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*Experiencing time as a stress factor in the perception of Polish,
American and Norwegian medical students*

Psychological time with all its aspects (e.g. time estimation, temporal orientation, time attitudes, time urgency) is a typical example of a constellation of human-made beliefs (1). Most theorists stand on the position that personal time is a cognitive construction that is influenced by many factors, e.g. culture.

Most cross-cultural research on psychological time has focused on differences in time use or time perspective concerning the importance of the past, present and future (2, 3). Brislin and Kim (2) established that Americans do not linger on the past, but they live in the present fully and are also future oriented. In contrast, past orientation emphasizes tradition and values time honored approaches. Some European and Asian countries are known of their long histories and they are inclined toward tradition, and their behaviors are influenced by cultural values from the past. What is important, these differences in time use or temporal orientation are essential because of their individual and societal consequences (2, 4, 5).

Ways of coping with time pressure stress by students having diverse socio-cultural status and different personal features have been a subject of discerning studies (6). It should be noticed that not only objective time (clock time) may cause the pressure (manifested as so-called "hurry sickness" or "time urgent syndrome") but psychological time (perceived as own past, present, and future) can be also experienced as a strong stress factor. It happens generally when it is not fully accepted with all its contents (5). Own past (petrified in memories) may be a source of remorse, feeling of grief, embitterment. Experiencing presence may be burdened by the feeling of hopelessness, loss of sense and helplessness. The future may not seem for the individual as a space where original plans could be created and executed, but quite on the contrary, may be connected with experiencing anxiety or desire to escape from the painful past and not accepted presence. Recent research done on the different temporal dimensions demonstrate the important influence that each of the temporal dimensions has on the emotion, cognition and behaviour of a person.

According to the literature, concentration on one of the time dimensions, connected with experiences described above (which in fact mean time imbalance or lack of time competence),

results with less effective intra- and interpersonal functioning, increased stress, internal tension, and susceptibility to psychosomatic diseases, and addictions (4, 5). The question is, to what extent their perception and the way they experience time are modified by cultural differences? What are the temporal profiles and types of the burden connected with particular psychological time orientation in the three culturally diverse groups (Slav, Scandinavian, and American nation). How do they cope with this burden? The presented study was designed to answer these questions.

MATERIAL AND METHODS

The participants in the study (N=111) were students of the Medical University of Lublin. The study group consisted of Polish, American and Norwegian citizens. The Polish sample (n=44) consisted of 12 men and 31 women, the American sample (n=36) included 24 men and 12 women, and Norwegian sample (n=31) consisted of 17 men and 14 women. The mean age of the participants was M=20.82 years (SD=2.62).

The participants completed a set of 5 established questionnaires, self-report items, and demographic measures during regular class periods for no extra credit. Sets were prepared in two language versions – English (for American and Norwegian students) and Polish version. Participation in the study was voluntary, and all the data collected were anonymous.

Zimbardo Time Perspective Inventory (4) measures 5 indicators: Past-Negative (generally negative, aversive view of the past), Past-Positive (reflects warm, sentimental attitude toward the past), Present-Hedonistic (risk-taking, hedonistic attitude toward time and life), Present-Fatalistic (helpless and hopeless attitude toward the future and life) and Future (general future orientation). The alpha coefficient of the ZTPI was calculated to be .851.

Personal Orientation Inventory by Shostrom (8, 9) is an inventory to measure self-actualization. It contains *Time Competence Scale* which measures one's ability to keep proportion in living the three dimension of time: the past, the present, and the future. The result of the scale is one numerical indicator time competence. The reliability coefficients for the Time Scale is .71.

Temporal Competence Inventory by Uchnast and Tucholska (5, 7) measures temporal competence which is manifested by possessing knowledge about one's own past, presence, and future, and making use of its resources in coping with concrete circumstances. In the result of the test six indicators are used: Life Openness (spontaneous readiness to the world; basic trust), Sensible Life (reasonability with one's own existence), Prospective Attitude (degree of involvement and endurance in the carrying out of one's goals), Past Acceptance (positive evaluation of one's own past), Acceptance of the Present and generalized indicator Time Competence. The indicators of reliability (alpha coefficient) of the four basic scales TCI are .860 for Life Openness, .863 for Sensible Life, .814 for Prospective Attitude, .896 for Past Acceptance. The results of TCI's validity assessment was presented by Tucholska (5) and Uchnast (7). This inventory has Polish (original one) and English version. The second one was developed in the cooperation with the researchers from the Centre for Motivation Psychology, K.U.Leuven, Belgium.

Ways of Coping with Questionnaire by Lazarus and Folkman (10) was designed to identify the thoughts and actions an individual has used to cope with a specific stressful encounter. It measures coping processes which are: Confrontive Coping (describes aggressive efforts to alter the situation and suggests some degree of hostility and risk-taking), Distancing (cognitive efforts to detach oneself and to minimize the significance of the situation), Self-Controlling (efforts to regulate one's feelings and actions), Seeking Social Support (efforts to seek informational support, tangible support, and emotional support), Accepting Responsibility (acknowledges one's own role in the problem with a concomitant theme of trying to put things right), Escape-Avoidance (describes wishful thinking and

behavioral efforts to escape or avoid the problem), Planful Problem Solving (deliberate problem-focused efforts to alter the situation, coupled with an analytic approach to solving the problem), Positive Reappraisal (describes efforts to create positive meaning by focusing on personal growth; it also has a religious dimension). The alpha coefficients for the WCQ scales are .61 - .79.

Self-report and demographic questions were also included in the surveys.

RESULTS

Statistical analysis of correlations performed revealed many interesting relations between the type of the burden connected with particular psychological time dimensions and ways of coping with it by representatives of different cultures. The results are presented in Table 1.

Table 1. Matrix of correlation (Pearson's *r*) between the results of WCQ scales and ZTPI with TCI scales (N=111)

Scales	Confrontive coping	Distancing	Self-controlling	Seeking support	Accepting responsib.	Escape-avoidance	Problem solving	Positive reappraisal
Future	0.02	0.02	-0.10	0.23	0.06	-0.06	0.08	0.09
Past negative	0.15	0.05	0.17	0.15	0.18	0.29	-0.08	-0.01
Past positive	-0.04	-0.02	-0.06	0.03	0.12	-0.01	0.03	0.11
Present fatalistic	0.22	0.22	0.17	0.02	0.14	0.27	-0.05	0.12
Present hedonistic	0.06	-0.07	0.11	-0.08	0.09	0.08	0.14	0.05
Time competence	-0.21	0.11	-0.08	-0.20	-0.14	-0.10	-0.08	-0.08
Life openness	0.00	-0.01	0.08	-0.03	0.18	0.08	0.17	0.00
Sensible life	-0.21	-0.21	-0.22	-0.17	-0.08	-0.26	0.23	-0.05
Prospective attitude	-0.05	-0.11	-0.10	-0.05	-0.04	-0.18	0.20	0.10
Past acceptance	-0.08	-0.11	-0.03	-0.03	-0.13	-0.25	0.24	0.05
Accept. of the present	-0.14	-0.14	-0.10	-0.13	0.06	-0.12	0.25	-0.03
Temporal competence	-0.12	-0.15	-0.09	-0.09	-0.03	-0.22	0.29	0.03

Marked correlations are significant at $p < 0.05$

The burden of the present. Analysis of obtained data revealed that the psychological burden connected with the conviction of predestination and lack of influence on one's fate is connected with coping with stress by using aggressive and confrontive strategies (e.g. by expressing anger or hostility). It is also connected with undertaking attempts of rationalization, cognitive distancing or conscious escape-avoidance type of behavior. Lack of satisfaction and sense of life the way it is at the moment, disapproval of what is 'now and here' is also closely related to above mentioned, poorly effective methods of coping with stress (which are confrontive coping, distancing, self-controlling and escape-avoidance).

The burden of the future. Stress connected with the fear of the future is coped with by seeking other people's informative, physical or emotional support.

The burden of the past. Lack of acceptance of the past, negative balancing of one's own experiences shows up to be connected with the tendency of escape-avoidance strategies of coping with tension.

On the level of general indices regarding the full temporal perspective and its three dimensions – the lack of time competence correlates significantly with seeking social support and tendency towards risky behavior, hostile and even aggressive in order to deal with difficult situation. The results analysis of variance MANOVA are shown in Table 2.

Table 2. Comparison of scores in scales of ZTPI, TCI, POI, and WCQ in Polish (P), American (A) and Norwegian (N) group

Scales		P	A	N	ANOVA		Games-Howell's Test
		n=44	n=36	n=31	F	p	$\alpha=0.05$
Future	M	42.25	41.11	40.13	2.45	0.1346	
	SD	10.68	8.41	8.87			
Past negative	M	46.70	51.44	48.32	2.37	0.0982	
	SD	10.89	9.09	8.70			
Past positive	M	46.32	42.56	43.90	2.11	0.1256	
	SD	7.45	9.31	8.24			
Present fatalistic	M	55.23	54.97	56.45	0.18	0.8379	
	SD	9.82	12.22	10.39			
Present hedonistic	M	51.34	49.78	51.26	0.23	0.7949	
	SD	11.58	11.37	10.15			
Time competence	M	33.05	40.36	39.52	4.62	0.0119	[P – A]
	SD	11.78	11.69	11.93			
Life openness	M	50.27	53.03	53.26	1.63	0.2010	
	SD	9.43	8.07	6.16			
Sensible life	M	52.82	51.42	47.00	5.55	0.0051	[P – N]
	SD	7.52	6.89	8.45			
Prospective attitude	M	76.20	74.78	73.61	0.87	0.4226	
	SD	8.50	9.45	7.20			
Past acceptance	M	54.77	53.08	53.35	0.59	0.5542	
	SD	8.32	7.56	5.91			
Confrontive coping	M	70.64	77.14	74.94	1.21	0.3025	
	SD	14.44	20.31	23.00			
Distancing	M	71.39	89.31	85.84	9.37	0.0002	[P – A, N]
	SD	16.41	20.39	22.91			
Self-controlling	M	67.93	73.53	72.00	1.93	0.1499	
	SD	9.98	14.50	15.49			
Seeking support	M	70.05	67.89	68.84	0.20	0.8188	
	SD	13.53	16.83	15.67			
Accepting responsibility	M	86.82	91.08	82.10	2.75	0.0683	
	SD	15.60	14.48	16.93			
Escape-avoidance	M	74.30	84.31	81.48	3.55	0.0322	[P – A]
	SD	13.59	19.57	19.42			
Problem solving	M	66.20	62.03	61.03	1.16	0.3182	
	SD	17.87	15.80	12.86			
Positive reappraisal	M	71.68	81.81	73.13	4.89	0.0093	[P – A]
	SD	13.67	15.27	16.96			

M – mean, SD – standard deviation. Values in table are in T scale

Temporal profiles – cross-cultural comparisons. Analysis of the obtained data revealed that temporal profiles established with Zimbardo Time Perspective Inventory, Personal Orientation Inventory (Tc scale), and Time Competence Inventory and are closely related. These profiles are typical of well functioning individuals, effectively coping with difficulties, including time pressure stress. The configuration of the results obtained by the study participants did not reveal possible emotional and cognitive burden connected with temporal dimension. Temporal perspective of the participants both Polish, American and Norwegian – measured by ZTPI – is a balanced

temporal perspective. The students included in the study are characterized by high level of temporal competence, which was measured by TCI method. In this respect the studied group, even though culturally diverse, turned out to be homogenous.

Cultural differences were disclosed by the Time Competence Scale (measured by POI) and Sensible Life Scale (measured by TCI). First difference was observed between the Polish group and two other groups (American and Norwegian). The Polish group was characterized by a low score of Time competence scale in comparison to American and Norwegian groups. That result definitely means they are less capable of living the “now and here”, and a skillful linking of present experience with close future and past. Norwegian group on the other hand is characterized by lower level of their life and present situation satisfaction index.

Ways of coping with stress – cross-cultural comparisons. The study of three culturally diverse groups of students, conducted using WCQ method by Lazarus and Folkman revealed several interesting and statistically significant differences. Norwegians and US citizens employ the cognitive distancing strategy much more often than Polish when facing difficult situations. Polish however rarely choose to avoid or escape from difficult situations, as a way of coping with internal tension. US citizens on the other hand are distinguished by the strategy of positive reappraisal of experienced stressful situations and making up efforts to notice their positive aspects.

DISCUSSION

As Block reassumed (3), there is no comprehensive theory which predicts whether or not cultural background influences beliefs about various aspects of time. Beliefs about personal time (perception of time pressure, attitudes towards personal future, present or past experiences) may originate in metacognition of temporal characteristic of everyday events that are common among all humans without the regard to cultural differences. As a result, we noticed few cross-cultural differences in time orientation and the potential sources of the stress connected with experiencing time. The lack of significant differences in temporal profile may be connected with not enough diversity between Polish, Norwegian and North American cultures, which are regarded as different types of so-called Western culture. Moreover, it has to be underlined that the individuals included in the study comprised the group which was unique in certain respects, for it consisted of young, resourceful people, studying at the prestige faculty of the foreign university (US citizens and Norwegians).

Because we did not obtain representative samples from each country, the presented findings must be interpreted cautiously, and no general conclusions are warranted in regard to other individuals of the same origin. People who are not as influenced by modern views as are college students may have more radically different beliefs about their time-linked experiences.

REFERENCES

1. Triandis H. C., Dunnette M. D., Hough L. M. (ed.): Handbook of Industrial and Organizational Psychology. Consulting Psychologists Press, Palo Alto, CA, 1994.
2. Brislin R. W., Kim E. S.: Cultural diversity in people understanding and uses of time. *App. Psychol.*, 52, 363, 2003.
3. Block R. W., Buggie S. E., Matusi F.: Beliefs about time: cross-cultural comparisons. *J. Psychol.*, 130, 5, 1996.
4. Zimbardo P. G., Boyd J. N.: Putting time in perspective: A valid, reliable individual-differences metric. *J. Personal. Soc. Psychol.*, 77, 1271, 1999.
5. Tucholska K.: Kompetencje temporalne jako wyznacznik dobrego funkcjonowania. Towarzystwo Naukowe, Lublin 2007.

6. Sheng-Tao S, Yu-Ling Y.: A study on the relationship of time management disposition and coping style, personality characteristic of college students. *Chin. J. Clin. Psychol.*, 14, 186, 2006.
7. Uchnast Z. (ed.): *Psychology of Time. Theoretical and Empirical Approaches*. Wydawnictwo KUL, Lublin 2006.
8. Shostrom E. L.: *Manual of the Personal Orientation Inventory. An Inventory for measurement of self-actualization*. Educational and Industrial Testing Service, San Diego 1972.
9. Tosi D. J., Lindamood C. A.: The Measurement of Self-Actualization: A Critical Review of the Personal Orientation Inventory. *J. Personal Assessment*, 39, 215, 1975.
10. Lazarus R. S., Folkman S.: *Manual for the Ways of Coping Questionnaire*. Research Edition. Consulting Psychologists Press, Palo Alto, CA 1988.

SUMMARY

Among others, perceived and experienced time might be a strong stress factor. It happens when person's orientation towards three temporal dimensions is unsettled and often it is connected with time incompetence. Temporal orientation and attitudes toward one's own past, present, and future are cognitive constructions influenced by many factors, e.g. culture. The aim of the study was to assign what are the cross-cultural differences in temporal profiles between Polish, American, and Norwegian students. What is the type of the burden connected with particular psychological time dimensions and ways of coping with it? Representatives of three nations participated in the study. All of them (N=111) were students of the Medical University of Lublin. The following questionnaires were used: ZTPI by Zimbardo, POI by Shostrom, TCI by Uchnast and Tucholska, and WCQ by Lazarus and Folkman. As the result there are shown some interesting cross-cultural comparisons in temporal profiles and ways of coping with the burden connected with time imbalance and particular time orientations.

Doświadczenie czasu jako czynnik stresowy w percepcji polskich, amerykańskich i norweskich studentów medycyny

Czas – sposób jego doświadczania i postrzegania – bywa silnym stresorem. Zdarza się tak w przypadku, gdy zachwianiu ulega orientacja temporalna osoby, co zwykle wiąże się z obniżeniem lub brakiem tzw. kompetencji temporalnych. Orientacja temporalna i postawy względem własnej przeszłości, teraźniejszości i przyszłości to struktury poznawcze, które nie pozostają bez wpływu np. na oddziaływanie czynnika kulturowego. Prezentowany projekt badawczy dotyczył kwestii ustalenia ewentualnych różnic międzykulturowych w zakresie profili temporalnych pomiędzy Polakami, Amerykanami i Norwegami. Badaniom poddano 111, reprezentujących trzy wspomniane narodowości, studentów Uniwersytetu Medycznego w Lublinie. Zastosowano następujące metody: ZTPI Zimbardo, POI Shostroma, TCI Uchnasta i Tucholskiej oraz WCQ Lazarusa i Folkmana. Interpretacja uzyskanych wyników odsłania wprawdzie nieliczne, ale interesujące różnice w przebiegu profili temporalnych oraz specyficzne sposoby radzenia sobie ze stresem, współwystępujące przy określonych orientacjach temporalnych.