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*Characterization of Chronic Fatigue
in Polish Men Aged 13–24*

Charakterystyka przewlekłego zmęczenia u polskich mężczyzn w wieku 13–24 lat

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ABSTRACT

Chronic fatigue is fatigue that lasts for more than 6 months that affects psychical and physical functioning and reduces significantly the activity of the person. It is diagnosed more often in women than in men. Accordingly, the question arises on characteristics of chronic fatigue in men associated with age. The aim of the study was to determine the intensity and the picture of chronic fatigue in men in Poland. It was intended to indicate age-related differences in the picture of chronic fatigue in men. We analyzed results from the 478 men aged 13–24 ($M = 17.23 \pm 2.63$). Rokuro Kosugo's Cumulative Fatigue Symptoms Questionnaire adapted by Agnieszka Kulik and Leszek Szewczyk was used to evaluate chronic fatigue. The applied statistical analysis made it possible to determine significant differences. It is no difference in intensity of chronic fatigue in a group of men according to the stage of development ($\chi^2 = 5.878$). Men aged 13–15 are more psychical overload ($H = 6.655$; $p < 0.05$) and have more somatic symptoms ($H = 90.026$; $p < 0.05$) than others. The risk factor of chronic fatigue is age 13–15. During adolescence, Polish men usually manifest low or moderate severity of chronic fatigue. Numerous somatic symptoms and pronounced psychological overload occurred in the group of the youngest and oldest subjects.

Keywords: chronic fatigue; development; somatic symptoms; risk factor

INTRODUCTION

Fatigue is a universal experience, whereas chronic fatigue is a pathological symptom with many various causes. More and more people suffer from chronic fatigue with unknown etiology (the chronic fatigue syndrome), numbered among symptoms that cannot be explained by medicine. Every man is situated on the continuum between short, soon subsiding fatigue, and chronic fatigue syndrome.

Chronic fatigue is understood as severe, long-term and disturbing fatigue that lasts for a period of at least six months and affects psychical and physical functioning. It is characterized by: bad physical and psychical state, cognitive difficulties and muscle fatigue, reduction of physical/psychical vitality, occurrence of muscle and joint pain, headaches, sleep disturbances, neurological cognitive symptoms (concerning memory, concentration, thinking) and symptoms originating in the autonomic, neuroendocrine, or immune systems as well as reduction of previous activity levels (activities, studying, social and personal activity) (Jason, Corradi, Torres-Harding, Taylor, King, 2005). Persons with the complex of fatigue symptoms do not constitute a homogeneous group. Among persons with chronic fatigue additionally sub-groups are distinguished according to the following criteria: the function of rest, the degree of the intensity of symptom severity, the occurrence of mental disorders (Hadzi-Pavlovic et al., 2000; Jason, Taylor, 2002; Tiersky, Matheis, Deluca, Lange, Natelson, 2003).

The diagnostic criteria of chronic fatigue are the same for all demographic-social groups. However, researchers studying the developmental period, in fact, are unanimous in thinking that using strict criteria of chronic fatigue worked out for adults is not possible with respect to children, or, at least, it seems to be debatable; data obtained from studying adults may be helpful, but they cannot be directly applied to the developmental age (Jordan et al., 2000; Mears, Taylor, Jordan, Binns, 2004).

In the opinion of some researchers studying the problem, clinical images of fatigue of adults, children and young people are similar, but manifestation of particular symptoms is different in different life stages. According to others, the clinical image is different depending on the age, since the symptoms of diseases in young persons are different from the ones in adults; similarly, there is not one definite image of the disturbance in young people. Research shows a relation between the age and the intensity of problems connected with fatigue in teenagers (Jordan et al., 2000; Kulik, Szewczyk, 2004; Mears et al., 2004).

Everybody is liable to fatigue, independent of the sex (Chou, 2013). According to researchers, the observed differences between women and men in the image of fatigue result from cultural determinants and physiological differences. Men are more sensitive to stimuli and more phobia symptoms occur in them (Lindal, Stefánsson, Bergmann, 2002; Jason, Plioplys, Torres-Harding, Corradi, 2003; Murphy, Abbott, Allison, Watts, Ghadirian, 2004).

Boys significantly more often experience problems connected with school and memory problems than girls. General fatigue in boys is mainly accompanied by memory and concentration of attention troubles and a bad post-exertion physical and mental state (Jordan et al., 2000).

Estimated data concerning the occurrence of chronic fatigue in adolescence range from 3.5% to 20% (Kulik, Szewczyk, 2000; Jones, Nisenbaum, Solomon, Reyes, Reeves, 2004; Mears et al., 2004). Research points to the period of adolescence as the time of the greatest risk (Richards, Turk, White, 2005).

The image of chronic fatigue in adolescence has the features of frustration. The state of frustration, however, seems to be a typical state for the period of adolescence. In its initial stage, physiological changes seem to be the source of disturbances. They focus the young person's attention on his/her body and sensual feelings. They make him/her search for answers to basic questions concerning his/her own identity (Borzonsky, 2003; Kroger, 2004). This is the next difficult area and at the same time one of the most important tasks in the adolescence period. Still another area of frustration are social contacts. Affiliation to a group fulfills two tasks: it helps to complete the separation process (Schiffirin et al., 2014) and offers a possibility to test oneself (Erdley, Nangle, Newman, Carpenter, 2001), to gain social experience. In each of these areas, crises happen which result from the tension between searching for one's place in the society and emphasizing "self" (Lerner, Castellino, 2002).

Adolescence necessitates the development of specific adaptive strategies. Adolescents experience this task as difficult because it disrupts the sense of self-esteem they have developed thus far. Four possible scenarios are distinguished: adaptive (initiating difficult, but goal-oriented behaviors and integrating unpleasant experiences as a source of self-knowledge) and maladaptive (delaying goal-oriented activities and negatively focusing on one's mistakes (Kuhl, 2011). Procrastination increases fatigue, guilt and anxiety, and contributes to lower quality of life among adolescents (Schraw, Wadkins, Olafson, 2007).

Solving existential dilemmas in a negative way entangles adolescents in patterns and mechanisms of substitute reactions leading to the depletion of resources. In the context of searching for determinants of phenomena observed in adolescents' lives a problem that is ever more often tackled is the issue of the state of health of adolescents (Goldstein, Chesir-Teran, McFaul, 2008). Since people in the adolescence period are most liable to suffer the negative consequences of chronic fatigue it seems legitimate to look closely at the image of this phenomenon. Research on the determinants of chronic fatigue shows that biological factors are less important than psychosocial factors for men compared to women, though age has a significant influence (Bensing, Hulsman, Schreurs, 1999). Polish studies on adolescents show that the trend of increased fatigue among men is significantly lower than among women (Kulik, 2010; Mazur, 2018).

The aim of this study is to analyze the image of chronic fatigue that is connected with age and to search for its characteristic features for particular age groups, taking

into account the specific features connected with men. Detailed analyses that take into account age and gender simultaneously are lacking in the literature; results are usually broken down by age and gender. The present research addresses this limitation. Our goal was to determine the intensity and characteristics of chronic fatigue among men in Poland, paying particular attention to age-related changes in chronic pain manifestations.

The aim of the analyses is to answer the following research questions:

1. What is the intensity and image of chronic fatigue in young men in Poland?
2. What are the differences in the image of chronic fatigue in young men that are connected with age?

METHOD

Participants. 478 at the age of 13–24 were studied (the mean age $M = 17.23$, the standard deviation $SD = 2.63$). The study included 96 subjects aged 13–15, 271 subjects aged 16–18, and 111 subjects aged 19–24.

Measures. In the study the abridged version of Rokuro Kosugo's Cumulative Fatigue Symptoms Questionnaire adapted by Agnieszka Kulik and Leszek Szewczyk (2005) was used. The test consists of 30 statements related to symptoms of chronic fatigue during the last six months, on which the subject takes a position by choosing one response of the following: "never" (0), "sometimes" (1), "often" (2). The sum from all the responses to the items shows the intensity of chronic fatigue. Also, the tool allows obtaining more detailed characteristics of fatigue by adding up the scores in the sub-scales: general fatigue, weakened vitality, psychical overload, somatic symptoms, anxiety, discouragement about studying and school. The abridged version has psychometric values comparable to the full version; Cronbach's alpha for the whole test is 0.892.

Procedure. The tests were anonymous, conducted in groups during the classes, with the permission of the teachers conducted them. Prior to conducting the tests permission was obtained from the directors of the schools. Informed consent was obtained from all individual participants included in the study.

Statistical analysis. The general score as well as the scores in particular scales in the Cumulative Fatigue Symptoms Questionnaire, and age group were subjected to analysis. Statistical analysis was conducted with the use of descriptive statistics, the Shapiro–Wilk test (W), the Kruskal–Wallis test (H) and the Mann–Whitney test (U). The Shapiro–Wilk test was used to assess the normality of distribution, the Kruskal–Wallis test was used to determine the differences between the education groups. The non-parametric tests were used because of the distribution of the scores that did not confirm the hypothesis of normality. The maximum level of significance $p = 0.05$ was assumed.

RESULTS

The scores obtained in the Cumulative Fatigue Symptoms Questionnaire range from 0 to 60, with mean $M = 20.96$ and standard deviation $SD = 10.67$. 28.2% of the subjects obtained low (0–14), 54.8% – average (15–30), 14.6% – high (31–45), and 2.3% – very high scores (46–60). The high and very high scores most often occur in the groups aged 16–18. The data are presented in Table 1.

Table 1. Distribution of total score of the Cumulative Fatigue Symptoms Questionnaire due to the stage of the development period

Stage	Scores			
	low	average	high	very high
	$N(\% \text{ of } N_T / \% \text{ of } N_G)$	$N(\% \text{ of } N_T / \% \text{ of } N_G)$	$N(\% \text{ of } N_T / \% \text{ of } N_G)$	$N(\% \text{ of } N_T / \% \text{ of } N_G)$
Stage of development period: $\chi^2 = 5.878$; $df = 6$; $p = n.i.$				
13–15	23(4.8/24)	54(11.3/56.3)	15(3.1/15.6)	4(0.8/4.2)
16–18	86(18.03/31.7)	142(29.7/52.4)	39(8.2/14.4)	4(0.8/1.5)
19–24	26(5.4/23.4)	66(13.8/59.5)	16(3.3/14.4)	3(0.6/2.7)
Total group	301(63.0)	96(20.1)	70(14.6)	11(2.3)

Explanations: N_T – number of total group; N_G – number of singled group.

Source: own elaboration.

The general score in the Questionnaire for studying fatigue is not statistically significantly different in the groups distinguished because of the development period, which is presented in Table 2. There are average in all groups. The highest scores are in scale of general fatigue, the lowest – in scale of somatic symptoms.

Also significant statistical differences in the intensity of scores in particular scales are observed between groups (Table 2). They refer to scales: psychical overload and somatic symptoms. The greatest intensity occurs in the youngest group.

Table 2. Comparing the results (H Kruskal–Wallis) of the Cumulative Fatigue Symptoms Questionnaire among subgroups singled due to the stage of age – analysis described by the mean values (M) and standard deviations (SD)

Scales	Total group		Age 13–15		Age 16–18		Age 19–24		H(2.1244)
	M	SD	M	SD	M	SD	M	SD	
Total score	20.96	10.67	22.25	12.01	20.18	10.44	21.72	9.89	3.096
General fatigue	4.65	2.57	4.60	2.74	4.75	2.65	4.42	2.21	1.117
Weakened vitality	3.65	2.22	3.62	2.33	3.52	2.25	3.96	2.04	2.959

Scales	Total group		Age 13–15		Age 16–18		Age 19–24		H(2.1244)
	M	SD	M	SD	M	SD	M	SD	
Psychical overload	3.33	2.07	3.70	2.22	3.12	2.01	3.53	2.01	6.655*
Somatic symptoms	2.39	2.08	3.01	2.48	2.15	1.95	2.41	1.94	9.026*
Anxiety	3.45	2.25	3.46	2.28	3.31	2.24	3.77	2.23	3.605
Discouragement with studying and the school	3.50	2.40	3.85	2.63	3.32	2.32	3.62	2.38	3.289

* $p < 0.05$.

Source: own elaboration.

DISCUSSION

In young men in Poland, mostly a slight or average intensity of chronic fatigue is observed. The study results coincide with the information in the literature (Bensing et al., 1999). Closer analyses show that the period of 13–15 years old is the one when young men are most exposed to these symptoms.

In the discussion of the study results, it is important to refer to the sources of the subjective appraisal of the state of health, to the specific character of the realization of developmental tasks in a changing world.

Low levels of fatigue reported by male adolescents and young adults in our sample may suggest (1) adaptive coping with everyday developmental challenges, (2) a view of reality without confrontational demands, (3) a socioeconomic status that allows for a safe existence, and (4) a balanced lifestyle (Kuhl, 2011).

The period between 13 and 24 years of age is connected with directing the developmental tasks to planning professional development and defining its aims. It also requires balancing the expectations and pressure of one's social group and his/her own aspirations, often motivated by looking for personal profits, coping with the primacy of information over knowledge, which results in functioning in a deluge of data creating the feeling of changeability and insecurity (Markiewicz, Kaczmarek, Kostka-Szymańska, 2010). Knowledge does not constitute a basis in comprehending reality, and a person losing his/her unchanging identity gains a lot of different, often contrary identities; also interpersonal relations undergo great transformations, becoming ephemeral, temporary and pragmatic (Michałowska, 2011).

Adolescents become increasingly engaged in creating a fragmented, episodic self-view (Kutyła, 2016) characterized by strong beliefs about their abilities and skills (Bong, Skaalvik, 2003; Lindell, Campione-Barr, Killoren, 2017). Their aspirations progress from nonspecific representations of possible future achievements to concrete developmental plans that serve as motivators (Nurmi, 2004; Andre et

al., 2019). Adolescents' adaptive coping with everyday demands increases along with their psychosocial development (Benson, Johnson, Elder, 2012; Crocetti et al., 2016; Sica, Crocetti, Ragozini, Sestito, Serafini, 2016).

Students, who are decided about their future way of development, are characterized by the skill of adapting to the situation (average level of neuroticism) and by good functioning with others (conciliatory manner, confidence in other people, understanding other people's behaviors). Kulik's study (2010) shows that in teenagers who are "fatigued" as compared to "unfatigued" ones, understanding of the surrounding reality is significantly lower, and they have less confidence in themselves. It seems that these data may on the one hand point that the situation connected with information overload is stress-inducing, and on the other, it may point to coping with the burden of responsibility for the future shape of one's life.

Differences in fatigue intensity comprise mental fatigue and the number of reported somatic symptoms – they are the lowest among high school students. Our results stand in contrast with previous studies, which showed that fatigue and somatic symptoms were greater among older rather than younger adolescents and that they increased with age (Mazur, 2018). The period of early adolescence is seen as involving the conclusion of childhood experiences and of laying the foundations of a mature personality. Difficulties occurring in this period might contribute to the development of chronic fatigue (Krawczyk, 2012). Marinella Muscarà, Ugo Pace, Alessia Passanisi, Giulio D'Urso and Carla Zappulla (2018) have reported lower abilities of managing crisis situations among early adolescent boys. However, in the next period of adolescence, an increase in students' self-esteem is observed (McLeod, Owens, 2004), gained experience contributes to higher self-awareness (Eccles, Barber, Stone, Hunt, 2003), and life plans become more adequate to personal capabilities (Gottfredson, 1981). Thus, problems and low mood seem to subside in this period. The next critical period is high school graduation and the beginning of independent life as a college student. Long-term academic stress in men directly facilitates low mood (Balkis, Duru, 2009; Nash, Sixbey, An, Puig, 2017; Currier, McDermott, Hawkins, Greer, Carpenter, 2018), and indirectly – through procrastination – contributes to becoming overburdened (Cross, Copping, Campbell, 2011). Men are more prone to procrastination than women (Steel, Ferrari, 2013), though some researchers report contrary results (Washington, 2004). However, health consequences of delaying task realization are more pronounced among men (Cross et al., 2011). Studies pointing to the negative role of the avoidant style in coping with stress in university students are an argument confirming this thesis (Tanaka, Fukuda, Mizuno, Kuratsune, Watanabe, 2009). In men hostility and frustration connected with the experience of humiliation favor concentration on emotions (Kulik, 2015).

Jozien M. Bensing et al. (1999) have also observed that for men, fatigue is related to significant somatic complaints, psychological stress, and psychosocial problems. According to Karin Olson (2007), fatigue, when not related to interpersonal

difficulties and loss of control over one's body, can be treated as a stress response and lead to adaptation. Although fatigue consistently increases among adolescent women, the dynamics of changes in fatigue intensity among men is different.

The current article presents the differences in intensity and characteristics of chronic fatigue among male young adults in Poland. It also describes the differences in chronic fatigue among men in different periods of adolescence. Thus, it allows for a closer examination of chronic fatigue-related health problems and their impact on their everyday functioning and realization of the developmental tasks of adolescence among male young adults. The statistical analyses employed reveal a more detailed picture of the phenomenon of chronic fatigue, its intensity, and the age-related changes in its symptoms. The results show differences in fatigue symptom intensity in men, related to mental fatigue and reported somatic symptoms. The lowest number of fatigue symptoms was reported by high school students. Our results stand in contrast to prior studies of chronic fatigue intensity among older adolescents. They also provide an insight which might serve as a basis for creating individualized therapeutic programs for young adults experiencing chronic fatigue symptoms. Male Polish adolescents usually report small or moderate intensity of chronic fatigue. Numerous somatic symptoms and significant mental fatigue were reported by the youngest and oldest participants in our sample.

A significant limitation of the study is participation in it of only studying young people. The functioning of working or unemployed ones with respect to intensity and specificity of chronic fatigue would be an interesting aspect of the analyses.

The period between the age of 13 and 24 is the time of undertaking numerous commitments and challenges resulting from development tasks. The lifestyle, pace and activities undertaken contribute to the occurrence of stress and fatigue. It seems important to take appropriate preventive measures to prevent the development of chronic fatigue. According to the analyzes of Peter C. Rowe et al. (2017), young people should be encouraged to talk about their concerns and needs. It should also be important to work out a daily routine, encouraging the development of educational interests without exerting pressure from the environment. Education can help young people to pursue their passions and contribute to the development of social contacts (Bell, Carruthers, 2005). Research by Katharine A. Rimes and Janet Wingrove (2013) shows the importance of music, visualization and mindfulness in the re-education of perceived stress. In the case of suspected chronic fatigue, it is important, first of all, to make an early diagnosis, educate the patient and his family, and undertake appropriate treatment (Prylińska, Skierkowska, Topka, Kwiatkowska, 2020). Taking diagnostic and therapeutic and, above all, preventive measures seems to be even more timely in view of the pandemic. Studies show a high convergence of chronic fatigue symptoms and distant effects of COVID-19 (Gaber, 2021; Paul, Lemle, Komaroff, Snyder, 2021).

CONCLUSIONS

1. The intensity of chronic fatigue in young men in the period of 13–24 years of age is slight or average.
 2. The most characteristic feature of fatigue in the group of is the sense of fatigue.
 3. The psychological overload and number of somatic symptoms are the highest in the younger group, then the lower and again tends to increase in the oldest.
- Ethical approval: For this type of study formal consent is not required.

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ABSTRAKT

Zmęczenie przewlekłe to zmęczenie trwające przez ponad 6 miesięcy, które wpływa na funkcjonowanie psychiczne i fizyczne oraz znacznie zmniejsza aktywność człowieka. Jest częściej diagnozowane u kobiet niż u mężczyzn. W związku z tym pojawia się pytanie o cechy przewlekłego zmęczenia u mężczyzn, związane z wiekiem. Celem badań było określenie nasilenia i obrazu przewlekłego zmęczenia u mężczyzn w Polsce, aby na tej podstawie wskazać różnice związane z wiekiem w obrazie przewlekłego zmęczenia u mężczyzn. Przeanalizowano wyniki 478 mężczyzn w wieku 13–24 lat ($M = 17,23 \pm 2,63$). Do oceny zmęczenia przewlekłego wykorzystano Kwestionariusz skumulowanych objawów zmęczenia Roku Kosugo w adaptacji Agnieszki Kulik i Leszka Szewczyka. Zastosowana analiza statystyczna pozwoliła na określenie istotnych różnic. Nie ma różnicy w natężeniu przewlekłego zmęczenia w grupie mężczyzn w zależności od etapu rozwoju ($\chi^2 = 5878$). Mężczyźni w wieku 13–15 lat są bardziej przeciążeni psychicznie ($H = 6,655$; $p < 0,05$) i mają więcej objawów somatycznych ($H = 90,026$; $p < 0,05$) niż pozostali. Czynnikiem ryzyka przewlekłego zmęczenia jest wiek 13–15 lat. W okresie dojrzewania polscy mężczyźni zwykle wykazują niewielkie lub umiarkowane nasilenie chronicznego zmęczenia. Liczne objawy somatyczne i wyraźne przeciążenie psychiczne wystąpiły w grupie osób najmłodszych i najstarszych.

Słowa kluczowe: zmęczenie przewlekłe; rozwój; objawy somatyczne; czynnik ryzyka