence the patients' efficiency in coping with illness (Pietras et al., 2009).

Our research results suggest that existing support and therapy programs for children with bronchial asthma ought to make use of diagnostic results which detail children's anxiety intensity levels and their stress coping styles, since there is a connection between the patients' psychological state and occurring asthma symptoms and treatment efficiency. Emotional factors are cited as having a major role in causing asthmatic symptoms to be more severe (hyperventilation and hypocapnia lead to bronchial tubes narrowing) (Talarowska et al., 2009). Similarly panic attacks, which occur to those more severely ill, can also cause breathing disorders, constituting one of the physiological components of phobias (Seligman, 2003).

[4] http://www.rynekzdrowia.pl/Nauka/Co-lagodzi-lek-u-dzieci-chorych-na-astme,16508,9.html (na dzień 10.01.2016)

Numerous research results stating the necessity for child therapy that efficiently lowers anxiety have been published (Nowobilski, 2000). It appears that a therapy program selected for treatment should involve elements of relaxation, for it is more effective in reducing anxiety than a program without relaxation (Lamontagne, Mason, Hepworth, 1985). Also, since it is known that focusing on emotions strategy often increases tension and stress, therapy and education (in a systematic family therapy) will activate other coping strategies, for example looking for solutions, or at least will point out the benefits of searching for social support (Rathner & Messner, 1992). As has been cited, using various coping strategies leads to better psychological adaptation (Caplan, Bennetto & Weissberg, 1991). It also appears that physical activity in asthma therapy is not to be underestimated. Strunk et al. (1989) argue that asthmatic children's psychological adaptation correlates with their physical condition rather than with various health condition variables. Physical activity, underestimated until recently, is now one of the fundamental medical recommendations for such patients.

Conclusions:

Results of our research and discussion lead to the following conclusions:

1. Doctors in their initial contact with an asthmatic child should be aware of the necessity for examining the child's psychological condition.
2. Efficiency of coping strategies depends largely on psychological factors, for example on the anxiety intensity level.
3. Psychological examination of children with bronchial asthma's emotional condition seems to be indispensable .
4. Relaxation, parental instruction, and new trends in therapy – for instance, underscoring the role of physical activity in the treatment process – should be included in treating children and young people with a pulmonary disorder.

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Activities of the elderly and their satisfaction with life

Streszczenie:

Pomyślne starzenie się (Rowe i Kahn, 1997) uwarunkowane jest dążeniem do bycia aktywnym i umiejętnościami podtrzymywania relacji społecznych. Aktywność polepsza życie emocjonalne seniorów i wiąże się z redukcją niektórych objawów starzenia się. Podjęte badania weryfikowały czy liczba aktywności (nieformalnych i samotniczych) wiąże się z jakością życia oraz czy subiektywny wiek może być mediatorem tej relacji. Przebadano 136 osób powyżej 60 r.ż. autorską skalą aktywności oraz WHOQOL-BRIEF. Wyniki pokazały, że wyższe wskaźniki zadowolenia w poszczególnych domenach jakości życia osób starszych wiążą się nie tylko z liczbą podejmowanych aktywności, ale są również funkcją częstości wykonywania tych czynności. Wykazano również słabą pośredniczącą rolę subiektywnego wieku w relacji aktywność – jakość życia, która w przypadku ogólnej jakości życia okazała się supresją kooperatywną.

Słowa kluczowe:

aktywność, osoby starsze, jakość życia, subiektywny wiek, pomyślne starzenie się

Abstract:

Successful aging (Rowe & Kahn, 1997) is conditioned by aspiration to be active and by the ability to maintain social relations. Activity improves the emotional lives of seniors and is associated with a reduction of some symptoms of aging. Our study verifies if the number of activities (informal and solitary) is associated with quality of life and whether subjective age may be a mediator of this relationship. The 136 seniors above 60 were tested by our authorial scale of activity and the WHOQOL-BRIEF. The results showed that older persons' higher quality of life levels are related not only to the number of activities undertaken, but also to the frequency that these activities are engaged in. The mediating role of subjective age in relation to one's activities and quality of life was also indicated, which, concerning general quality of life, turned out to be a cooperative suppression.

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Keywords:
activity, older people, quality of life, subjective age, successful aging

Introduction

Aging is a gradual process, influencing many areas of human functioning simultaneously. Socio-economic and medical changes contribute to increasing life expectancy, so quality of life in old age should be a key issue to make that period as happy as possible. The European Commission, recognizing that increasing numbers of elderly people is a serious issue, declared the year 2012 to be the European Year for Active Ageing and Solidarity between Generations. This action was intended to draw the attention of Member States to the needs of older people and at the same time emphasize the possibility for using the potential of seniors. Analyzing factors associated with older people's life quality is therefore a current and socially needed subject.

The quality of life of older people

Quality of life is a broad and multi-dimensional construct. It includes both internal (human experiential states) and external factors (economic and social conditions), as well as mechanisms for coping with stress developed by the human (Derbis, 2007). Analyzing quality of life can be carried out generally, referring to the assessment of life as a whole, as well as to assessing satisfaction within specific areas (domains) , focusing then on so-called partial satisfaction. Theories assuming that human activity is aimed at a target include the hypothesis that quality of life depends on engagement in interesting activities. Activities are interesting when they are balanced between the individual's capacity and the undertaken task's requirements. It is a given that an activity is tedious if it requires little skill from the individual and is stressful when task requirements are too high. Activity balanced between the skills and demands brings a pleasant feeling of „flow" (Csikszentmihalyi, 1975).

Analyzing the seniors' quality of life, factors relating to their health cannot be omitted, but Berg et al. (2006) demonstrated that objective measures of health have no significant relationship with assessing the quality of life for people over 80. On the other hand, Borg, Hallberg and Blomquist (2006) showed that low assessment of seniors' own health (performed as self-description) has a big part in shaping life satisfaction among older people. According to the World Health Organization's concept of quality of life conditioned by health, how to function within the social, mental, physical, and environ-

mental domains should be subjectively assessed by the patient (Górna, Jaracz, 2008). A meta-analysis of studies on factors that affect older people's life quality showed that financial satisfaction (not the size of income), positive evaluation of health, independence in decision-making and the ability to build positive relationships with the environment, affect most strongly its level (Zelikova, 2014). According to Halicka (2004, p. 34−40), among the most significant factors influencing this are health, functional efficiency, family situation, economic status, activity and social contacts. Based on the above it can be assumed that undertaking a variety of activities by elderly people, particularly those activities associated with social functioning and cognition, will most strongly affect their quality of life assessment.

Successful ageing

The concept of successful aging appeared in the early 50s in the works of Havighurst and Albrecht. According to Rowe and Kahn (1987, 1997), it consists of three elements: low probability of disease or disorders, high functional cognitive and physical abilities, and an active approach to life. In line with this appraisal, successful aging cannot be based only on avoiding disease, but on the pursuit of becoming an active person and on the ability to sustain social relationships. This is consistent with Csikszenmihaly's approach and concepts, which assume a positive relationship of social bonds or social capital with well-being (see Putnam, 2000, 2008; Sabatini, 2009 or Halpern, 2011). This includes bridging capital – participation in associations, groups of friends – and bonding capital – the presence in the family. Rowe and Kahn listed factors that support successful aging. It takes into account *health risks* (considering elements such as heredity, lifestyle or natural somatic involution), *contributory factors* maximizing the cognitive and physical health of older people (including training, exercises and socio-demographic factors such as income) and factors *strengthening the commitment to life* (including social relationships, productive activities or stress tolerance). Bowling (2007), based on analysis of available data, concluded that successful aging includes five important areas: *social functioning* (e.g. social involvement, participation and activities, and positive relationships with others), *life satisfaction* (including good mood and quality of life), *mental resources* (including creativity, autonomy, coping, having a goal and self-esteem), *biomedical condition* (including longevity, active life, lack of chronic diseases, high cognitive and mental levels) and a *subjective perception* of successful aging (here criteria are set by the elderly people themselves). On this basis, areas contributing to positive aging can be identified, thus distinguishing people aging „normally" from those aging „successfully" (Rowe and Kahn, 1997). A longitudinal study, conducted for eight years

on 1,947 seniors above 70, showed that successful aging is promoted by lower age, being male, a higher educational level and wealth and better health (risk of unsuccessful aging increases six times with low-rated health), mobility, cognitive skills (faster processing, abstract reasoning, and memory). In addition, psychological resources (i.e. sense of control and self-esteem) are more essential to successful aging than affective factors (i.e. depression and morale). These studies also showed that a higher rate of successful aging is associated with lower mortality among seniors (Andrews, Clark, & Luszcz, 2001).

Types of activities among older people

Dzięgielewska (2006) distinguishes three possible types of activities in old age: 1) *formal* – including participation in various social associations, working for the local environment, engagement in politics, volunteering; 2) *informal* – including maintaining contacts with family, with friends or neighbors, and 3) *solitary* – including the doing a hobby, watching TV or reading. This article focuses on the last two activities – informal activities (social / family) and activities performed individually (solitary).

Quality of life, especially for older people, is connected with the ability to participate in society and reap joy from it (Wiggins et al., 2008). However, due to the fact that with age a gradual withdrawal from performing certain professional or family roles can be observed, the emotional life of older people and their sense of social utility may significantly change (Gabriel & Bowling, 2004). Some studies show (e.g. Arai et al., 2007) that lack of informal activities (social activities) in the elderly, even highly physical activity, can lead to mental disorders such as depression. Antonucci et al. (2001) suggest that maintaining positive friendships and family relationships is a source of physical and emotional wellbeing for older people. On this basis, it can be assumed that engaging in informal activities will significantly affect life quality. Research shows that older people, aside from informal activity, more frequently prefer passive activities such as listening to the radio, watching television, and reading books and newspapers, particularly in cases where low overall physical activity is involved (Bicka & Kozdroń, 2003). These activities are usually performed individually; they are „costless" and often lead to increased knowledge (Nimrod, 2014). And while not all the content is perpetuated in memory, they exercise the mind, shape and modify world perception. Each activity forcing increased mental effort brings positive results for the elderly. On this basis, it can be assumed that solitary activities will be significantly associated with life quality.

Research shows that assessing the above mentioned factors may vary depending on how old one feels. One factor is subjectively experienced biological age. Data also concludes that feeling younger than their chronological age indicates that people per-

form better both physically and mentally, have fewer symptoms of depression, their cognitive decline is slower and they live longer (see Kotter-Grühn, Kornadt & Stephan, 2015). Research on predictors and correlates of subjective age support the thesis that subjective age reflects physical and mental aging. People who are extraverts, open-minded, and have a sense of self-efficacy and environmental control are also characterized by feeling subjectively younger (Infurna et al., 2010). It is believed that subjective age is a sensitive indicator of overall health status and chronological aging thus affecting daily functioning. The younger the subjective age is the higher the health status evaluation will be (Stephan, Demulier and Terracciano, 2012). Individuals with better health can feel younger, because they experience fewer adverse effects of aging and draw more positive feelings from physical activity connected with daily routine. On the other hand, people with poor health can feel older than they really are, because disease (poor health) can act as a „reminder" of biological age and expected physical decline (Stephan, Sutin and Terracciano, 2015). On this basis, it can be assumed that subjective age may be a factor mediating between undertaken activities and life quality.

Based on the above concepts and research findings the following hypotheses were formulated:

H1. The more informal and solitary activities older persons have, the higher their sense of life quality will be and the greater satisfaction with their health they will possess.

H2. Undertaking informal and solitary activities are associated with higher evaluations in the domains of quality of life: social, psychological, somatic and environmental.

H3. Subjective age mediates between the number of activities undertaken and assessed quality of life (at a general level and in each domain), as well as between the number of activities and satisfaction with health.

Materials and Methods

The participants filled in a battery of tests comprising three parts. The first collected information on respondents' socio-demographic data and answers concerning subjective age (independent from the biological). In the second part the participants had to determine which listed activities (5 informal and 7 solitary) they took part in and how often they undertook them in their leisure time. The list was developed from the survey „Ways of spending time in retirement" conducted by the Public Opinion Research Center in 2012. The activity scale reliability was $\alpha = 0.89$ ($\alpha = 0.79$ for informal activity and $\alpha = 0.85$ for solitary activity). The third part measured the respondents' life quality using the Polish version of WHOQOL-BRIEF (The World Health Organization Quality of Life, 2004). This is a 26 item scale with a five-point Likert response format. The score reflects the

individual's life quality sense and has a positive direction – it means that the higher the score, the better the evaluation. The scale allows one to evaluate general life quality, satisfaction with health status and satisfaction in four domains: social, psychological, somatic and environmental. The score for each domain is the arithmetic mean of the items included in the particular domains. Scale reliability was $\alpha = 0.92$ for the entire scale (26 items).

Participants

One hundred and thirty-six people aged 60 to 89 years (M = 67.9 SD = 7.1) living in the Opole region and the provinces of the Lower and the Upper Silesia were tested. Females constituted 69.8% (n = 95). More than half had spouses (55.1% n = 75), 31.6% (n = 43) were widowed, 5.1% (n = 7) were divorced and 7.4% (n = 10) were unmarried. The majority of respondents (77.9% n = 106) lived with the family or relatives, 18.4% (n = 25) lived alone. No individual lived in a nursing home or used its services, and 59.5% (n = 81) lived in the city.

Procedure

The participants were chosen randomly from the interviewers' – research assistants' residential area. Respondents completed the scales independently or in cooperation with an interviewer. The completion order was as follows: socio-demographic data, subjective age evaluation, activities undertaken, and the WHOQOL-Brief scale. Filling in the entire battery took about 30 min**.**

Results

Preliminary analysis has shown that participants rather positively assess their quality of life (M = 3.39 SD = 1.16) and are rather satisfied with their health condition (M = 3.49 SD = 0.83). Furthermore, in each life quality domain a positive tendency was observed: social (M = 3.56 SD = 0.76), psychological (M = 3.53 SD = 0.43), somatic (M = 3.29 SD = 0.37) and environmental (M = 3.62 SD = 0.55). Spearman correlation analysis showed no significant relationship between the level of life satisfaction and the respondents' biological age ($r_s = 0.08$ $p > 0.05$) and a moderate negative correlation between age and satisfaction with health ($r_s = -0.39$ $p < 0.05$). In other words, health turned out to be unrelated to the elderly's sense of quality of life despite its deterioration with age. Satis-

faction with health or any other domain of quality of life was not related to gender, marital status, place of residence or the seniors' roommates.

Correlation analysis showed that in general, the older the participants were, the less activities they undertook. This relationship was statistically significant, but weak ($r_s = -0.24$).

The most common activities undertaken by the respondents were[3]:

- Meetings with friends at home (96.3%) and outside the home (86.0%);
- Watching TV news and current affairs programs (95.6%) as well as films and television series (92.6%);
- Visiting relatives away from the participants' own residence (92.6%).
- The least frequent activities undertaken by the respondents were[4]:
- DIY and needlework (35.3%);
- Helping the family in running the house (31.1%);
- Grandchildren / great-grandchildren babysitting (23.5%).

In order to verify the first hypothesis, the answers to all 12 proposed activities were summarized and correlated with the sense of quality of life and satisfaction with health. The analysis showed a weak positive correlation between the number of undertaken activities and general life satisfaction ($r_s = 0.29$, $p < 0.001$) and a moderate positive correlation with satisfaction with health ($r_s = 0.39$, $p < 0.001$). These results show that the more informal and solitary activities undertaken by the elderly, the higher their sense of quality of life and satisfaction with health that they have. These results confirm hypothesis H1. In addition, it was examined how the number of the activity undertaken by the seniors was associated with the remaining domains of quality of life. The analysis demonstrated that the assessment of all domains was associated positively (but moderately) with a number of the undertaken activities: the social domain $r_s = 0.48$, $p < 0.0001$; the psychological domain $r_s = 0.39$ $p < 0.01$; the somatic domain $r_s = 0.43$, $p < 0.001$; and the environment domain $r_s = 0.35$ $p < 0.01$. The higher the number of informal and solitary activities, the higher the score for all quality of life domains.

To verify the second hypothesis a series of U Mann-Whitney tests were conducted to distinguish the activities that were significantly associated with the quality of life level (the general as well as in 4 highlighted areas), and with satisfaction with health. In the next step it was tested how the frequency of particular activities was associated with life quality of in all domains and with satisfaction with health status (the U Mann-Whitney tests were also conducted). The results are presented in Table 1 for informal activities and Table 2 for solitary activities. Data analysis confirms the second hypothesis

[3] The percentage of older people undertaking a particular activity.
[4] The percentage of older people not taking a particular activity.

H2, showing that the higher satisfaction levels in various domains of life quality were related not only to undertaking the particular activities ascribed to them, but also with the frequency of these activities. Additionally, a correlation analysis was performed between the indicator of activities (summed up informal and solitary activities) and different quality of life domains. The results showed that the higher the number is of activities undertaken by the elderly, the higher the satisfaction they have with the various quality of life domains. Detailed results are presented in Tables 1 and 2. These data also support hypothesis H2.

Table 1. Informal activities differentiating the quality of life of elderly people.

	General quality of life	Satisfaction with health	Social domain	Psychological domain	Somatic domain	Enviromental domain
Grandchildren / great-grandchildren babysitting	M_{reg}=3.9 vs. M_{sel}=3.1 U= 399.5 *	M_{reg}=3.7 vs. M_{sel}= 2.8 U= 15.0 *	M_{reg}=3.7 vs. M_{sel}=3.3 U= 16.0 A			
Helping the family in running the house	M_{reg}=3.7 vs. M_{sel}=3.4 U= 354.0 **	M_{do}=3.6 vs. M_{nd}=3.2 U= 325.0 A		M_{reg}=3.6 vs. M_{sel}=3.3 U= 58.0 *		
Visiting relatives away from the place of own residence	M_{reg}=4.0 vs. M_{sel}=3.2 U= 490.5 **		M_{reg}=3.9 vs. M_{sel}=3.2 U= 105.5 **			M_{reg}=3.8 vs. M_{sel}=3.4 U= 125.0 *
Meetings with friends at home	M_{do}=3.4 vs. M_{nd}=2.4 U= 166.0 A M_{reg}=3.9 vs. M_{sel}=3.1 U= 631.0 *		M_{reg}=3.8 vs. M_{sel}= 2.9 U= 48.5 **	M_{reg}=3.7 vs. M_{sel}=3.3 U= 81.5 *		M_{reg}=3.9 vs. M_{sel}=3.3 U= 72.5 *
Meeting friends outside the home	M_{reg}= 4.1 vs. M_{sel}=3.1 U= 362.0 **	M_{do}=3.6 vs. M_{nd}=3.0 U= 257.0 A M_{reg}= 4.0 vs. M_{sel}=3.3 U= 64.5 *	M_{do}=3.7 vs. M_{nd}=3.0 U= 195.0 ** M_{reg}=3.9 vs. M_{sel}=3.4 U= 77.5A	M_{reg}=3.7 vs. M_{sel}=3.3 U= 55.5 **	M_{reg}=3.6 vs. M_{sel}=3.1 U= 12.5 ***	M_{reg}=4.0 vs. M_{sel}=3.3 U= 52.5 **
Total indicator	r_s=0.29***	r_s=0.33**	r_s=0.39***	r_s=0.28*	r_s=0.29*	r_s=0.11

A- p<0.1 *p<0.05 **p<0.01 ***p<0.001

Nd – not doing it at all; Do – doing it (regardless of frequency);
Reg – undertaking regularly; Sel – undertaking seldom

Table 2. Solitary activities differentiating the quality of life of elderly people.

	General quality of life	Satisfaction with health	Social domain	Psychological domain	Somatic domain	Enviromental domain
Hobbies / interests	M_{reg}= 4.0 vs. M_{sel}= 3.0 U= 475.0 ***	M_{do}=3.6 vs. M_{nd}=2.5 U= 61.5 ** M_{reg}=3.8 vs. M_{sel}=3.1 U= 96.0 *	M_{do}=3.7 vs. M_{nd}=2.5 U= 67.0 **		M_{do}=3.3 vs. M_{nd}=3.0 U= 96.0 *	M_{do}=3.7 vs. M_{nd}=2.9 U= 65.0 **
Watching the news / current affairs programs	M_{reg}=3.7 vs. M_{sel}=3.0 U= 1101.5 **				M_{reg}=3.4 vs. M_{sel}=3.0 U= 66.5 *	M_{reg}=3.7 vs. M_{sel}=3.1 U= 71.5 A
Watching movies and TV series					M_{do}=3.3 vs. M_{nd}=3.0 U= 65.5 *	M_{do}=3.7 vs. M_{nd}=3.1 U= 79.5 A M_{reg}=3.7 vs. M_{sel}=3.5 U= 171.5 A
Listening to the radio / music	M_{reg}=3.9 vs. M_{sel}=3.1 U= 693.0 *					
Reading a newspaper / current affairs magazine	M_{do}=3.5 vs. M_{nd}=2.9 U= 675.0 A M_{reg}= 4.0 vs. M_{sel}=3.2 U= 626.0 **	M_{do}=3.5 vs. M_{nd}=3.0 U= 120.0 A	M_{do}=3.6 vs. M_{nd}=2.9 U= 124.0 A	M_{reg}=3.7 vs. M_{sel}=3.4 U= 137.5 *	M_{do}=3.3 vs. M_{nd}=2.9 U= 100.5 * M_{reg}=3.5 vs. M_{sel}=3.2 U= 110.5 **	
Reading entertainment magazines	M_{reg}= 4.0 vs. M_{sel}=3.1 U= 260.5 *	M_{do}=3.7 vs. M_{nd}=3.0 U= 281.5 **	M_{do}=3.7 vs. M_{nd}=3.2 U= 367.0 A M_{reg}= 4.1 vs. M_{sel}=3.5 U= 51.5 *	M_{do}=3.6 vs. M_{nd}=3.4 U= 347.5 * M_{reg}=3.9 vs. M_{sel}=3.4 U= 24.5 **	M_{do}=3.4 vs. M_{nd}=3.1 U= 371.0 A M_{reg}=3.6 vs. M_{sel}=3.2 U= 39.0 *	M_{do}=3.7 vs. M_{nd}=3.4 U= 353.0 *
DIY / needle-work	M_{reg}=3.9 vs. M_{sel}=3.0 U= 321.0 *		M_{reg}=3.9 vs. M_{sel}=3.4 U= 54.5 *	M_{reg}=3.7 vs. M_{sel}=3.3 U= 61.5 *	M_{reg}=3.5 vs. M_{sel}=3.1 U= 54.5 *	M_{do}=3.7 vs. M_{nd}=3.5 U= 337.0 A M_{reg}=3.9 vs. M_{sel}=3.6 U= 62.0 *
Total indicator	r_s=0.29***	r_s=0.33**	r_s=0.40***	r_s=0.40***	r_s=0.47***	r_s=0.52***

A – $p<0.1$ *$p<0.05$ **$p<0.01$ ***$p<0.001$

ND – not doing it at all; Do – doing it (regardless of frequency);

Reg – undertaking regularly; Sel – undertaking seldom

Before verifying the third hypothesis about the respondents' subjective age as a mediator, a preliminary analysis of this parameter was conducted. On average, respondents indicated that they felt they were 61.1 years old (SD = 17.1) – on average seven years younger than in reality. Spearman correlation analysis showed that subjective age is moderately negatively connected with both general life satisfaction ($r_s = -0.38$ $p < 0.01$) and satisfaction with health ($r_s = -0.43$ $p < 0.01$). This means that the younger the respondent felt, the better they evaluated their life and health. Also in particular quality of life domains, the lower the subjective age, the higher assessment: social ($r_s = -0.33$ $p < 0.05$), psychological ($r_s = -0.29$ $p < 0.05$) and somatic ($r_s = -0.24$, $p = 0.052$). In the environmental domain subjective age was not significantly associated with it. As for the number of undertaken activities, the lower the subjective age was, the more activities the seniors undertook ($r_s = -0.24$ $p < 0.05$) – especially informal activities ($r_s = -0.34$ $p < 0.01$). This relationship disappeared however, when taking into account only solitary activities undertaken by the elderly ($r_s = -0.08$ $p > 0.05$).

In order to verify the hypothesis about mediating role of subjective age, a mediation analysis in accordance with the approach by Preacher and Hayes (2008) was performed. Each quality of life dimension (the general as well as the 4 distinguished domains) and satisfaction with health were analyzed separately. The number of activities was a predictor and the subjective age was a mediator. To estimate the mediation effects, the bootstrap method was used for 5000 trials; confidence intervals were bias corrected. Detailed results are presented in Table 3.

Six multiple regression analyses were performed separately for general quality of life, satisfaction with health, and for four life quality domains. According to earlier analyses the subjective age was negatively associated with the number of undertaken informal and solitary activities (path a) and with each life quality dimension (path b). However, this relationship between activities and subjective age was at the statistical trend level. Significant positive correlations between the number of activities undertaken by seniors and all the analyzed dimensions of quality of life as well as for satisfaction with health also have been observed (path c). These results are in accordance with hypotheses H1 and H2. An indirect effect turned out to be weak, but statistically significant, suggesting mediating role of subjective age in the relationship between the number of undertaken activities and all the analyzed dimensions of life quality and satisfaction with health. In addition, an analysis of paths c and c' has shown that for general quality of life cooperative suppression was observed (Cohen and Cohen, 1975 in: Cichocka and Bilewicz, 2010), where subjective age strengthens the relationship between the number of activities and general life quality among the elderly. Other results confirm the partial

mediation of subjective age in the relationship between informal and solitary activities and all other life quality domains. The results therefore support hypothesis H3.

Table 3. Subjective age mediation analysis in a relationship between the number of activities with various life quality dimensions and satisfaction with health status.

Mediation path	General quality of life	Satisfaction with health	Social domain	Psychological domain	Somatic domain	Enviromental domain
X→ M (a)	−0.23[A]	−0.23[A]	−0.23[A]	−0.23[A]	−0.23[A]	−0.23[A]
M → Y (b)	−0.33**	−0.35**	−0.33**	−0.21[A]	−0.32**	−0.32**
X → Y (c)	0.35***	0.41***	0.45***	0.51***	0.54***	0.42***
X (M) → Y (c')	0.39***	0.35**	0.39**	0.44***	0.51***	0.32**
Indirect effect	0.07 95% CI: 0.02−0.08	0.08 95% CI: 0.03−0.1	0.07 95% CI: 0.01−0.05	0.05 95% CI: 0.01−0.04	0.07 95% CI: 0.03−0.11	0.07 95% CI: 0.01−0.06

X – predictor (the number of activities); M – mediator (the subjective age); Y – dimension of quality of life; a-c' – analysed paths; CI – confidence intervals

A – p<0.1 *p<0.05 **p<0.01 ***p<0.001

Discussion

Our study has shown that seniors rather positively assess their quality of life (in general and in certain domains) and their health condition (although the older they become, the lower assessed this parameter becomes). This confirms the results of previous studies showing a relatively high life quality level regardless of age (e.g. Diener and Suh, 1997), but it is also consistent with the „U-shaped" hypothesis of relationship between age and life satisfaction (Easterlin, 2006 Gwozdz, Sousa-Poza, 2010). Moreover, according to other longitudinal studies (Mroczek and Spiro, 2005), the life quality level is highest at approximately 65 years of age, and the vision of impending death causes a decrease in such assessments, notwithstanding the subjectively assessed health status.

Many studies have shown that engagement in different activities (not related with a paid job) significantly affects the satisfaction with the social, psychological, physical or spiritual areas of elderly people life (Grant & Kluge, 2012). Our study showed that the more informal and solitary activities seniors undertake, the higher will be both their life quality sense (in general and in particular domains) and their satisfaction with health (although these relationships were moderately strong). Błędowski (2012) furthermore notes that generally in recent years increased activity level among seniors has been observed, mainly in the area of physical activity. There is also an increase in active participation in family life and in autonomic activities, disclosing their own interests and im-

plementing their own plans, without subordinating to family needs. Our study has shown that seniors most often undertake activities with low levels of activation / low physical difficulties, but also those with high social value (maintaining social networking). Many factors influence the selection of different activities by seniors, for instance: personal factors (e.g. education, income, health, personality or values) and contextual factors (social programs, the facilities available in the immediate area, experienced support). Whatever the dominant factor is, studies from many countries confirm that the most popular activities undertaken by the elderly people are informal (such as visiting family and friends) and solitary (such as media consumption) (see Nimrod, 2014). In addition, our results showed that informal activities were associated with higher evaluations of social domain of life quality and satisfaction with health, while solitary activities were connected to the environment and the somatic. These results confirm the data showing that undertaking social activities (informal) allows seniors to develop and maintain the life quality by maintaining both social roles and self-integrity (Zimmer and Ling, 1996). The results are partly consistent with the activation theory which states that solitary activities more weakly promote quality of life, because they give less opportunity to build a positive self-image. On the other hand, activities that promote a competence, self-efficacy and control over the environment build psychological resources for the elderly. According to Csikszentmihalyi (1975) activities that are mentally absorbing and challenging, can strengthen environmental awareness and help develop an individual. To those activities can be included those described as „creative" (hobbies, handicrafts and reading books, see: Zimmer and Ling, 1996).

The last results focused on the significance of subjective age to older people's life quality. Our study results showed that seniors felt younger than they really were, and the younger they felt, the more highly assessed became the general quality of life, their health and their social, psychological and somatic domains (for the environment domain there were no differences). Moreover, the younger the seniors felt, the more activities they undertook, especially those informal ones. Such data are consistent with other studies showing that the younger the respondents feel the better they evaluate their psychological well-being, their physical and cognitive functioning, and the longer they actually live (Stephan et al., 2015). In addition, our analysis revealed subjective age's mediating role in the relationship between undertaken activities and life quality. It has been shown that the subjective age strengthens the relationship between the number of activities and the general quality of life of seniors. Concerning satisfaction with health and other life quality domains, a partial mediation of subjective age was observed. This is consistent with studies showing that the younger the elderly feel, the higher they estimate their life satisfaction (Stephan et al., 2011) or their self-efficacy (Boehmer, 2007), which allows

them to undertake various activities without any worries. Additionally, these results support the thesis of Stephan et al. (2011), suggesting that younger subjective age is associated with a higher life quality sense, because it is linked to the seniors' mental and cognitive resources. They also showed health's mediating role in this relationship. This data as well supports what we obtained in our study, because the younger the subjective age of the senior, the less health problems they experienced, thus the greater possibility to undertake diverse activities (both informal and solitary), which results in a higher sense of quality life.

In future studies examining the relationship between activities and quality of life , the respondent's gender should be more strongly controlled (though this variable turned out to not significantly affect the results in our study). Some data reveal that women and men differ in those activities that actually benefit them – females are more likely to engage and benefit from informal activities, while males are more likely to participate and benefit from physical or solitary activities (Zimmer and Ling, 1996). Another aspect would be to more greatly diversify the undertaken activities; for instance: [informal-family, informal-friends, solitary-active or solitary-passive,] since, for example Lennartsson and Silverstein (2001) have shown that not all activities contribute to longevity in the same way.

Summarizing, our research has shown an important role for activities undertaken in by older people. These activities facilitate all life quality domains as well as provide an better assessment of their health. This is an important result, from the perspective of social policy and potential prevention programs, aimed at the elderly. Programs that promote the elderly's mobility or help to maintain social contacts should have a positive influence on senior's life quality. On the other hand, a wider range of tools facilitating engagement in solitary activities should also be fruitful for the senior's satisfaction level.

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Erratum to: Order effects in attributions of sporting abilities in team handball

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Changes in Table 1. (p.98) – incorrect description of the 7−10 rows in the second column and the 1−4 rows in the fourth column.

Table 1.

In the second column – ascending pattern / quality of execution – there is: poor, poor, poor, poor, moderate, moderate, poor, poor, poor, poor. There should be: poor, poor, poor, poor, moderate, moderate, good, good, good, good.

In the fourth column – declining pattern / quality of execution – there is: poor, poor, poor, poor, moderate, moderate, poor, poor, poor, poor. There should be: good, good, good, good, moderate, moderate, poor, poor, poor, poor.

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