

## The psychological aspects of everyday functioning in a group of patients with varicose veins – an assessment with VEINES Qol/Sym for patients before and after varicose veins surgery

Psychologiczne aspekty codziennego funkcjonowania pacjentów z żylakami – ocena przed- i pooperacyjna z zastosowaniem narzędzia VEINES Qol/Sym

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### Abstract

Psychological functioning of patients in early stages of venous insufficiency has not been a common subject of scientific investigation so far, even though this group of patients experiences many limitations in daily functioning, as well as psychological distress. Varicose veins are the most common type of venous insufficiency, with an epidemiology of up to 50% of the western population. The present study is concerned with the functioning of a group undergoing surgery of varicose veins. The operation was carried out in an ambulatory mode, and such psychological factors as acceptance of illness, anxiety–state, anxiety–trait, and wellbeing (treated as personality construct) have been considered. It is the first time that such variables have been used with the new tool for assessing quality of life in venous diseases (VEINES Qol/Sym), and no previous findings about applying VEINES Qol/Sym to assess patients after varicose veins operations exist. The results are promising, especially for combining such psychological variables as anxiety, acceptance of illness, or wellbeing with specific venous measures of quality of life. It has been proved that there is a need for monitoring psychological variables in the group of patients in an early stage of chronic venous illness. Further research on other venous patient groups is necessary to fully understand the specificity of these groups.

**Key words:** varicose veins, quality of life, anxiety, wellbeing, acceptance of illness

### Streszczenie

Psychologiczne funkcjonowanie pacjentów we wczesnych stadiach niewydolności żylniej nie było jak dotąd częstym przedmiotem badań, pomimo faktu, że doświadczają oni licznych ograniczeń codziennego funkcjonowania oraz dystresu psychologicznego. Żylaki są najczęstszą formą niewydolności żylniej, zmagają się z nimi nawet 50% populacji zachodniej. Opracowanie dotyczy funkcjonowania pacjentów przed i po zabiegu operacyjnego leczenia żylaków kończyn dolnych. Operację przeprowadzono w trybie ambulatoryjnym, a w badaniu uwzględniono takie zmienne psychologiczne, jak akceptacja choroby, lęk – stan, lęk – cecha, dobrostan (rozumiany jako konstrukt osobowościowy). Po raz pierwszy zestawiono takie zmienne z nowym narzędziem mierzenia jakości życia w chorobach żylnych (VEINES Qol/Sym), nie było też dotychczas danych na temat zastosowania tego narzędzia w grupie pacjentów poddawanych operacyjnemu leczeniu żylaków. Uzyskane wyniki są obiecujące – szczególnie ciekawych wniosków dostarcza zestawienie zmiennych lęku, akceptacji choroby i dobrostanu ze specyficzną miarą jakości życia. Wykazano, że istnieje potrzeba monitorowania zmiennych psychologicznych w grupie osób we wczesnym stadium niewydolności żylniej. Zrozumienie specyfiki problemów żylnych wymaga dalszych badań z udziałem następných grup pacjentów z tymi problemami.

**Słowa kluczowe:** żylaki, jakość życia, lęk, dobrostan, akceptacja choroby

## INTRODUCTION

**V**enous insufficiency is a common chronic illness with a vast spectrum of symptoms, ranging from cosmetic defects (such as spider veins) to venous ulcers. Varicose veins are the most common type of venous insufficiency. There is no clear data on the epidemiology of venous insufficiency because of different criteria of clinical examination, differences of sex, age, race and demographic factors. It is clear indeed that the problem concerns as much as half of the population of highly developed countries (Jawień *et al.*, 2003; Robertson *et al.*, 2008). Western Europe is definitely an area where the prevalence of varicose veins is high.

Several theories concerning the epidemiological factors are particularly important (Migdalski *et al.*, 2004; Noszczyk, 2009). These include the weakened venous wall theory, the venous valves insufficiency theory, and the haemodynamic theory. The pathogenesis of venous insufficiency is surely multifactorial. There must be a genetic disposition and coincidence of several factors too.

It is obvious that past research in the field of venous insufficiency focused on the surgical aspects (e.g. epidemiology, treatment methods) (Brar *et al.*, 2010; Mowatt-Larssen and Shortell, 2012), and on the examination of health-related quality of life (Ostiak, 2008). A few tools of assessing strictly venous insufficiency quality of life have been created, much more useful for predicting patients' functioning than global quality of life questionnaires (Deyo, 1991; Steuden and Okla, 2007). The most promising one is VEnous INsufficiency Epidemiological and Economic Studies Quality of Life/Symptoms (VEINES QoL/Sym), which consists of two subscales, separately treating clinical symptoms (Sym) and quality of life (QoL) (Abenhaim and Kurz, 1997). The scale, previously used mainly to evaluate the functioning of patients with venous ulcers and thrombosis, has recently been applied for the first time to examine patients in early stages of venous insufficiency, manifesting with varicose veins (Migdalski and Kuzdak, 2015).

## ASSUMPTIONS AND AIM OF THE STUDY

Few publications devoted to the psychological measures of functioning of venous insufficiency patients exist, particularly ones discussing patients in an early stage of the disease. It is of great importance to take psychological variables into consideration, as focusing on the global quality of life alone has proved insufficient. Attention given to early stages of venous insufficiency allows to discuss the functioning of this group of patients at a moment when the disease has not caused irreparable damage to the patient's health yet, however, he/she suffers tangible psychological distress. Pain is one of the problems, and it is typically not easy to treat. This study highlights such factors as anxiety-state, anxiety-trait, wellbeing, and acceptance

of illness. The novelty is to discuss the psychological measures together with the examination of quality of life directly related to venous insufficiency (VEINES QoL/Sym). Seven hypotheses were to be proved in the course of the study: 1) the level of anxiety-state, wellbeing, and acceptance of illness is similar for venous insufficiency patients and other groups of chronic disease patients; 2) anxiety-state before the operation is negatively correlated with a general tendency for positive emotional reactions described as wellbeing; 3) a decrease of anxiety-state or an increase of acceptance of illness is bound to occur after the operation; 4) anxiety-trait and wellbeing will remain stable following the operation; 5) education correlates with the following variables: acceptance of illness, a change within acceptance of illness, anxiety-state before surgery, anxiety-state after surgery, using/not using compression; 6) there will be a positive correlation between wellbeing and the level of acceptance of illness in both phases of the research; 7) there will be a correlation between the two aspects of quality of life in venous illness and psychological measures in both phases of the research. These hypotheses were based on clinical experience as well as on the existing literature concerning mainly analogical clinical groups (Bilińska and Sitek, 2007; Guzińska *et al.*, 2007; Juczyński, 2001; Kupcewicz and Wojtkowska, 2014; Miniszewska and Adamska, 2014).

## MATERIAL AND METHOD

The study presents data collected from patients undergoing surgical treatment of varicose veins in an ambulatory mode. C2 and C3 patients (CEAP) were considered. The CEAP scale was created in 2007 to provide a new classification system for chronic venous insufficiency, and has been since accepted worldwide. CEAP has helped researchers and clinicians to assess venous insufficiency symptoms and therapy results. It is based on USG-D of the venous system. The term CEAP is made up of four elements: clinical state (C), aetiology (etiology – Am. E.) (E), anatomical localization (A) and pathomechanism (P). These four elements allow to monitor the natural course of the disease and the effects of the therapy.

A total of 69 participants (72% female, 28% male) took part in the study. They provided a written consent to participate in the research, approved by the Regional Medical Chamber in Łódź Bioethics Committee (ID number: K.B. 6/13, of the 8<sup>th</sup> of May, 2013). Patients' mean age was 52.6 years; 24% of the patients had primary education, 40% secondary education, and 29% higher education. Ninety-two percent were classified for the stripping of the thigh portion of the saphenous vein with miniphlebectomy, 8% underwent saphenous vein crosssection with miniphlebectomy. The main aim of researching patients in early stages of venous insufficiency was to show the crucial role of early therapy for preventing further health complications. Also, there had been a lack of research discussing clinical groups in early stages

of venous insufficiency disease, and the daily difficulties the patients experienced tended to be neglected. It is important to remember that venous insufficiency is a disease that results with many possible health and aesthetic complications which limit the patients' activity. Strictly surgical issues have been discussed by Migdalski and Kuzdak (2015), whereas this study focuses on the psychological aspects of the patients' functioning.

The research was divided into two phases: the first part was carried out immediately prior to surgery, the second one three months following it. The psychological variables were operationalized with Spielberger's State-Trait Anxiety Inventory (STAI), the wellbeing scale of Multidimensional Personality Questionnaire (MPQ), and the Acceptance of Illness Scale (AIS). Factors such as sex, education, using/not using compression in the three-month postoperative period were considered. VEINES Qol/Sym scale was used to show the patients' quality of life in venous insufficiency. STAI is the most popular anxiety measurement, it is also known as a good tool to assess general psychological distress. The questionnaire is a useful tool for clinical examination, which has been proved by applying it to many clinical groups. Psychometric values for the scale are good enough. The Polish version of STAI is based on the American one, created by Spielberger *et al.* (1970). The fully adapted Polish version was prepared by Wrześniewski *et al.* (2002). STAI consists of two independent parts. The first subscale, STAI X-1, is used to measure the current level of anxiety. This part is a very sensitive tool. It allows to see the dynamics of anxiety over even short periods of time. The second part, STAI X-2, refers to anxiety described as a personality trait (Wrześniewski *et al.*, 2002). Anxiety-trait is defined by Spielberger (1975) as a theoretical construct, which means a motive or a behavioural disposition that makes a person prone to perceive a vast range of objectively not dangerous situations as imperilling. This means a predisposition to anxiety reactions which are disproportionately strong considering the extent of the objective danger (Wrześniewski *et al.*, 2002). The definition emphasizes the learned character of anxiety and the role played by the cognitive mechanisms in this kind of anxious personality. Anxiety-state is characterised by Spielberger (1975) as subjective, consciously perceived feelings of anxiety and tension, connected to a high degree of activation of the nervous system. It is characteristically activated by different types of subjectively dangerous factors. Spielberger (1975) claims that anxiety-trait and anxiety-state are connected in such a way that people with a high level of anxiety-trait have a high disposition to anxious reactions (anxiety-state), but only in situations that are really dangerous, not in all situations. This relation depends on the kind of danger, it is stronger in a situation when the ego is endangered, but weaker when the danger is of physical nature (Spielberger, 1975).

One of good examples of how to use STAI in clinical practice is the research on chronic cough, where both

anxiety-state and anxiety-trait were perceived as useful (McGarvey *et al.*, 2006). The comparison of this group of patients with the control group revealed a higher level of anxiety-state in the clinical group, but nearly the same level of anxiety-trait. There are several publications available showing the assessment of anxiety with the use of STAI, e.g. a study of patients with myasthenia gravis (Bilińska and Sitek, 2007). The mean level of anxiety-state was showed to be 39.56, and anxiety-trait 44.91. Jiang *et al.* (2004) also proved the importance of taking anxiety into account in the process of assessment of patients with chronic heart failure. Kindler *et al.* (2000) used STAI to assess a huge sample of 486 participants with perioperative anxiety. The mean score for anxiety – state was 39.

Multidimensional Personality Inventory (MPQ) is a questionnaire which consists of 300 self-descriptive items, created by the means of factor analysis (McGue *et al.*, 1993). The scale gives 11 main factors (which include the wellbeing factor), and three higher order factors. The wellbeing scale presents 18 items (23 for a newer version), and is a good measure of wellbeing. MPQ is characterised by great psychometric values. The original version of the test offers norms for people between 20 and 60 years of age, created on a group of 1350. Results for the Polish version may be carefully compared with the American results. The tool has a huge potential for understanding the structure of personality and its genetic, neurobiological and psychological foundations (Patrick *et al.*, 2002). MPQ gives independent scales and measures interpersonal and imaginery styles as well as behavioural regulation. The latest findings in clinical psychology connect adult psychopathology with the structure of personality identified in MPQ (Krueger *et al.*, 2001). Especially, the wellbeing factor is treated as a measure of good functioning and health (Diener, 2000). The wellbeing scale is a part of a higher order factor called Positive Emotionality.

AIS was constructed by Felton and Revenson (1984). The Polish version was prepared by Juczyński (2001). The scale has good psychometric values. Diagnostic validity was verified connecting AIS results with the effects of therapy. At the same time, it was proved that acceptance of illness was a good predictor of quality of life in a situation of disease (Juczyński and Adamiak, 2000), and the measure correlates negatively with the level of distress and 'other'/accident' results for a locus of health control. A positive correlation was discovered between acceptance of illness and self-esteem or self-efficacy (Juczyński, 2001). For the original version, it was proved that it is negatively correlated with wishful thinking too. The authors of the scale developed norms for several clinical groups. The highest scores were found in breast cancer ( $M = 28.13$ ), diabetes ( $M = 24.81$ ) and dialysed ( $M = 25.13$ ) patients, whereas lower results were obtained in patients suffering from chronic pain ( $M = 18.46$ ) (Felton and Revenson, 1984; Juczyński, 2001). The consequences of bad health conditions, measured by AIS, include shortcomings in everyday functioning that

are caused by the disease, the lack of self-sufficiency, the feeling of being dependent on others, or decreased self-esteem. High acceptance of illness produces lower level of negative feelings or reactions to illness. The higher acceptance of illness, the better the patient's adjustment, and lower psychological distress. The scale is used to assess adult, currently ill patients (Juczyński, 2001). A low result means a lack of acceptance of illness and a lack of accommodation, which is linked to major distress. High results suggest acceptance of one's own state, which is reflected by a lack of negative emotions connected to the disease (Juczyński, 2001). Since AIS is a very popular method, it is possible to compare results across many clinical groups. Polish publications include research on discopathy (Kupcewicz and Wojtkowska, 2014), myasthenia (Bilińska and Sitek, 2007), and ischaemic heart disease (Guzińska *et al.*, 2007).

VEINES Qol/Sym is a questionnaire dedicated strictly to venous patients. It includes such symptoms as leg pain, feeling of heaviness, spasms, fatigue and numbness, but also changes in functioning over time, and limitations in daily living. VEINES Qol/Sym is thought to be a reliable tool for assessing quality of life in venous diseases (Abenham and Kurz, 1997; Migdalski and Kuzdak, 2015). The Venous Insufficiency Epidemiological and Economic Study was an international prospective study carried out between 1994 and 1997. Its main objective was to describe the clinical symptoms of chronic vascular insufficiency in regards to history, quality of life, risk factors, and clinical outcomes, as well as to develop a new instrument. It was intentionally conducted in populations of several countries to come up with a universal tool, one that would be easy to approve and adapt internationally. All its adaptations had great statistical properties. The questionnaire consists of 26 items, and covers two dimensions. Of the 21 items, 10 cover symptoms in five frequencies. Such dimensions as limitations in daily activities (9 items), the time of day of the greatest symptom intensity (1 item), the change over the past year (1 item), and the psychological impact (5 items) are covered by a scale with 2- to 7-point response on intensity, frequency and agreement. The timeframe to be considered by the respondents is the last 4 weeks. The VEINES Qol summary score assesses quality of life, the VEINES Sym score measures symptom severity. Higher scores represent a better quality of life. The tool was created in English, and then translated into French, Dutch, Canadian French, Italian, Norwegian and Turkish. Our translation, as in past translations, followed the accepted forward – backward translation methodology, yet was used as an experimental version

because of the lack of full adaptation, which is to be completed in the future. It was our assumption that using an experimental Polish version of the method was methodologically correct, since: 1) VEINES Qol/Sym was not the main variable of the study; 2) the method was used only to show patients' functioning in the context of the difference between pre- and post-surgery conditions.

## RESULTS

The main results of the study are presented in Tab. 1.

The anxiety-state for the group of varicose veins patients before surgery may be compared to other clinical groups. It is higher than perioperative anxiety in Kindler *et al.* (2000), and slightly higher than in the group of myasthenia patients (Bilińska and Sitek, 2007). The acceptance of illness for varicose veins patients (presurgery) was higher than for diabetes, chronic kidney insufficiency, neuropathy, migraine (Felton and Revenson, 1984; Juczyński, 2001), or discopathy (Kupcewicz and Wojtkowska, 2014). It is very similar to the results obtained in the group of patients before a heart surgery operation suffering from ischaemic heart disease (Guzińska *et al.*, 2007), where it was  $M = 27.07$  and  $M = 22.80$ . The result for the post-surgery period was slightly higher than in these groups.

The score obtained in MPQ wellbeing scale before and after surgery was compared to a huge American sample; it corresponded to the 21<sup>st</sup> percentile, which means that only 21% of people had higher score than the patients in the American sample (Lykken, 2004).

No connection between the tendency for positive emotional reactions (wellbeing) and the current anxiety level, either before or after the operation, was established. There was no decrease of anxiety-state 3-months after surgery as compared to the preoperative period. Similarly, there was no change in acceptance of illness. As had been predicted, wellbeing appeared stable in both stages of the research, as did the level of anxiety-trait (see Tab. 1).

The importance of education variable was also analysed (three groups: primary, secondary, higher education) according to acceptance of illness in both phases of the research, anxiety-state before and after surgery, and using/not using compression. Non-parametric Kruskal-Wallis test was used first, and then post hoc tests were applied. For the preoperative period, there was a difference in the area of acceptance of illness: it was significant between the primary education group and the higher education group:  $H(2,60) = 10.75, p < 0.005$  (see Tab. 2).

Variable	Before surgery (M)	Before surgery (SD)	After surgery (M)	After surgery (SD)	Parametric test	p
Anxiety-trait	40	8.9	41.9	9.1	$t(53) = 0.43$	n.s.
Anxiety-state	41.2	7.3	40.7	8.6	$t(53) = -1.29$	n.s.
Acceptance of illness	30.9	8.5	33.1	8.2	$t(51) = -1.84$	n.s.
Wellbeing	31.4	8.6	31.6	8.2	$t(52) = 0.10$	n.s.

118 Tab. 1. Results for psychological variables for pre- and post-surgery periods



Education group	Anxiety-state (M)	Anxiety-state (SD)	Anxiety-trait (M)	Anxiety-trait (SD)	Acceptance of illness (M)	Acceptance of illness (SD)	Wellbeing (M)	Wellbeing (SD)
Primary	38.6	9.2	39.1	7.5	25.5	9	32	8.6
Secondary	42.8	8.5	40.5	10.7	31.1	8	31.2	9.4
Higher	42.1	6.8	39.3	7.2	35.4	6.2	32.1	8.3

Tab. 2. Results for educational groups for presurgery period

At this stage, there was no difference across the three groups for wellbeing:  $H(2,61) = 0.018, p = n.s.$ , anxiety-state:  $H(2,62) = 2.31, p = n.s.$ , or anxiety-trait:  $H(2,62) = 0.47, p = 0.79$ .

No differences were identified after three months across the three groups for all four variables (see Tab. 3).

A significant difference was discovered between the groups concerning the use/no use of compression. For the primary education group, it was 81.25%, for the secondary education group 46.15%, and for the higher education group 84.21%:  $\chi^2 = 6.95, df = 2, p < 0.05$ . Additionally, only the group with higher education indicated a decrease of anxiety-state: left-sided  $t(20) = 1.70, p < 0.05$ . There were no changes shown over time for any other groups. No correlation was found between wellbeing and a tendency to anxious reactions (anxiety-trait), or between wellbeing and acceptance of illness for both parts of the research. Relations between both measures of venous quality of life (VEINES Sym and VEINES Qol) and the psychological variables (acceptance of illness, anxiety-state, anxiety-trait, wellbeing) were analysed. In the preoperative period, there was a significant correlation established between VEINES Sym and acceptance of illness ( $r = 0.36, p < 0.001$ ), as well as between VEINES Qol and acceptance of illness ( $r = 0.49, p < 0.0001$ ). A similar correlation was revealed after the three-month period: for VEINES Sym and acceptance of illness it was  $r = 0.42, p < 0.001$ , and for VEINES Qol and acceptance of illness –  $r = 0.52, p < 0.0001$ . There was a weak, but significant negative correlation between VEINES Sym and anxiety-state:  $r = -0.27, p < 0.05$  for the preoperative period. VEINES Sym and anxiety-trait were not significant for this period:  $r = -0.45, p = n.s.$ , but statistically significant for the second one:  $r = -0.45, p < 0.0001$ . The correlation between VEINES Qol and anxiety-trait was significant for the first period ( $r = -0.35, p < 0.05$ ), and for the second one ( $r = -0.52, p < 0.001$ ).

## DISCUSSION

The data showing the anxiety-state level proved particularly interesting. The results obtained are of a similar level

as perioperative anxiety in the past studies. Anxiety-state was not connected to a predisposition to negative emotional reactions that should be correlated with a low level of wellbeing. There may be several reasons for that. Firstly, the analysis showed that there was no decrease of anxiety-state over time either. Interestingly, such decrease was present in the group with higher education (even if there was no difference in anxiety-trait across the three groups). Secondly, there was a weak, but significant correlation between anxiety-state and venous quality of life for both periods. Thirdly, it is important to consider anxiety-trait to understand the dynamics of anxiety-state. Three of four correlations between venous quality of life and anxiety-trait (before and after the operation) were significant, negative and moderately high. Obviously, anxiety-trait was stable over time. Anxiety-state in the preoperative period was adequate to the moderately dangerous situation of surgery. The ambulatory mode of operation was perceived by the participants as a promise of quick recovery. At the same time, it is interesting how emotional profit after the operation emerges – only the higher education group experienced a decrease in anxiety-state, despite the similar tendency for anxiety reactions across all education groups. The lack of strong correlation between this anxious tendency and anxious reaction *per se* was due to the Spielberger's definition of anxiety: he proposed that this relation is active mainly when a potential danger for the ego arises, not a physical one (Spielberger, 1975), whereas this kind of operation is mainly associated with physical danger.

The study showed the usefulness of precise assessment of quality of life in venous illness using such measures as VEINES Qol/Sym for predicting patients' anxious reactions. They allow to show that the actual condition of the affected limbs, its subjective perception, along with a number of factors related to daily functioning are all crucial for an adequate assessment of the therapy process. It is close to the current approach which takes into account such factors as self-perception with the entire cognitive-affective processes.

Wellbeing was found to be not the key variable useful for describing either current or future functioning, yet,

Education group	Anxiety-state (M)	Anxiety-state (SD)	Anxiety-trait (M)	Anxiety-trait (SD)	Acceptance of illness (M)	Acceptance of illness (SD)	Wellbeing (M)	Wellbeing (SD)
Primary	40.9	7.8	41.4	10.5	33.7	9.1	31.6	7.6
Secondary	43.2	8.6	44.4	9.7	30.7	8.9	30.1	8.9
Higher	38.4	9	40.4	6.3	35.8	5.7	32.9	7.1

Tab. 3. Results for educational groups for 3 months after surgery period

paradoxically, it was useful as wellbeing *per se*, as it showed how low patients' everyday satisfaction is as compared to the American sample. It suggests that venous patients perceive their health as poor and their everyday functioning as unsatisfying. The question why the level of wellbeing did not increase following surgery also emerges. Possibly, the three-month period was too brief for patients to discover the benefits of the operation, but it is more probable that wellbeing is a personality trait, which is stable over time. If so, further research should confront these results of surgical patients with the Polish population. Should patients' results come out as lower, the reason may be a change of personality experienced due to an unpleasant chronic disease. The lack of correlation between wellbeing and anxiety may be explained by confronting the two lists of items (for MPQ wellbeing scale and STAI), as there are no questions about bodily sensations or symptoms of high nervous system activity in MPQ wellbeing scale, whereas STAI abounds in them. It may be useful to take into consideration both measures in further research, facilitating a broader view of patients' functioning.

Acceptance of illness was also treated as a significant variable for the study. It has been a key variable in clinical research for years, mainly to give a cognitive representation of a disease, and because of its correlations with quality of life, health locus of control, the level of distress suffered in illness, self-esteem, and self-efficacy. AIS results are good predictors for the recovery process too. The results obtained are similar to other clinical groups, especially to these which have a chance for improvement related to surgical treatment. That may be why the participants with varicose veins present their acceptance of illness as much higher than patients with such chronic diseases as diabetes or myasthenia. The lack of change between the level of acceptance of illness before and after the operation may be explained in two ways: 1) it may be due to its high level preceding the operation, or 2) it may be stable due to the continuing symptoms of the disease, that have not yet been cured.

People with higher education accept limitations connected with varicose veins much better than those with primary education. There is also a difference between education groups in the aspect of using/not using compression. How is this conclusion to be understood? Considering the educational variable alone is not enough. It is worth noticing, in the light of prior studies, that people with primary education tend to have an outside locus of control and low acceptance of illness. That means a tendency to respect the physician's recommendations more (at a level of 80%). People with higher education, who have the highest level of acceptance of illness, mostly also respect these recommendations (over 84%), which aligned with a possible strong inside locus of health control (due to their knowledge, understanding of disease mechanisms, and the high level of acceptance of illness) suggests the existence of a highly rational mechanism. This kind of mechanism and coincidence of several variables may explain why a reduction of anxiety

occurred in the group with higher education. The strong relationship between acceptance of illness and specific venous scales measuring quality of life suggests the value and usefulness of both types of tools to be high.

## CONCLUSIONS

The following conclusions may be drawn from the study: 1) the group of people suffering from varicose veins needs continuous monitoring also with a consideration of the psychological variables; 2) such variables as acceptance of illness, anxiety-state and wellbeing are very useful, especially if connected with quality of life in venous diseases; 3) applying this set of tools facilitates assessment of the most important dimensions of psychological functioning and perspectives for future therapy. All this considered, many questions still remain unanswered that need to be pursued in future studies.

### Conflict of interest

*The authors do not report any financial or personal connections with other persons or organizations which might negatively affect the content of this publication and/or claim authorship rights to this publication.*

### Piśmiennictwo / References

- Abenheim L, Kurz X: The VEINES study (VENous INSufficiency Epidemiologic and Economic Study): an international cohort study on chronic venous disorders of the leg. *VEINES Group. Angiology* 1997; 48: 59–66.
- Bilińska MM, Sitek EJ: Jakość życia i akceptacja choroby w miastennii. *Postępy Psychiatr Neurol* 2007; 16: 139–143.
- Brar R, Nordon IM, Hinchliffe RJ *et al.*: Surgical management of varicose veins: meta-analysis. *Vascular* 2010; 18: 205–220.
- Deyo RA: The quality of life, research, and care. *Ann Intern Med* 1991; 114: 695–697.
- Diener E: Subjective well-being. The science of happiness and a proposal for a national index. *Am Psychol* 2000; 55: 34–43.
- Felton BJ, Revenson TA: Coping with chronic illness: a study of illness controllability and the influence of coping strategies on psychological adjustment. *J Consult Clin Psychol* 1984; 52: 343–353.
- Guzińska K, Kupc A, Borys B: Zasoby odporności na stres w procesie zdrowienia u pacjentów z chorobą niedokrwinną serca. *Psychiatria* 2007; 4: 144–152.
- Jawień A, Grzela T, Ochwat A: Prevalence of chronic venous insufficiency in men and women in Poland: multicentre cross-sectional study in 40,095 patients. *Phlebology* 2003; 18: 110–122.
- Jiang W, Kuchibhatla M, Cuffe MS *et al.*: Prognostic value of anxiety and depression in patients with chronic heart failure. *Circulation* 2004; 110: 3452–3456.
- Juczyński Z: Narzędzia pomiaru w promocji i psychologii zdrowia. *Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego*, Warszawa 2001.
- Juczyński Z, Adamiak G: Psychologiczne i behawioralne wyznaczniki jakości życia chorych ze stwardnieniem rozsianym. *Pol Merkur Lekarski* 2000; 8: 413–415.
- Kindler CH, Harms C, Amsler F *et al.*: The visual analog scale allows effective measurement of preoperative anxiety and detection of patients' anesthetic concerns. *Anesth Analg* 2000; 90: 706–712.
- Krueger RF, McGue M, Iacono WG: The higher-order structure of common DSM mental disorders: internalization, externalization, and their connections to personality. *Pers Individ Dif* 2001; 30: 1245–1259.

- Kupcewicz E, Wojtkowska M: Akceptacja choroby a poczucie satysfakcji z życia w grupie chorych leczonych z powodu dyskopatii. In: Majchrzak-Kłokocka E, Woźniak A (eds.): Organizacja i zarządzanie wyzwaniem dla pielęgniarek i położnych w nowoczesnej Europie – część II. Przedsiębiorczość i Zarządzanie, Tom 15, Zeszyt 12, Część II, Wydawnictwo Społecznej Akademii Nauk, Łódź – Olsztyn 2014: 157–170.
- Lykken D: Wrodzony potencjał szczęścia: jak i dlaczego ludzie różnią się pod względem odczuwanego dobrostanu. In: Czapiński J (ed.): Psychologia pozytywna: nauka o szczęściu, zdrowiu, sile i cnotach człowieka. Wydawnictwo Naukowe PWN, Warszawa 2004: 257–283.
- McGarvey LPA, Carton C, Gamble LA *et al.*: Prevalence of psychomorbidity among patients with chronic cough. *Cough* 2006; 2: 4.
- McGue M, Bacon S, Lykken DT: Personality stability and change in early adulthood: a behavioral genetic analysis. *Dev Psychol* 1993; 29: 96–109.
- Migdalski Ł, Kuzdak K: Zastosowanie ankiety VEINS Qol/Sym u pacjentów operowanych z powodu żylaków kończyn dolnych. *Pol Przegl Chir* (w recenzji, 2015).
- Migdalski A, Ciecierski M, Jawień A: Fizjologia i patofizjologia odpływu żylnego. *Przew Lek* 2004; 7: 33–35.
- Miniszewska J, Adamska M: Przekonania na temat zdrowia i choroby a akceptacja ograniczeń wynikających z przewlekłej choroby somatycznej na przykładzie osób z łuszczycą. *Psychiatr Psychol Klin* 2014; 14: 202–212.
- Mowatt-Larssen E, Shortell CK: Treatment of primary varicose veins has changed with the introduction of new techniques. *Semin Vasc Surg* 2012; 25: 18–24.
- Noszczyk W: Choroby żył obwodowych. In: Szmidt J, Kuźdzał J (eds.): Podstawy chirurgii. II ed., Vol. 1, Medycyna Praktyczna, Kraków 2009: 1289–1354.
- Ostia W: Funkcja kończyny dolnej, aktywność codzienna i jakość życia u chorych leczonych stabilizatorami zewnętrznymi. Wydawnictwo Naukowe Uniwersytetu Medycznego, Poznań 2008.
- Patrick CJ, Curtin JJ, Tellegen A: Development and validation of a brief form of the Multidimensional Personality Questionnaire. *Psychol Assess* 2002; 14: 150–163.
- Robertson L, Evans C, Fowkes FG: Epidemiology of chronic venous disease. *Phlebology* 2008; 23: 103–111.
- Spielberger CD: Anxiety: state-trait-process. In: Spielberger CD, Sarason IG (eds.): Stress and Anxiety. Vol. 1, Hemisphere/Wiley, Washington 1975.
- Spielberger CD, Gorsuch RL, Lushene R *et al.*: Manual for the State-Trait Anxiety Inventory. Consulting Psychologists Press, Palo Alto 1970.
- Steuden S, Okła W (eds.): Jakość życia w chorobie. Wydawnictwo Naukowe KUL, Lublin 2007.
- Wrześniewski K, Sosnowski T, Matusik D: Inwentarz Stanu i Cechy Lęku STAI. Polska adaptacja STAI. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, Warszawa 2002.