

Katarzyna Lewandowska^{1,2}, Krzysztof Specjalski², Ewa Jassem², Jan Marek Słomiński¹

¹Department of Pneumology, Medical University of Gdańsk, Gdańsk, Poland

Head: Prof. J.M. Słomiński

²Department of Allergology, Medical University of Gdańsk, Gdańsk, Poland

Head: Prof. E. Jassem

Styles of coping with stress and emotional functioning in patients with asthma

Abstract

Introduction: The evaluation of styles of coping with stress resulting from a somatic disease was always considered controversial, since the stress is a consequence of the complexity of the disease as a stressful event and is linked with every field of human life and activity.

The main aim of this study was to evaluate the effectiveness of various styles of coping with stress — task-oriented, emotion-oriented, or avoidance-oriented — used by patients with asthma to cope with their disease and its consequences.

Material and methods: 100 patients with asthma were examined including 15 with mild asthma, 40 with moderate asthma, and 45 with severe asthma. The first group consisted of patients with mild-to-moderate asthma and the second group of patients with severe asthma. The subjects were mainly females (69% women, 31% men) aged from 19 to 75 years, with at least primary level of education. The following questionnaires were used: Coping Inventory for Stressful Situations (CISS), UWIST Mood Adjective Check List (UMACL), and Asthma Control Test (ACT).

Results: Task-oriented style had a positive influence on emotions ($p < 0.05$) in patients with moderate asthma. Avoidance-oriented style had a positive influence on emotions ($p < 0.05$) in patients with severe asthma. Emotion-oriented style proved ineffective and had a negative influence on emotions ($p < 0.05$) in all patients.

Conclusions: Coping style plays a key role in the emotional functioning of asthmatics. Moreover, incorporation of an individual style of coping with stress in the therapeutic process is necessary.

Key words: asthma, style of coping with stress

Pneumonol. Alergol. Pol. 2009; 77: 31–36

Introduction

Asthma is a chronic inflammatory disease of the bronchi which remains a significant health problem worldwide. It touches people of every age and may have a severe or even fatal course. Asthma is an incurable disease which, despite progress in diagnosis and therapy, remains the source of numerous difficulties and by deterioration in functioning and fulfilling needs significantly impairs patients' quality of life [1–5]. However, asthmatics vary in terms of their attitude towards the disease [6]. In order to describe this variability, the category 'co-

ping with stress' has been introduced, which is defined as the individual and personally characteristic tendency of coping with stress [7, 8]. It is assumed — and this opinion is shared by many authors — that the style of coping plays a crucial role in shaping patients' attitudes towards stressful situations (e.g. disease) and their consequences [9].

Endler and Parker, authors of the most popular classification of coping styles, mention: task-oriented ('I concentrate on the problem and I think how to solve it', 'I define my tasks and try to achieve them'), emotion-oriented ('I blame myself because I do not know what to do', 'I worry how to deal with

Address for correspondence: Katarzyna Lewandowska, MD, Department of Pneumology, Medical University of Gdańsk, 7 Dębinki St., 80–210 Gdańsk, tel./fax: (+48 58) 349 16 25, e-mail: klewandowska@amg.gda.pl

Received: 15.11.2007
 Copyright © 2009 Via Medica
 ISSN 0867–7077

it') and avoidance-oriented ('I visit my friend', 'I go for a walk') [10].

So far, none of the above-mentioned styles has been proven to be more efficient than the others, despite the common belief that people vary in terms of coping with difficult situations [9–11]. In each case, both context and criteria used to evaluate efficacy should be taken into consideration [7, 10]. As is generally believed, in the course of most somatic disorders both confrontation and avoidance strategies are useful. However, coping style should refer to the patient's current situation e.g. avoidance strategies may be beneficial in chronic, incurable conditions while task-oriented are better when situations require a high level of control [11]. Emotion-oriented style has been described as the least efficient [7]. However, even in this aspect the results seem dubious and not well proven.

The effectiveness of coping with stress resulting from somatic disease is considered to be difficult to evaluate. The necessity of further studies in this field is emphasized by practical reasons. Despite the increasing number of studies regarding psychological factors changing the course of asthma, numerous patients still require psychological support in coping with the disease. As a result, professional activities are necessary to improve the efficacy of the treatment and to help in numerous aspects of psychological and social rehabilitation.

The main aim of the study was to evaluate the efficiency of 3 styles of coping with stress used by asthmatics to cope with their disease and its consequences: (1) task-oriented, (2) emotion-oriented, and (3) avoidance-oriented. The criteria of their efficacy were the emotions experienced by subjects i.e. hedonic tone (pleasure), tense arousal (fear), and energetic arousal (energy).

The relations were analysed in two groups of patients differing in asthma severity. The first group was comprised of patients with mild-to-moderate asthma while the second comprised of patients with severe asthma.

It has been assumed that patients with severe asthma have stronger feelings of being threatened resulting from dyspnea and limitation of exercise tolerance. The disorders disturb instrumental control, so avoidance strategies of coping with stress may be suspected to be efficient in alleviation of emotional functioning. In cases of mild-to-moderate asthma symptoms are usually better controlled, which favours a task-oriented style of coping with the disease. On the contrary, concentration on the self and the subject's own emotional feelings probably increase emotional discomfort in all pa-

tients and are associated with an inefficient style of coping with stress.

The following hypotheses have been proposed:

1. Task-oriented style favours emotional functioning in patients with mild-to-moderate asthma.
2. Emotion-oriented style leads to the deterioration of emotional functioning in both mild-to-moderate and severe asthmatics.
3. Avoidance-oriented style favours emotional functioning in patients with severe asthma.

Material and methods

One hundred asthmatics with no additional respiratory disorders and/or terminal conditions were included in the study. In 15 cases asthma was mild, in 40 it was moderate, and in 45 it was severe. Asthma severity was evaluated according to GINA classification [4]. The group comprised mainly of females (69% women, 31% men) aged 19–75 years, with at least a primary level of education. Apart from asthma, several other chronic diseases were found i.e. arterial hypertension (22%) and allergic rhinoconjunctivitis (17%). Patients were recruited during hospitalization at the Department of Allergology, Medical University of Gdańsk with the help of supervising physicians. Subjects were divided into 2 groups: the first comprised mild-to-moderate asthmatics (55 patients), and the second, severe asthmatics (45 patients).

No control group consisting of healthy individuals was included as the aim of the study was to evaluate emotional functioning of asthmatic patients. Conclusions were formed on the basis of comparison of mild-to-moderate asthmatics with severe asthmatics.

The research was conducted individually on the day of admission to the clinic. A psychologist presented the aims and methods of the study and asked for informed consent. Every patient received a set of questionnaires with instructions and consecutively filled them in.

Following questionnaires were used:

- The Coping Inventory for Stressful Situations (CISS) [12];
- Mood Adjective Check List (UMACL) [13];
- Asthma Control Test (ACT) [14].

The Coping Inventory for Stressful Situations (CISS) consists of 48 easy statements describing several manners observed in people's reactions to stressful situations. Next to every statement the numbers 1 to 5 are listed referring to the frequency of every activity conducted in difficult, stressful situations. According to the key, the results are calculated individually for each scale by adding the appropriate scores.

Table 1. Control of asthma symptoms

Control of asthma symptoms				F	p-value
Mild and moderate asthma		Severe asthma			
M Mean	SD Standard deviation	M Mean	SD Standard deviation		
37.50	0.66	12.38	0.73	18.42	p < 0.0001

The first scale refers to the task-oriented style of coping with stress. Patients obtaining high results have a tendency to make efforts aiming at solving problem by cognitive transformation or trying to change the situation. The main emphasis is put on the task and planning how to solve the problem. The scale consists of 16 items and scoring varies between 16 and 80 points [12].

The second scale refers to the emotion-oriented style of coping with stress, which is typical for patients who, in stressful situations, show a tendency to concentrate on the self and their own feelings such as anger or tension. Such patients also have a tendency for wishful thinking and fiction, which decrease emotional tension resulting from the stressful situation. Sometimes these manners may deteriorate the feeling of stress, tension, or depression. The second scale consists of 16 items. It is possible to score between 16 and 80 points [12].

The third scale is used to evaluate the avoidant style of coping with stress. Patients characterised by this attitude have a tendency to avoid thinking of, feeling, or experiencing difficult situations. This scale consists of 16 items and scoring varies between 16 and 80 points [12].

The Mood Adjective Check List (UMACL) is a list of 29 adjectives. Each patient is asked to choose the best answer in a four-point scale indicating to what degree the adjective given describes his/her mood. UMACL results are divided into 3 scales: hedonic tone (TH), tense arousal (PN), and energetic arousal (PE). Hedonic tone is a subjective feeling of pleasantness–unpleasantness [13]. Tense arousal is considered to lead to fear and tension, while energetic arousal is defined as the energy necessary for every activity.

The Asthma Control Test (ACT) consists of 5 questions and makes it possible to evaluate the level of asthma control during the previous 4 weeks. The result of the test is the sum of all the answers. Gaining 25 points confirms good control of asthma symptoms, 20–24 points is a satisfactory result, and less than 20 points is an unsatisfactory result [14].

Statistical analysis was performed with help of *Statistica* software. The first step was preliminary analysis including the influence of interfering

variables, i.e. age, gender, and education, on psychological variables (correlation analysis). In order to evaluate the influence of asthma severity on asthma control univariable analysis, ANOVA was used. In the main analysis correlation tests were used, which revealed correlations between the three styles of coping with stress and emotions experienced by patients with several forms of the disease.

Results

Preliminary analysis indicated that variables such as: age, gender, and education level had no impact on emotional functioning and as a result were not included in further calculations.

The mean result of the *Asthma Control Test* was significantly higher in mild-to-moderate asthma patients than in the severe asthma group (tab. 1).

Analysis of relations between task-oriented style (CISS 1) and emotional functioning in patients with mild-to-moderate asthma showed significant correlations between this style and hedonic tone (positive correlation), tense arousal (negative correlation), and energetic arousal (positive correlation) (tab. 2). Such tendencies were not observed in the severe asthma group.

In both the mild-to-moderate and severe asthma groups statistically significant correlations were found between emotion-concentrated style (CISS 2) and hedonic tone (negative correlation),

Table 2. Task-oriented style of coping (CISS 1) and emotions

Emotions	r*	p-value
Mild and moderate asthma		
Hedonic tone (TH)	0.40	p < 0.05
Tense arousal (PN)	−0.49	p < 0.05
Energetic arousal (PE)	0.38	p < 0.05
Severe asthma		
Hedonic tone (TH)	0.03	Not significant
Tense arousal (PN)	−0.09	Not significant
Energetic arousal (PE)	−0.01	Not significant

*Correlation coefficient

Table 3. Emotion-oriented style of coping (CISS 2) and emotions

Emotions	r*	p-value
Mild and moderate asthma		
Hedonic tone (TH)	-0.54	p < 0.05
Tense arousal (PN)	0.52	p < 0.05
Energetic arousal (PE)	-0.34	p < 0.05
Severe asthma		
Hedonic tone (TH)	-0.51	p < 0.05
Tense arousal (PN)	0.35	p < 0.05
Energetic arousal (PE)	-0.64	p < 0.05

*Correlation coefficient

Table 4. Avoidance-oriented style of coping (CISS 3) and emotions

Emotions	r*	p-value
Mild and moderate asthma		
Hedonic tone (TH)	0.00	Not significant
Tense arousal (PN)	0.16	Not significant
Energetic arousal (PE)	0.08	Not significant
Severe asthma		
Hedonic tone (TH)	0.28	p < 0.05
Tense arousal (PN)	-0.14	Not significant
Energetic arousal (PE)	-0.16	Not significant

*Correlation coefficient

tense arousal (positive correlation), and energetic arousal (negative correlation) (tab. 3).

As far as avoidance-oriented style is concerned (CISS 3), no statistically significant correlations were found between the preference mentioned and emotional functioning in patients with mild-to-moderate asthma. However, the same analysis in severe asthma patients revealed a significant link between avoidance-oriented style and hedonic tone (positive correlation) (tab. 4).

Discussion

The results of the study lead to the conclusion that style of coping with stress plays a significant role in emotional functioning of asthmatics. These correlations were revealed in patients varying in terms of asthma severity.

The tendency towards a task-oriented approach favoured emotional adaptation because it decreased the sensation of fear experienced by patients and increased positive emotions (pleasantness, energy). As expected, this tendency was fo-

und solely in the group of patients with mild-to-moderate asthma, which confirmed hypothesis no. 1. This means that efforts aimed at solving the problem seem to be an efficient method of coping when chronic disease only slightly impairs activity and its symptoms can be relatively easily controlled. The tendency towards an emotion-oriented style of coping with stress affects the psychological functioning in both groups, increasing the sensation of fear and decreasing positive emotions (pleasantness and energy). As a result, hypothesis no. 2 has been confirmed. The result is easily understandable considering that concentration on negative emotions in stressful situations usually results in maladaptation. On the other hand, avoidance of stressful experiences positively affected the emotional functioning of asthmatics, increasing positive emotions (pleasantness). As expected, this tendency was revealed in patients with severe asthma. The results of the study only partially confirm hypothesis no. 3 because the relation between this disposition and the efficacy of coping was not found in other parameters of emotional functioning, i.e. tense arousal and energetic arousal. However, it may be suspected that avoidance of experiencing stress ameliorates mood in patients with exacerbated and uncontrolled symptoms. The activity of these patients is very limited and their role is rather passive. All of these characteristic favour avoidance-orientation.

The acquired results are in line with the study by Endler and Parker [12], who found that both task-oriented and avoidance-oriented styles of coping with stress correlated positively with emotional adaptation, while emotion-oriented style correlated negatively.

It is necessary to emphasize that less efficient coping with stress that leads to worse emotional functioning may radically influence asthma therapy. In the meta-analysis by Barton et al. [15] emotion-oriented coping with stress was typical for patients who did not follow prescriptions, were hospitalized often, or had numerous exacerbations. As concluded by the authors, interventions aimed at improving methods of coping with stress helped to reduce asthma symptoms and increased patients' general feeling of well-being [15].

Conclusions

To conclude, the presented data may suggest that in stressful situations related to asthma, an emotion-oriented style of coping with stress is inefficient. On the contrary, avoidance-oriented and task-oriented approaches may have some adaptive

properties, depending on the context. This means that emotional functioning in mild-to-moderate asthma patients is favoured by a task-oriented style of coping ('I concentrate on the problem and I think how to solve it', 'I define my tasks and try to achieve them') and in severe asthma, an avoidance-oriented style of coping ('I visit my friend', 'I go for a walk'). Coping with stress based on emotions ('I blame myself because I do not know what to do', 'I worry how to deal with it') negatively affects emotions no matter how severe the asthma is.

The results gained during the study indicate that individual style of coping with stress should be taken into consideration while working on therapeutic strategies for each patient [16]. A description of personal preferences in terms of styles of coping with stress and the effectiveness of the attitude used in stressful situations could give the chance to implement efficient individualised educational activities for asthmatics. In clinical practice this would make it possible to define risk groups requiring particularly attentive care and professional psychological training aimed at the development of more efficient ways of coping with stress.

References

1. Chełmińska M., Werachowska L., Niedożytko M. et al. Jakość życia chorych na astmę dobrze i źle kontrolowaną. *Pneumonol. Alergol. Pol.* 2007; 75: 70–75.
2. Droszcz W., Droszcz P. *Astma*. Wydawnictwo Lekarskie PZWL, Warszawa 2004.
3. Kosmala E. Analiza syndromu lęku w astmie oskrzelowej. In: Szewczyk L., Kulik A. (eds.). *Wybrane zagadnienia z psychologii klinicznej i osobowości*. Psychosomatyka. Towarzystwo Naukowe Katolickiego Uniwersytetu Lubelskiego, Lublin 2001; 39–51.
4. Leczenie astmy u dorosłych. Aktualne wytyczne Global Initiative for Asthma (GINA 2005). Światowa strategia rozpoznawania, leczenia i prewencji astmy. Raport NHLBI/WHO 2002. *Med. Prakt.* 2006; 1: 43–69.
5. Marsac M.L., Funk J.B., Nelson L. Coping styles, psychological functioning and quality of life in children with asthma. *Child Care Health Dev.* 2007; 33: 360–367.
6. Sheridan Ch.L., Radmacher S.A. *Psychologia zdrowia*. Instytut Psychologii Zdrowia PTP, Warszawa 1998.
7. Heszen-Niejodek I. Teoria stresu psychologicznego i radzenia sobie. In: Strelau J. (ed.). *Psychologia. Podręcznik Akademicki*, vol. 3. Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2000; 443–464.
8. Wrześniewski K. Style a strategie radzenia sobie ze stresem. Problemy pomiaru. In: Heszen-Niejodek I., Ratajczak Z. (eds.). *Człowiek w sytuacji stresu. Problemy teoretyczne i metodologiczne*. Wydawnictwo Uniwersytetu Śląskiego, Katowice 2000; 44–63.
9. Heszen-Niejodek I. Psychologiczne problemy chorych somatycznie. In: Strelau J. (ed.). *Psychologia. Podręcznik Akademicki*, vol. 3. Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2000; 513–531.
10. Heszen-Niejodek I. Stres i radzenie sobie — główne kontrowersje. In: Heszen-Niejodek I., Ratajczak Z. (eds.). *Człowiek w sytuacji stresu. Problemy teoretyczne i metodologiczne*. Wydawnictwo Uniwersytetu Śląskiego, Katowice 2000; 12–43.
11. Heszen-Niejodek I. Radzenie sobie z chorobą — przegląd zagadnień. In: Heszen-Niejodek I. (ed.). *Jak żyć z chorobą, a jak ją pokonać*. Wydawnictwo Uniwersytetu Śląskiego, Katowice 2000; 13–31.
12. Strelau J., Jaworowska A., Wrześniewski K., Szczepaniak P. *Kwestionariusz Radzenia Sobie w Sytuacjach Stresowych CISS*. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, Warszawa 2005.
13. Juczyński Z. *Narzędzia pomiaru w promocji i psychologii zdrowia*. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, Warszawa 2001.
14. Nathan R.E., Sorkness C.A., Kosinski M. et al. Development of The Asthma Control Test: A survey for assessing asthma control. *J. Allergy Clin. Immunol.* 2004; 113: 59–65.
15. Barton Ch., Clarke D., Sulaiman N., Abramson M. Coping as a mediator of psychosocial impediments to optimal management and control of asthma. *Respir. Med.* 2003; 97: 747–761.
16. Gwozdecka E. Poszukiwanie i unikanie informacji jako sposoby radzenia sobie ze stresem u pacjentów po zawale serca. In: Heszen-Niejodek I. (ed.). *Jak żyć z chorobą, a jak ją pokonać*. Wydawnictwo Uniwersytetu Śląskiego, Katowice 2000; 80–105.