

KATERYNA MALTSEVA,

Candidate of Sciences in Philosophy, PhD in Anthropology, Associate Professor, Head of the Department of Sociology, NaUKMA (8/5, Volos`ka St., Build. 4, Kyiv, 04655)

*<http://orcid.org/0000-0001-6540-8734>
maltsevaKS@ukma.edu.ua*

**Stress exposure, perceived stress severity,
and their effects on health**

The concept of stress

In the world that we live in today, the word ‘stress’ is familiar and well-known far beyond the community of health researchers. As a scientific construct, however, the concept of stress has been introduced into academic parlance by Hans Selye (1956) in mid 20 century — originally with reference to physical stimuli only (such as physical impact, extreme temperatures etc.) and later amended by way of including the internal, psychological stressors in John Mason’s (1969) works (for review also see: McEwen, 2016).

Stress is a highly person-specific phenomenon in that it varies between people on dimensions of individual vulnerability and resilience. Due to this fact, different individuals can have different thresholds for stress resistance. At the same time, stress severity also varies between different types of tasks (Fink, 2016: p. 3). For example, work-related stress is a source of day-to-day suffering and is cited as a considerable epidemiological burden which has been on the rise over the course of the past few decades; having a weekly quiz in algebra class or having one’s ears pierced is not.

Stress involves a stressor and a stress response. There is no universal definition of stress or stressors due to the fact that stressors can be acute (of brief duration) and chronic (more prolonged or incessant in duration), and because both negative and positive events can be stressful (Cohen, Murphy, & Prather, 2018; Epel et al., 2018; McEwen, 2016; McEwen, 2019). In the most general terms, stress can be described as a strain of some kind that puts demands on the individual’s resources or abilities to address the situation or condition that causes stress. In stress research, stress is usually understood as a *subjective* experience of tension, pressure, distress, fear or negative emotions that occurs as a result of a perceived threat to one’s mental or physical well-being, and is accompanied by an evolved biological response that facilitates adaptive reaction involving physiological consequences such as increased blood pressure, accelerated heart rate, increased cortisol levels, change in metabolism etc. that are uniformly observed during a stress response (Hughes, Steffen, & Thayer, 2018; Katsam-

Citation: Maltseva, K. (2024). Stress exposure, perceived stress severity, and their effects on health. *Sociology: Theory, Methods, Marketing*, 1, 187–197, <https://doi.org/10.15407/sociology2024.01.187>.

pouris, Turner-Cobb, Barnett, & Arnold, 2020; McEwen, 2016; Segerstrom & O'Connor, 2012; Shields et al., 2023). It can therefore be said that stress is an *internal* response to a stressor. A stressor, in its turn, is typically construed as a set of *external* circumstances (such as physical injury, cold temperatures, extreme heat etc.), that, in view of an individual, threaten their well-being, strain their resources and require (behavioral) adjustment in order to cope with the stressful situation. Behavioral responses to stress have evolved to battle dangerous situations and increase the likelihood of one's avoiding the encumbered risks. There are several important attributes of stressors that outline how stressors operate, such as: (1) a requirement to adapt or change; (2) presence of a threat or harm (factual or imaginary); (3) presence of the demands exceeding the resources available and (4) interruption of goals (Cohen, Murphy, & Prather, 2018). The *appraisal* of situations as stressful converts the external stressor into internal experience. For the argument about the impact of stress on human health, these features emphasize the importance of interpretative, cognitive dimension of stress and interpersonal variation in the assessment of situations as stressful.

In this context, the brain can be claimed to be the headquarters of stress response. Based on individual's assessment of a situation, a stressor can be processed as an exciting challenge or as a daunting ordeal. For example, a challenge is a kind of "good stress" as it makes one stand up to the task and results in adaptive changes, achievement and possibly even a rewarding experience of overcoming a stressful situation. "Good stress" can be adaptive in that it makes us more prepared for future stressful events and is conducive to personal growth via finding meaning in specific experiences (McEwen, 2016; McEwen, 2019; Reynolds & Turner, 2008; Schnell, 2009; on eudaimonic well-being: Proctor & Tweed, 2016). A stressor that induces fear, on the other hand, is something that is referred to as 'bad stress'. Not only does this kind of stressor fall short of having strengthening properties, but it is also draining and traumatizing. For example, McEwen (2016) cites two classes of 'bad' stress, one being 'tolerable stress' and the other being 'toxic stress'. 'Tolerable stress' implies that an individual can overcome the stressful situation in the eventuality if they have sufficient internal resources and available support to withstand the hardships. 'Toxic stress', in contrast, describes the situation when such resources and support are unavailable or lacking, bringing about the adverse consequences of stress. Chronic stressors display such 'toxic' properties that gradually deplete individual's resources of resilience and can compromise health by way of accumulating and wearing the organism out.

Stress and health

Stress has been aptly referred to as the "Health Epidemic of the 21st Century" by the World Health Organization (Fink, 2016: p. 3). Stress affects health both directly and indirectly and is implicated in some of the most serious conditions present in the epidemiological profiles of modern societies, such as depression, diabetes, cardiovascular disease etc., as well as multiple chronic conditions (Slavich, 2015). Stress affects health not only by means of eliciting neuroendocrine responses but also by causing changes in habitual and non-habitual health behaviors as well as adopting unhealthy strategies of coping with stress (i.e., smoking, alcohol, substance misuse etc.)

(Segerstrom & O'Connor, 2012). The noxious effects of stress, especially chronic stressors, have received much research attention. While there is no uniformly accepted definition of stress, in most of the definitions stress is associated with poorer mental and physiological health.

At this juncture it is important to stipulate that while stress is conceptualized as a taxing condition, it is not uniformly harmful or malignant per se. In fact, stress response is often cited as an adaptive reaction, which means that it serves a function that confers adaptive advantages and is instrumental for survival. Not every incident of stress exposure results in a disease or has an undermining effect on health. Furthermore, mere exposure to stress does not warrant the healthy organism's falling ill (Cohen, Murphy, & Prather, 2018). Stressors vary in their severity and their ability to leave their mark on health. Chronic stress is considered more detrimental for health than acute stress, as is frequent stress exposure, traumatic stress and stress exposure during childhood (Cohen, Murphy, & Prather, 2018). For example, it has been shown that trauma affects the likelihood of infectious diseases (Song et al., 2019). While the impact of chronic stressors on health has received much research attention, the mechanisms by which it occurs are still not fully understood (Goldstein & McEwen, 2002).

That said, stressful events can affect most diseases, particularly in those individuals with predisposition or with chronic conditions already present (Cohen, Murphy, & Prather, 2018). As more extensive biomedical knowledge became available to social scientists researching stress, this research direction has blossomed, and its coverage had expanded considerably. The last several decades of stress research have produced new data that changed our understanding of how the psychosocial stress works to instigate pathology, including the link between stress, depression and inflammation (Adler et al., 1994; Chen & Miller, 2012; Cohen et al., 2004; Cole, 2010; Kiecolt-Glaser et al., 1995; Knol et al., 2006; Krishnan & Nestler, 2008; Matthews, Gallo, & Taylor, 2010; Miller et al., 2009; Slavich, 2016; Song et al., 20019; Tafet & Nemeroff, 2016; Tawakol et al., 2016; Thoits, 2010; West, 1991; Windle et al., 2018; Yang et al., 2015). The key processes involved in stress-health pathways have been identified (immune function, inflammation, heart rate variability etc.) and linked to their health outcomes (Hughes, Steffen, & Thayer, 2018). Demographic factors contributing to the stress process have been established. For example, women and men have different types of stressful events affecting them, and individuals of different genders have different likelihood of encountering different types of stressors at different stages of life (Cohen, Murphy, & Prather, 2018). Childhood stress has been shown¹ to produce a cascade of negative symptoms in health in later life (Anda et al., 2006; Bosch et al., 2012; Epel et al., 2018; Felitti, 2002; Felitti, 2009; Pepper & Nettle, 2017; Slavich, 2016; Yang et al., 2017). On the other hand, social and psychological factors that buffer the onset of biological risks have been recognized (Cohen, Murphy, & Prather, 2018; McEwen, 2019; McEwen & Stellar, 1993; Epel et al., 2018; Fitzgerald et al., 2021; McEwen, 2019; Schat-tuck, 2021). Along the same lines, one's ability to cope with stress has been shown to

¹ While the existing theoretical models differ in the details of their causal arguments, the theorists seem to concur that experiencing hardships and adverse events in early life compromises health in adulthood.

change with age: higher resilience to stress and adversity has been documented for older individuals and for more educated individuals (Brinkhof et al., 2023), including them having better mental health outcomes longitudinally. Following these and other findings, attempts at designing interventions to slow down the process of immunosenescence caused by poverty are presently made. Most of them focus on lifestyle change (e.g. via diet) and cognitive style (e.g. via meditation practices) (Fitzgerald et al., 2021; West et al., 2022).

These empirical and theoretical developments have made provisions for a more nuanced theoretical picture of the avenues by which stress can affect human condition, including the embedding of social factors into human physiology (Cole, 2010; Quinn & Shields, 2023). Presently there are several models explaining stress-health links (allostasis (McEwen & Stellar, 1993), polyvagal theory (Porges, 2011), adaptive calibration model (Del Giudice, Ellis, & Shirtcliff, 2011), social safety theory (Slavich, 2020) etc.). Yet as stress research gained conceptual complexity it also came to face more measurement-related challenges.

Stress exposure and perceived stress severity

One of the difficulties of measuring the effects of stress is connected to the distinction between external stressors and their internal appraisal. Specifically, the person *feels* that some situation causes humiliation, pain, loss of status, and thus evaluates it as stressful; this, in turn, causes more negative (more pessimistic or less favorable) appraisals of the forthcoming events thus making the individual experience more negative emotions (for example, anger) or less control over the ways the situation will be unfolding. Stress appraisal theories specifically address the issue of perceived control one has over stressor and the degree of stability of the stressor's cause (Fassett-Carman et al., 2020). Perceived controllability of recently experienced stressful life events was shown to correlate with their perceived severity (Fassett-Carman et al., 2020). It is important to note that, understood this way, objectively present stressors and one's subjective experiences of stress severity are not quite the same thing. In fact, it implies that an individual can experience stress even without a stressor being objectively present, and vice versa, feel no stress in face of a real threat.

More recently, stress researchers began to make a distinction between stress exposure (i.e., facing an *objectively measurable* stressor) and perceived stress severity (i.e., a *subjective*¹ experience of stress resulting from individual's facing a stressor) (Cohen, Kamarck, & Mermelstein, 1983). The latter, often termed psychological stress has been shown to have a superior predictive ability in terms of negative health outcomes (both breadth and depth of observed effects) compared to the former. Measurement-wise, subjective stress also tends to yield more precise results, which makes it preferable as a stress-assessment tool (Shields et al., 2023).

Perceived stress is the individual's assessment of a situation as taxing, namely that the demands of a situation exceed one's resources and coping capacity (Glaser &

¹ Medical sociologists have been emphasizing the impracticality of exploration of stress process that excludes its interpretative aspect (Lazarus & Folkman, 1984; McLeod, 2012; Pearlin, 1989; Reynolds & Turner, 2008).

Kiecolt-Glaser, 2005). Perceived stress, like regular stress, can contribute to dysregulation of various physiological systems potentially leading to negative health outcomes. Some results of psychological stress, especially chronic elevated levels of perceived stress and negative emotions include changes in accelerated cellular aging, poor health outcomes, and increased disease risk (Glaser & Kiecolt-Glaser, 2005; Pedersen, Zachariae, & Bovbjerg, 2010). In a study measuring stress over a 12-month period across 10 life domains, chronic perceived stress was predictive of osteoarthritis onset in women (Harris, Loxton, Sibbritt, & Byles, 2013). Moreover, high levels of perceived stress can contribute to maladaptive coping responses (such as smoking, alcohol, excessive use of pharmaceuticals etc.) which in turn perpetuate the dynamics that contributes to further decreases in health (McEwen, 2015). On the other hand, decreasing levels of perceived stress and increasing adaptive coping can improve stress-system functioning (King, Keil, & Sibille, 2016).

Research has shown that perceived stress severity is shaped by both situational and dispositional factors (Slavich & Shields, 2018). It suggests that besides the factual stress exposure, i.e. a list of events that a person has been exposed to, perceived stress is also a function of personality-related factors and dispositions (such as optimism, neuroticism etc.) that can affect one's view of the world and interfere into the appraisals and expectations of one's current and future circumstances (Shields et al., 2023). Findings from a study by Shields and colleagues (2023) further suggest that the superior ability of perceived stress to predict negative health outcomes compared to stress exposure that is discussed in the literature indeed reflects something unique about an individual's perception of stress that is more essential than the "objective" stressfulness of their experiences in terms of it conferring risk for poor health. Shields' findings illustrate that when attempting to understand links between stress and health, a substitution of more "objective" measures for "subjective" appraisals of stressful experiences is not warranted (Shields et al., 2023).

An alternative route to the appraisal theories is offered by the biopsychosocial model (Blascovich & Tomaka, 1996). A significant aspect of psychological (perceived) stress' effects on health appears to be connected to whether the stressful situation is appraised as a challenge or as a threat (McLoughlin, Arnold, & Moore, 2023). Individuals are regularly exposed to stressful events that can vary from daily inconveniences that are an annoying thorn in one's side (e.g., having a dripping faucet, a malfunctioning coffee maker, being stuck in an elevator, having several meetings in a row etc.) to major events that disrupt the course of one's life (e.g., facing a betrayal, dissolution of marriage, business' bankruptcy etc.). Why do individuals react differently to stressful situations? According to the biopsychosocial model, if the situation is perceived as exceeding the resources available to the individual for coping, it elicits the threat appraisal (Blascovich, 2008a). Blascovich (2008b) also shows that if the individual's resources are assessed as sufficient to address the stressor, the challenge appraisal is elicited instead. Research has identified the benefits associated with appraising stressful situations as a more of challenge, as opposed to a threat, although not much work has been done to explicitly connect this distinction with differential health outcomes (O'Donovan et al., 2012; Tomaka, Palacios, Champion, & Monks, 2018). The appraisal of stressful situations as a challenge (as opposed to a threat) was associated with less anxiety

(Trotman et al., 2018). On the other hand, an argument has been made those repeatedly appraising stressful situations as a threat may have a higher likelihood of having ill-health (Blascovich, 2008b). Further research has shown that individuals also have a *disposition* to appraise stressful situations as more of a challenge or a threat (e.g., Power & Hill, 2010; Rumbold et al., 2020). Interestingly, a significant proportion of variance in challenge and threat appraisals was attributable to the person component (i.e., 15%) (Moore et al., 2019). In further testing McLoughlin, Arnold and Moore (2023) found that habitually appraising stressful events as more of a threat (i.e., when situational demands exceed personal coping resources) indeed was associated with poorer mental health (higher depression and anxiety, lower well-being) and more physical health complaints (after controlling for age and gender) than the tendency to appraise events as more of a challenge (i.e., when resources match or exceed demands) (McLoughlin, Arnold, & Moore, 2023). The authors propose that it is likely that challenge and threat appraisals might have different immunological effects. Although connecting stress and personality factors offers novel information and shows promise in terms of its explanatory potential, so far little research has connected trait-like challenge and threat appraisals with health and well-being outcomes in a systematic fashion (McLoughlin, Arnold, & Moore, 2023).

Conclusions

Stress is ubiquitous in both biological and social life. It is inherent not only in one's social circumstances such as one's low position in a hierarchy but also in life transitions associated with aging, acquiring new roles (getting a job, becoming a parent, retiring), caring for sick relatives, shrinking of social networks and so on that are not external circumstances with respect to the individual. The internal evaluation of something as distressing or challenging is therefore an important component of stress. The empirical evidence suggests that perceived stress severity is a better predictor of health outcomes than stress exposure. It is plausible that the two kinds of stress affect health via different avenues and the distinction between the stress exposure and perceived stress offers insights into their respective contributions to health change. Furthermore, as individuals vary in terms of what each one of us finds stressful, it is also important to include the individual differences in personality into the explanation of stressful experience. As 'multiple causal linkages between personality and disease may be simultaneously operating across long periods of time' (Friedman, 2008: p. 668), a life-course approach would be beneficial to capture the cumulative effects of stress in health outcomes more fully.

References

- Adler, N., Boyce, T., Chesney, M., Cohen, S. et al. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist*, 49(1), 15-24. <https://doi.org/10.1037//0003-066x.49.1.15>
- Anda, R.F., Felitti, V.J., Bremner, J.D., Walker, J.D., Whitfield, C., Perry, B.D., Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience*, 256(3), 174-186. <https://doi.org/10.1007/s00406-005-0624-4>

- Blascovich, J. (2008a). Challenge and threat. In: A.J. Elliot (Ed.), *Handbook of approach and avoidance motivation* (pp. 431-445). Psychology Press.
- Blascovich, J. (2008b). Challenge, threat, and health. In: J.Y. Shah & W.L. Gardner (Eds.), *Handbook of motivation science* (pp. 481-493). Guildford Press.
- Blascovich, J. & Tomaka, J. (1996). The biopsychosocial model of arousal regulation. In: M. Zanna (Ed.), *Advances in experimental social psychology* (pp. 1-51). Academic Press.
- Bosch, N.M., Riese, H., Reijneveld, S.A., Bakker, M.P., Verhulst, F.C., Ormel, J., & Oldehinkel, A.J. (2012). Timing matters: Long term effects of adversities from prenatal period up to adolescence on adolescents' cortisol stress response. The TRAILS study. *Psychoneuroendocrinology*, 37(9), 1439-1447. <https://doi.org/10.1016/j.psyneuen.2012.01.013>
- Brinkhof, L.P., Chambon, M., Ridderinkhof, K.R., van Harreveld, F., Murre, J.M. J., Krugers, H.J., & de Wit, S. (2023). Resilience among older individuals in the face of adversity: How demographic and trait factors affect mental-health constructs and their temporal dynamics. *Clinical Psychological Science*, 0(0). First published online August 11, 2023. <https://doi.org/10.1177/21677026231190294>
- Chen, E. & Miller, G.E. (2012). "Shift-and-persist" strategies: Why low socioeconomic status isn't always bad for health. *Perspectives in Psychological Science*, 7(2), 135-158.
- Cohen, S., Doyle, W.J., Turner, R.B., Alper, C.M., & Skoner, D.P. (2004). Childhood socioeconomic status and host resistance to infectious illness in adulthood. *Psychosomatic Medicine*, 66(4), 553-558. <https://doi.org/10.1097/01.psy.0000126200.05189.d3>
- Cohen, S., Murphy, M.L.M., & Prather, A.A. (2018). Ten surprising facts about stressful life events and disease risk. *Annual Review of Psychology*, 70(1), 1–21. <https://doi.org/10.1146/annurev-psych-010418-102857>
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396. <https://doi.org/10.2307/2136404>
- Cole, S. (2010). Elevating the perspective on human stress genomics. *Psychoneuroendocrinology*, 35(7), 955-962. <https://doi.org/10.1016/j.psyneuen.2010.06.008>
- Del Giudice, M., Ellis, B.J., & Shirtcliff, E.A. (2011). The Adaptive Calibration Model of stress responsivity. *Neuroscience and Biobehavioral Reviews*, 35(7), 1562–1592. <https://doi.org/10.1016/j.neubiorev.2010.11.007>
- Epel, E.S., Blackburn, E.H., Lin, J., Dhabhar, F.S., Adler, N.E., & Cawthon, R.M. (2004). Accelerated telomere shortening in response to life stress. *Proceedings of National Academy of Sciences U. S. A.*, 101(49), 17312-17315. <http://dx.doi.org/10.1073/pnas.0407162101>
- Epel, E.S., Crosswell, A.D., Mayer, S.E., Prather, A.A., Slavich, G.M., Puterman, E., & Mendes, W.B. (2018). More than a feeling: A unified view of stress measurement for population science. *Frontiers in Neuroendocrinology*, 49, 146-169. <https://doi.org/10.1016/j.yfrne.2018.03.001>
- Fassett-Carman, A. N., DiDomenico, G.E., von Steiger, J., & Snyder, H.R. (2020). Clarifying stress-internalizing associations: Stress frequency and appraisals of severity and controllability are differentially related to depression-specific, anxiety-specific, and transdiagnostic internalizing factors. *Journal of Affective Disorders*, 260, 638-645. <https://doi.org/10.1016/j.jad.2019.09.053>
- Felitti, V.J. (2002). The relation between adverse childhood experiences and adult health: Turning gold into lead. *The Permanente Journal*, 6(1), 44-47.
- Felitti, V.J. (2009). Adverse childhood experiences and adult health. *Academic Pediatrics*, 9(3), 131-132. <https://doi.org/10.1016/j.acap.2009.03.001>
- Fink, G. (2016). Stress, definitions, mechanisms, and effects outlined: Lessons from anxiety. In: G. Fink (Ed.), *Stress concepts, cognition, emotion, and behavior*. Handbook of Stress Series (vol. 1, ch. 1, pp. 3-12). New York, NY: Academic Press.
- Fitzgerald, K.N., Hodges, R., Hanes, D., Stack, E., Cheishvili, D., Szyf, M., & Bradley, R. (2021). Potential reversal of epigenetic age using a diet and lifestyle intervention: a pilot randomized clinical trial. *Aging*, 13(7), 9419-9432. <https://doi.org/10.18632/aging.202913>
- Friedman, H.S. (2008). The multiple linkages of personality and disease. *Brain, Behavior, and Immunity*, 22, 668-675. <https://doi.org/10.1016/j.bbi.2007.09.004>
- Glaser, R. & Kiecolt-Glaser, J.K. (2005). Stress-induced immune dysfunction: implications for health. *Nature reviews. Immunology*, 5(3), 243-251. <https://doi.org/10.1038/nri1571>

- Goldstein, D.S. & McEwen, B. (2002). Allostasis, homeostats, and the nature of stress. *Stress: The International Journal on the Biology of Stress*, 5(1), 55-58. <https://doi.org/10.1080/10253890290001234>
- Harris, M.L., Loxton, D., Sibbritt, D.W., & Byles, J.E. (2013). The influence of perceived stress on the onset of arthritis in women: findings from the Australian Longitudinal Study on women's health. *Annals of Behavioral Medicine: a Publication of the Society of Behavioral Medicine*, 46(1), 9-18. <https://doi.org/10.1007/s12160-013-9478-6>
- Hughes, B.M., Steffen, P.R., & Thayer, J.F. (2018). The psychophysiology of stress and adaptation: Models, pathways, and implications. *International Journal of Psychophysiology: Official Journal of the International Organization of Psychophysiology*, 131, 1-3. <https://doi.org/10.1016/j.ijpsycho.2018.06.003>
- Katsampouris, E., Turner-Cobb, J.-M., Barnett, J.C., & Arnold, R.S. (2020). Can ancient and modern stressors be distinguished? A mixed-methods exploration of psychosocial characteristics and health symptoms in young and older adults. *Journal of Health Psychology*, 27(3), 1-13. <https://doi.org/10.1177/1359105320965654>
- Kawachi, K. & Kennedy, B.P. (1999). Income inequality and health: pathways and mechanisms. *Health Services Research*, 34(1), 215-227.
- Kiecolt-Glaser, J.K. (1999). Stress, personal relationships, and immune function: Health implications. *Brain, Behavior and Immunity*, 13, 61-72.
- Kiecolt-Glaser, J.K., Marucha, P.T., Malarkey, W.B., Mercado, A.M., & Glaser, R. (1995). Slowing of wound healing by psychological stress. *Lancet*, 346, 1194-1196.
- King, C.D., Keil, A., & Sibille, K.T. (2016). Chronic pain and perceived stress. In: G. Fink (Ed.), *Stress Concepts, Cognition, Emotion, and Behavior*. Handbook of Stress Series (vol. 1, ch. 52, pp. 413-422). New York, NY: Academic Press.
- Knol, M.J., Twisk, J.W., Beekman, A.T., Heine, R.J., Snoek, F.J., & Pouwer, F. (2006). Depression as a risk factor for the onset of type 2 diabetes mellitus. A meta-analysis. *Diabetologia*, 49(5), 837-845. <http://dx.doi.org/10.1007/s00125-006-0159-x>
- Krishnan, V. & Nestler, E.J. (2008). The molecular neurobiology of depression. *Nature*, 455(7215), 894-902. <http://dx.doi.org/10.1038/nature07455>
- Lazarus, R.S. & Folkman, S. (1984). *Stress, appraisal and coping*. NY: Springer.
- Mason, J. Psychological influences on the pituitary-adrenal cortical system. In: G. Pincus (Ed.), *Recent Progress in Hormone Research* (pp. 345-389). New York, NY: Academic Press.
- Matthews, K.A., Gallo, L.C., & Taylor, S.E. (2010). Are psychosocial factors mediators of socioeconomic status and health connections? A progress report and blueprint for the future. *Annals of the New York Academy of Sciences*, 1186, 146-173. <https://doi.org/10.1111/j.1749-6632.2009.05332.x>
- McEwen, B.S. (2019). The good side of "stress." *Stress*, 1-2. <https://doi.org/10.1080/10253890.2019.1631794>
- McEwen, B.S. (2016). Central role of the brain in stress and adaptation: Allostasis, biological embedding, and cumulative change. In: G. Fink (Ed.), *Stress Concepts, Cognition, Emotion, and Behavior*. Handbook of Stress Series (vol. 1, ch. 5, pp. 39-56). New York, NY: Academic Press.
- McEwen, B.S. (2015). Biomarkers for assessing population and individual health and disease related to stress and adaptation. *Metabolism: Clinical and Experimental*, 64(3 Suppl. 1), S2-S10. <https://doi.org/10.1016/j.metabol.2014.10.029>
- McEwen, B.S. & Stellar, E. (1993). Stress and the individual. Mechanisms leading to disease. *Archives of Internal Medicine*, 153(18), 2093-2101. <https://doi.org/10.1001/archinte.153.18.2093>
- McLeod, J. (2012). The meanings of stress. *Society and Mental Health*, 2(3), 172-186. <https://doi.org/10.1177/2156869312452877>
- McLoughlin, E., Arnold, R., & Moore, L.J. (2023). The tendency to appraise stressful situations as more of a threat is associated with poorer health and well-being. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 10.1002/smi.3358. Advance online publication. <https://doi.org/10.1002/smi.3358>
- Miller, G., Chen, E., Fok, A., Walker, H., Lim, A., & Nicholls, E. et al. (2009). Low early-life social class leaves a biological residue manifested by decreased glucocorticoid and increased proinflammatory

signaling. *Proceedings of the National Academy of Sciences*, 106(34), 14716-14721. <https://doi.org/10.1073/pnas.0902971106>

O'Donovan, A., Tomiyama, A.J., Lin, J., Puterman, E., Adler, N.E., Kemeny, M., Epel, E.S. & Blackburn, E.H. (2012). Stress appraisals and cellular aging: A key role for anticipatory threat in the relationship between psychological stress and telomere length. *Brain, Behaviour, and Immunity*, 26(4), 573-579. <https://doi.org/10.1016/j.bbi.2012.01.007>

Pearlin, L.I. (1989). The sociological study of stress. *Journal of Health and Social Behavior*, 30(3), 241-256. <https://doi.org/10.2307/2136956>

Pedersen, A., Zachariae, R., & Bovbjerg, D.H. (2010). Influence of psychological stress on upper respiratory infection—a meta-analysis of prospective studies. *Psychosomatic Medicine*, 72(8), 823-832. <https://doi.org/10.1097/PSY.0b013e3181f1d003>

Pepper, G. & Nettle, D. (2017). The behavioural constellation of deprivation: Causes and consequences. *Behavioral and Brain Sciences*, 40, 1-66. <https://doi.org/10.1017/s0140525x1600234x>

Porges, S.W. (2011). *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication, and Self-Regulation*. W W Norton & Co.

Power, T. & Hill, L. (2010). Individual differences in appraisal of minor, potentially stressful events: A cluster analytic approach. *Cognition and Emotion*, 24(7), 1081-1094. <https://doi.org/10.1080/02699930903122463>

Proctor, C. & Tweed, R. (2016). Measuring eudaimonic well-being. In: J. Vittersø (Ed.), *Handbook of Eudaimonic Well-Being* (ch. 18, pp. 277-294). Springer International Publishing, Switzerland.

Quinn, M. E. & Shields, G. S. (2023). The insidious influence of stress: An integrated model of stress, executive control, and psychopathology. *Clinical psychological science: A Journal of the Association for Psychological Science*, 11(5), 773-800. <https://doi.org/10.1177/21677026221149736>

Reynolds, J. R. & Turner, R. J. (2008). Major life events: Their personal meaning, resolution, and mental health significance. *Journal of Health and Social Behavior*, 49 (2), 223-237. <https://doi.org/10.1177/002214650804900208>

Rumbold, J., Fletcher, D., & Daniels, K. (2020). An experience sampling study of organizational stress processes and future playing time in professional sport. *Journal of Sports Sciences*, 38(5), 559-567. <https://doi.org/10.1080/02640414.2020.1717302>

Schattuck, E. C. (2021). Networks, cultures, and institutions: Toward a social immunology. *Brain, Behavior, & Immunity — Health*, 18, 100367. <https://doi.org/10.1016/j.bbih.2021.100367>

Schnell, T. (2009). The sources of meaning and meaning in life questionnaire (SoMe): Relations to demographics and well-being. *The Journal of Positive Psychology*, 4(6), 483-499. <https://doi.org/10.1080/17439760903271074>

Segerstrom, S.C. & O'Connor, D.B. (2012). Stress, health and illness: Four challenges for the future. *Psychology & Health*, 27(2), 128-140. <https://doi.org/10.1080/08870446.2012.659516>

Selye, H. (Ed.). (1956). *The Stress of Life*. New York, NY: McGraw Hill.

Shields, G.S., Fassett-Carman, A., Gray, Z.J., Gonzales, J.E., Snyder, H.R., & Slavich, G.M. (2023). Why is subjective stress severity a stronger predictor of health than stressor exposure? A preregistered two-study test of two hypotheses. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 39(1), 87-102. <https://doi.org/10.1002/smi.3165>

Slavich, G.M. (2020). Social Safety Theory: A biologically based evolutionary perspective on life stress, health and behavior. *Annual Review of Clinical Psychology*, 16(1), 265-295. <https://doi.org/10.1146/annurev-clinpsy-032816-045159>

Slavich, G.M. (2016). Life stress and health: A review of conceptual issues and recent findings. *Teaching of Psychology (Columbia, Mo.)*, 43(4), 346-355. <https://doi.org/10.1177/0098628316662768>

Slavich, G.M. & Shields, G.S. (2018). Assessing lifetime stress exposure using the Stress and Adversity Inventory for Adults (Adult STRAIN): An overview and initial validation. *Psychosomatic Medicine*, 80, 17-27. <https://doi.org/10.1097/PSY.0000000000000534>

Song, H., Fall, K., Fang, F., Erlendsdóttir, H., Lu, D., Mataix-Cols, D., Fernández de la Cruz, L., D'Onofrio, B.M., Lichtenstein, P., Gottfredsson, M., Almqvist, C., & Valdimarsdóttir, U.A. (2019). Stress related disorders and subsequent risk of life threatening infections: population based sibling controlled cohort study. *BMJ (Clinical Research Ed.)*, 367, 15784. <https://doi.org/10.1136/bmj.15784>

Sterling, P. (2021). *What is health? Allostasis and the evolution of human design*. Cambridge, MA: MIT Press.

Tafet, G.E. & Nemeroff, C.B. (2016). The links between stress and depression: Psychoneuroendocrinological, genetic, and environmental interactions. *The Journal of Neuropsychiatry and Clinical Neurosciences*, 28(2), 77-88. <https://doi.org/10.1176/appi.neuropsych.15030>

Tawakol, A., Osborne, M.T., Wang, Y., Hamed, B., Tung, B., Patrich, T., Armstrong, K.A. (2019). Stress-associated neurobiological pathway linking socioeconomic disparities to cardiovascular disease. *Journal of the American College of Cardiology*, 73(25), 3243-3255. <https://doi.org/10.1016/j.jacc.2019.04.042>

Thoits, P.A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior*, 51(1 suppl), S41-S53. <https://doi.org/10.1177/0022146510383499>

Tomaka, J., Palacios, R., Champion, C., & Monks, S. (2018). Development and validation of an instrument that assesses individual differences in threat and challenge appraisal. *Journal of Depression and Anxiety*, 7(3), 1-10. <https://doi.org/10.4172/2167-1044.1000313>

Trotman, G.P., Williams, S.E., Quinton, M.L., & Veldhuijzen Van Zanten, J.J.C.S. (2018). Challenge and threat states: Examining cardiovascular, cognitive, and affective responses to two distinct laboratory stress tasks. *International Journal of Psychophysiology*, 126, 42-51. <https://doi.org/10.1016/j.ijpsycho.2018.02.004>

West, P. (1991). Rethinking the health selection explanation for health inequalities. *Social Science and Medicine*, 32(4), 373-384.

Windle, M., Haardorfer, R., Getachew, B., Shah, J., Payne, J., Pillai, D., & Berg, C.J. (2018). A multivariate analysis of adverse childhood experiences and health behaviors and outcomes among college students. *Journal of American College Health*, 66(4), 246-251. <https://doi.org/10.1080/07448481.2018.1431892>

Yang, L., Zhao, Y., Wang, Y., Liu, L., Zhang, X., Li, B., & Cui, R. (2015). The effects of psychological stress on depression. *Current Neuropharmacology*, 13(4), 494-504. <https://doi.org/10.2174/1570159x1304150831150507>

Yang, Y.C., Gerken, K., Schorpp, K., Boen, C., & Harris, K. M. (2017). Early-life socioeconomic status and adult physiological functioning: A life course examination of biosocial mechanisms. *Biodemography and Social Biology*, 63(2), 87-103. <https://doi.org/10.1080/19485565.2017.1279536>

Received 08.02.2024

КАТЕРИНА МАЛЬЦЕВА

Об'єктивний стрес, сприйняття тяжкості стресу та їхній вплив на здоров'я

Універсального визначення стресу чи стресорів не існує. Зазвичай під стресом розуміють суб'єктивне переживання напруги, тиску, дистресу, страху або негативних емоцій, яке виникає внаслідок передбачуваної загрози психічному чи фізичному благополуччю людини та супроводжується розвиненою біологічною реакцією, яка сприяє запуску адаптаційної поведінки. Хоча стрес концептуалізується як стан вимушеної напруги, сам по собі він не є обов'язково шкідливим чи злякає для індивідуального здоров'я. Насправді реакцію на стрес часто характеризують як адаптаційну, що означає, що вона виконує функцію, яка надає адаптивні переваги та є інструментом для виживання. Не кожен випадок впливу стресу призводить до захворювання або має негативний вплив на здоров'я. Крім того, сама по собі зустріч зі стресором не є гарантією захворювання здорового організму. Однак стресові події можуть впливати на більшість захворювань, якщо вони систематичні, особливо в осіб зі схильністю до хронічних захворювань або в тих, у кого такі захворювання вже наявні. Зовсім нещодавно дослідники стресу почали розрізняти вплив об'єктивного стресу (тобто зіткнення з об'єктивно вимірним чинником стресу) та сприйняту тяжкість стресу (тобто суб'єктивне переживання стресу в результаті зіткнення людини зі стресором). Було показано, що сприйнята тяж-

кість стресу має кращу прогностичну здатність щодо негативних наслідків для здоров'я (як за кількістю, так і за глибиною спостережуваних ефектів) порівняно зі стресом як таким. Що стосується вимірювання, суб'єктивний стрес також має тенденцію давати більш точні результати, що робить його кращим інструментом оцінки стресу. Ця стаття є оглядовим дослідженням, яке заглиблюється в цю відмінність і намагається пролити світло на її значення для вимірювання стресу та оцінки його впливу на здоров'я.

Ключові слова: стрес; здоров'я; тяжкість стресу; психічне здоров'я; фізичне здоров'я; оцінка; вимірювання

KATERYNA MALTSEVA

Stress exposure, perceived stress severity, and their effects on health

While stress is one of the central concepts in many contemporary theories of health, there is no universal definition of stress or stressors. Stress is usually understood as a subjective experience of tension, pressure, distress, fear or negative emotions that occurs as a result of a perceived threat to one's mental or physical well-being and is accompanied by an evolved biological response that facilitates adaptive reaction. While stress is conceptualized as a taxing condition, it is not understood as uniformly harmful per se. In fact, stress response is often cited as an adaptive reaction. Moreover, not every incident of stress exposure results in a disease or has an undermining effect on health. Mere exposure to stress does not warrant the healthy organism's falling ill. Yet stress has been shown to affect health both directly and indirectly, having impact on multiple chronic conditions. Stressors vary in their severity and their ability to leave their mark on health, and it is therefore important to develop reliable methods of measuring stress to better understand how stress affects health and instigates pathology. One of the difficulties of measuring the effects of stress is connected to the distinction between external stressors and their internal appraisal. More recently, stress researchers began to make a distinction between stress exposure (i.e., facing an objectively measurable stressor) and perceived stress severity (i.e., a subjective experience of stress resulting from individual's facing a stressor). The latter has been shown to have a superior predictive ability in terms of negative health outcomes (both breadth and depth of observed effects) compared to the former. Measurement-wise, subjective stress also tends to yield more precise results, which makes it preferable as a stress-assessment tool. The present article is a literature review study that delves into this distinction and attempts to shed light onto its implications for measuring stress and its effects on health.

Keywords: stress; health; stress severity; mental health; physical health; assessment; measurement