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Sęktas, M., Krzyżaniak, P., Raczyńska, A., Atroszko, P. A. (2016). Relationship between cynical hostility and primary emotional appraisal of a stressful situation of academic test. W: J. Leśny, J. Nyćkowiak (red.) *Badania i Rozwój Młodych Naukowców w Polsce. Nauki humanistyczne i społeczne* (s. 104-112). Poznań: Młodzi Naukowcy

Relationship between cynical hostility and primary emotional appraisal of a stressful situation of academic test

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Keywords: *stress coping, distrust, cynicism*

Abstract:

The conducted research aimed to investigate the association between cynical hostility and primary emotional appraisal of a stressful situation of academic test. The level of temporarily perceived stress was also measured. Based on previous findings, it was hypothesised that cynical hostility is positively related to perceived stress right before the academic test as well as to harm-loss and threat cognitive appraisals, and negatively related to challenge/benefit appraisal. The sample consisted of 139 university students (124 women, 15 men). Mean age was $M = 20.72$ years ($SD = 1.69$). Valid and reliable psychometric tools were applied. Not all hypotheses were substantiated. Cynical hostility was positively associated with harm-loss appraisals, negatively related to challenge/benefit appraisal and not related to threat appraisal and test stress. Obtained results depict a consistent pattern of hostile emotional and cognitive functioning, which concentrates on perceiving danger, mostly negative aspects of encountered situations and experiencing negative affect, while ignoring potential chances for personal growth, gain and development.

1. Introduction

Roots of wariness, mistrustfulness and hostility lie deep down in the ground of humans' evolutionary history. Aggression may have played a key role in one's existence, e.g. defending against attack, co-opting resources of others and negotiating status (Buss & Shackelford 1997). Increased vigilance could have prepared an individual's efficacy in detecting threatening stimuli coming from social and physical environment, enhancing chances of survival in certain contexts. Such reaction is associated with activating of sympathetic nervous system and stimulating so-called fight-or-flight response. Unfortunately, in our contemporary world, which is full of sophisticated and ambiguous stimuli, this kind of chronic physiological arousal may have results that are noxious to health and wellbeing (e.g. Steptoe et al. 2007). From the utilitarian point of view, the main goal of science is to maximize welfare. Thus, making an attempt to comprehend the underlying mechanisms of stress and its cognitive or emotional basis, including affective assessment of encountered situations, is arguably crucial. It might also have extensive implications for improvement of healthcare preventive and educational programs.

Cynical hostility, defined as an enduring, negative attitude toward others involving cognitive, affective, and behavioural components, has progressively been established as a psychological characteristic with a negative impact on health, and recently its potential role is starting to be recognized in educational studies (Sawicki et al. in press). Its psychological

functioning includes three major components: belief that others are driven by egoistic, self-centred motives (cynicism), expectation that people are common source of mistreatment (mistrust), and interpreting others' actions as involving aggressive intent (hostile attributional style) (Smith et al. 2004). Several studies have suggested that hostility is a risk factor for all-cause mortality (Smith 1992). It is also associated with lower quality of life. Neuroendocrine and cardiovascular responses to stressors within the cynical group are undoubtedly excessive. In the situation of self-disclosure cynical, hostile people exhibit higher natural killer cell activity (cytotoxicity) (Chistensen et al. 1996). This suggests that due to lack of trust hostile people react in an acutely stressful way in situations implicating self-disclosure. It is also negatively related to social support. This maladaptive pattern of functioning is associated with higher stress, lower health and lower sleep quality. All this may have a negative impact on the process of education as it is based on the relationships between students and teachers as well as students and their peers. What is more, recent studies showed that cynical hostility is positively related to ineffective coping strategies such as reduced use of emotional or instrumental social support and positive reframing (Atroszko et al. 2014; Sendal et al. in press).

There have been many different theoretical approaches and attempts to conceptualize the phenomenon of psychological stress. Among them, one of the most common and widely accepted definitions was suggested by Lazarus and Folkman (1984). According to these researchers, stress is a pattern of negative physiological and psychological states that occurs when an individual perceives threat to one's wellbeing, which may turn out to be impossible to meet. Thus, stress is the association between the person and the environment that is cognitively appraised in terms of the person's welfare and the amount of essential coping resources. Moreover, stress does not have to be considered an internally unitary phenomenon. Selye (1974) originally differentiated between eustress and distress. Eustress represents positive and adaptive responses to external stimuli while distress implies experiencing stressors that are potentially threatening and detrimental to wellbeing. Therefore, Selye suggests that regardless of either stress reactions are beneficial or generate dangerous results, the bodily stimulus still undergoes the same physiological processes. This aims either to prepare for combat, to accommodate or to remove stressful circumstances.

Cognitive appraisal includes two component processes: primary and secondary appraisal. Primary appraisal is the process of perceiving a threat to oneself. The process of bringing to mind a potential reaction to the threat is called secondary appraisal. When a stimulus has no significance to one's wellbeing, it is considered neutral and consequently ignored. Meaningful, both benign-positive and stressful factors can be appraised in different ways: as a threat, a challenge/benefit or a harm-loss (Folkman & Lazarus 1985). Threat can be considered the potential for harm or loss; challenge/benefit refers to the potential for development, growth or gain and harm-loss refers to the damage already done, for instance to one's health or self-esteem.

Emotion is the final product of this ongoing transaction between individuals and their environment. It might be recognized as an accurate indicator of how a person perceives the process of deciding what is important in terms of this relationship. From the processual point of view, emotions change, as succeeding appraisals also change. Emotions associated with threat include e.g. worry, anxiety and fear; challenge/benefit refers to confidence, hope and eagerness while harm-loss appraisals include reactions such as anger, sadness or disappointment (Folkman & Lazarus 1985). In general, hostile individuals report intensified levels of perceived stress (Taylor et al. 2013). Recent study suggests that they also use ineffective coping strategies (Sendal et al. in press), possibly deepening the level of perceived surrounding threats, which in the case of social threats is the defining quality of the cynical hostility trait itself. Data from prospective research indicate that cynical, hostile people are significantly more likely to experience depressed mood (Nabi et al. 2009), an

affect usually associated with harm and loss perceptions. What is more, in comparison to pessimists, optimists seem to cope with misfortune in healthier, more adaptive ways (Scheier et al. 1986), using the benefit of social support, while cynical attitudes may undermine this stress buffering potential (Lepore 1995). Thus far, there are no studies that would directly investigate the relationship between cynical hostility and emotional appraisal within the framework of Lazarus and Folkman's theory. The aim of the current research is to deepen knowledge on this matter.

On the basis of previous research and theoretical frameworks, it is hypothesised that cynical hostility is positively associated with stress experienced during academic test (H1); cynical hostility is negatively associated with a challenge/benefit appraisal (H2); cynical hostility is positively associated with a harm-loss appraisal (H3) and cynical hostility is positively associated with a threat appraisal (H4).

2. Methods

Participants. One hundred thirty nine students took part in this study: 124 women (89.2%), and 15 men (10.8%). Their mean age was $M = 20.72$ years ($SD = 1.69$). These individuals were studying at the universities from Pomerania Region in Poland: the University of Gdańsk, and Technical University of Koszalin. Students were mostly from psychology and education studies of first and second year, both full time and part time modes of study.

Measures. Cynical Hostility was measured with the Polish version of *Cook Medley Hostility Inventory Brief*, developed on the basis of five items from *Hostility Scale* (Cook & Medley 1954). It is a tool widely used in large scale surveys concerning health and psychosocial functioning. The response alternatives range from completely disagree (1) to completely agree (6). It showed good validity and reliability in the previous studies (Clarke et al. 2008). For the present sample the Cronbach's alpha reliability coefficient was .76.

Five-Factor Model personality traits were measured with the Polish version of *Ten Item Personality Inventory* (TIPI). It is a 10-item, 7-point response scale tool. Each of Big Five factors is measured with two items, one for its positive extremity and one for its negative extremity. This tool has good validity, and for the present sample Spearman-Brown reliability coefficients were .59 for Extraversion, .19 for Agreeableness, .65 for Conscientiousness, .64 for Emotional stability, and .45 for Openness to Experience. These results are similar to reliability coefficients obtained for original English language version, which were .68, .40, .50, .73, and .45, respectively. This supports its adequate reliability, taking into account its extreme brevity.

Stress connected with academic test was measured with single item measure of stress during academic test. Students were asked how much they are currently stressed with reference to the incoming test. Answers were rated on a scale from 1 (I am not stressed at all) to 10 (I am stressed out completely). The measure showed good validity and reliability measured as test-retest with one month interval before academic tests within the same academic subject. Intraclass correlation coefficient (ICC) was .84 (Atroszko 2015).

Primary emotional appraisal of stressful academic test situation was measured with *Primary emotional appraisal scale*. This measure was created on the basis of Lazarus and Folkman's theory (Lazarus & Folkman 1985). It measures 15 emotions which were initially grouped in four categories of primary emotional appraisal : (1) threat: worried, anxious, fearful, (2) Harm: angry, sad, disappointed, guilty, disgusted (3) challenge: confident, eager, hopeful, (4) benefit: exhilarated, pleased, happy, relieved. Participants are asked to what extent currently they feel each emotion. The response alternatives range from 1 (I do not feel it at all) to 5 (Very much). Confirmatory Factor Analysis (CFA) of the Polish version of the scale showed collinearity of challenge and benefit dimensions which resulted in combining

them into one factor. On the basis of CFA hope and relief were removed from the scales, and confidence had positive loading on challenge/benefit dimension and negative loading on threat dimension. The scale also showed good criterion and discriminant validity (Atroszko 2015). For the present sample The Cronbach's alpha reliability coefficient was .82 for threat, .80 for loss, and .86 for challenge/benefit.

Procedure. Data collection used convenience sampling. Students were invited to participate anonymously in the study during classes. More than 95% of all present students agreed to do so. The study took place on two occasions. First, participants filled in questionnaires concerning sociodemographic, personality and psychosocial variables. The study was part of a bigger project concerning learning attitudes and behaviours. On the second occasion just before written test of knowledge of academic subject students filled in short questionnaire regarding experienced stress and its primary emotional appraisal. This part took around two minutes. Participation in the study was anonymous and no monetary or other material rewards were offered. Anonymous method of coding results was applied in order to match data gathered on two occasions

Statistical analyses. Means, standard deviations, percentages and correlation coefficients were calculated. Hierarchical regression analyses were conducted. Perceived stress before academic test, threat, challenge/benefit and harm-loss appraisals were dependent variables. Independent variables added in the first step were sex and age. In the second step Big Five personality traits (extraversion, agreeableness, conscientiousness, emotional stability and openness to experience) were added. Step three included only cynical hostility. All tests were two-tailed, and the significance level was set to $\alpha = 0.05$. All statistical analyses were conducted in IBM SPSS 22.

3. Results

Tab.1 presents mean scores, standard deviations and percentages for the study variables as well as their relationships.

The regression analysis for test stress showed that the independent variables added in step 1 explained 2.1% of the variance ($F_{2,134} = 1.47$ $p = .234$). Five independent variables added in Step 2 explained 7.7% of the variance ($\Delta F_{5,129} = 2.20$ $p = .058$). Independent variable added in Step 3 explained 0.1% variance ($\Delta F_{1,128} = .10$ $p = .748$). The independent variables explained a total of 9.9% of the variance of test stress ($F_{8,128} = 1.76$, $p = .091$). Significant independent variable in Step 3 was agreeableness ($\beta = .27$) (see Table 2).

Second regression analysis for threat appraisal showed that the independent variables added in step 1 explained 2.2% of the variance ($F_{2,134} = 1.50$, $p = .225$). Five independent variables added in Step 2 explained 10.7% of the variance ($\Delta F_{5,129} = 3.17$, $p < .05$). Independent variable added in Step 3 explained 0.5% of the variance ($\Delta F_{1,128} = .05$, $p = .389$). The independent variables explained a total of 13.4% of the variance of threat appraisal ($F_{8,128} = 2.48$, $p < .05$). Significant independent variables in Step 3 were agreeableness ($\beta = .28$), and emotional stability ($\beta = -.25$) (see Table 2).

Third regression analysis for loss appraisal showed that the independent variables added in step 1 explained 2.0% of the variance ($F_{2,134} = 1.34$, $p = .265$). Five independent variables added in Step 2 explained 10.1% of the variance ($\Delta F_{5,129} = 2.95$, $p < .05$). Independent variable added in Step 3 explained 2.5% variance ($\Delta F_{1,128} = 3.67$, $p = .058$). The independent variables explained a total of 14.0% of the variance of loss appraisal ($F_{8,128} = 2.71$, $p < .01$). Significant independent variables in Step 3 were emotional stability ($\beta = -.29$) and cynical hostility ($\beta = -.17$, $p = .058$) (see Table 2).

Tab. 1. Means, standard deviations, percentages and correlations between studied variables

	<i>M (SD)/%</i>	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.Sex ^a	10.8% males	.07	.12	.08	-.11	-.11	.21*	-.13	-.07	.12	.07	-.10
2.Age	20.72 (1.69)		.15	.04	-.13	.03	-.07	-.09	.11	.16	.10	-.13
3.Cynical hostility	17.97 (4.00)			-.01	-.35**	-.15	-.26**	.20	-.10	-.10	.20*	.01
4.Extraversion	9.63 (2.42)				.03	.10	.11	.29**	-.06	.20*	-.05	-.18*
5.Agreeableness	9.74 (2.20)					.10	.37**	-.03	.26**	-.12	.01	.17*
6.Conscientiousness	9.16 (2.81)						.19*	.13	.03	.11	-.04	-.08
7.Emotional stability	7.71 (2.76)							-.25**	.06	.21*	-.25**	-.16
8.Openness	10.89 (1.92)								-.07	.10	.13	-.08
9.Test stress	4.65 (2.26)									.11	.19*	.46**
10.Challenge/Benefit	12.90 (4.16)										-.32**	-.53**
11.Harm	7.86 (3.57)											.55**
12.Threat	10.76 (3.50)											

* $p < .05$, ** $p < .01$; ^a 0 = women, 1 = men

Tab. 2. Results of hierarchical multiple regression analyses in which age, sex, the Five-Factor model dimensions (extraversion, agreeableness, conscientiousness, emotional stability and openness to experience) and cynical hostility were regressed upon academic test stress, and on threat, harm and challenge/benefit emotional appraisals

Step	Predictor	Test stress		Threat		Loss		Challenge/Benefit	
		β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
1	Age	-.13	.021	-.11	.022	.12	.020	.12	.031
	Sex ^a	.08		-.10		.07		.12	
2	Age	-.04	.077	-.10	.107*	.12	.101*	.12	.117**
	Sex ^a	.16		.00		.15		.02	
	Extraversion	-.07		-.14		-.07		.14	
	Agreeableness	.28**		.26**		.17		-.21*	
	Conscientiousness	.00		-.04		.03		.06	
	Emotional stability	-.02		-.26**		-.31**		.29**	
	Openness to experience	.00		-.07		.09		.10	
3	Age	-.04	.001	-.10	.005	.01	.025	.14	.027*
	Sex ^a	.17		-.01		.14		.04	
	Extraversion	-.08		-.13		-.07		.13	
	Agreeableness	.27**		.28**		.21*		-.26**	
	Conscientiousness	.00		-.03		.04		.05	
	Emotional stability	-.02		-.25*		-.29**		.26**	
	Openness to experience	.00		-.08		.07		.12	
	Cynical Hostility	-.03		.08		.17		-.18*	
Total R^2			.099		.134*		.145**		.175**

* $p < .05$, ** $p < .01$; ^a 0 = women, 1 = men

Fourth regression analysis for challenge showed that the independent variables added in step 1 explained 3.1% of the variance ($F_{2,134} = 2.16, p < .05$). Five independent variables added in Step 2 explained 11.7% of the variance ($\Delta F_{5,129} = 3.55, p < .01$). Step 3 explained 2.7% variance ($\Delta F_{1,128} = 4.16, p = .043$). The independent variables explained a total of 17% of the variance of challenge ($F_{8,128} = 3.40, p = .001$). Significant independent variables in Step 3 agreeableness ($\beta = -.26$) emotional stability ($\beta = .26$) and cynical hostility ($\beta = -.18$) (see Table 2).

4. Discussion and conclusions

The results substantiated some of the hypotheses. Cynical hostility was not associated with the perceived stress during academic test (Hypothesis 1 not substantiated). These results can be conceivably explained by distinction between eustress and distress. While eustress is a positive activating stress which appears when brief demanding situations which are interpreted as challenge appear, distress is a negative stress which might be excessive in intensity or prolonged, and appears when situation is significantly exceeding resources of a person. Non-hostile individuals may respond to external stressors, but with a constructive type of appraisal, which helps them to achieve high results. These positive evaluations might cause exhilaration, happiness or relief (Folkman & Lazarus 1985). Cynically hostile persons may be activated by any potentially challenging situation, however, not in a way that is conducive to dealing with them productively. They are triggered because they perceive it as yet another potential risk. This tendency may be strong enough to generalize to most of the social situations or these in which they are evaluated. This interpretation obtained support in the result which showed that cynical hostility was negatively related to challenge/benefit appraisal (Hypothesis 2 substantiated). This result is in line with previous study which showed that relationship between cynical hostility and stress is fully mediated by ineffective coping strategies, congruent with the hostile attitude (Sendal et al. in press). Cynical hostility was related to the tendency to disengage from the stressful situation, not searching for emotional or instrumental social support, lack of planning solutions for the problems, lack of positive reinterpretation of the situation, and not searching for comfort in spirituality. These results suggest that cynically individuals do not perceive demanding situations as challenging opportunities to grow, and consequently they have tendency to withdraw from them and limit any active and effective ways of coping with them.

What is more, cynical hostility was positively associated with a harm-loss appraisal (Hypothesis 3 substantiated), which applies to injury already done. This result is in line with previous research showing that cynical, hostile people are significantly more likely to experience depressed mood (Nabi et al. 2009). It is also congruent with the notion that cynical hostility is strongly connected with the tendency to preserve resources and status, and therefore any challenging situation such as test of knowledge during university classes may elicit feelings of loss or harm, as if the mere possibility of loss or harm was already interpreted as experienced injury or defeat. Harm-loss appraisal is connected to experiencing such feelings as loathing, disgust, sorrow, disappointment and anger. Most of them are socially unhealthy and may have severe consequences to the way distrustful persons deal with stress. This interpretation is in line with previous findings showing that cynical hostility is related to the reduced tendency to search for emotional or instrumental social support.

The results showed that there is no positive connection between cynical hostility and threat appraisal (Hypothesis 4 not substantiated). While harm-loss appraisal refers to the damage already done, threat appraisal is based on the potential for harm or loss. Feelings which are connected with threat appraisal include worry, anxiety, dread and fear. People who show threat appraisal use specific coping strategies, e.g. minimizing threat, seeking social

support, wishful thinking, self – blame and anticipated difficulty. All of these strategies may more or less effectively help them to cope with stressful situations, such as academic tests. Cynically hostile individuals, however, do not interpret stressful situation in such terms more often than others. Instead they interpret it as loss-harm, as if it was already too late and nothing could be done about it. Their appraisal suggests that in a way they already feel they have failed before the test even took place. This result is congruent with the previous findings showing that cynical hostility is related to stress coping style indicative of complete hopelessness and helplessness (Atroszko et al. 2014; Sendal et al. in press).

In conclusion, the results showed a fairly congruent picture of a cynically hostile person who has a tendency to perceive stressful situations less frequently than others as challenges or benefits in life, similarly to others in terms of potential threats, but most importantly more often as losses or harms. Perceiving stressors as challenging might promote growth, achievement and proficiency. Challenge/benefit appraisal includes such emotions as confidence and eagerness. This may be especially relevant because lack of ability to perceive obstacles as challenging might lead cynically hostile students to poorer achievements, losing eagerness and faith in one's own skills. What is more, in the context of academic tests and exams situations it might lead to worse results in comparison with others who do not perceive these situations as harm or loss. In the long term this tendency of cognitive appraisals of stressful situations might induce depressed mood, which additionally may influence academic performance as well as health and quality of life. Moreover, these adversities may not be attributed to ones' own attitudes and behaviors but gradually they could increase disappointment with other people and environment, as cynically hostile individuals have a tendency to look for the source of their hardships outside themselves. This in turn may strengthen their negative attitude and beliefs, and make it more difficult to modify behavior. The results of this and other related studies could help to develop appropriate interventions for changing beliefs and attitudes of cynically hostile individuals and support them in noticing how their attitudes and beliefs contribute to the stress they experience and deteriorated psychosocial functioning.

To the Authors' knowledge, this is the first research investigating the relationship between cynical hostility among students and their emotional appraisal within the framework of Lazarus and Folkman' theory. In terms of the limitations, the sample was fairly small, predominantly female and not representative which limits the possibility of generalizing conclusions to the whole population of students in Poland. Additionally, self-report measures were used, which increases the risk of common method bias. Future studies should overcome these limitations as well as examine in more detail the differences in eustress and distress experienced by students in academic settings, especially in relationship to such personality trait as cynical hostility. Potential long term consequences for psychosocial functioning of students resulting from chronic distress related to studying should also be investigated.

5. Literature

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