This a person was exposed to (stress

This study examined race and gender alongwith other generic stress factors like age, employment, education level, income, number of children, marital status, and living conditions in amultidimensional study. In the end they found that the only factors thatsignificantly contributed to the global stress of an individual wererace-related stress, gender-related stress, and overall generic stress (noindividual generic stressor was significantly correlated to global stresslevel). The number of stressors a person was exposed to (stress exposure) andtheir individual interpretations and evaluations of the stressors (stressappraisal) contributed to the specific type of stress, whether race-related, gender-related, or generic.

All three types of stress were related to theglobal stress of an individual. Global stress was significantly correlated todistress, but it did not exhibit as strong of a correlation as otherrelationships. This is likely due to individual confounding variables likecultural pressures or personal psychological stability. However, neitherrace-related, gender-related, nor generic stress alone had a significantcorrelation with distress levels. In the end, this study concluded that inorder to properly assess stress, gender and race must be evaluated andconsidered.

In addition to assessing gender andrace-related stressors, most researchers examine life events, the individual’sperception of their demands and capabilities, their current negative affect(Cohen, Tyrrell, & Smith, 1993), and major life traumas (Marx & Sloan, 2003). Life events like buying a house or having a child are usually ranked inlists such as Henderson’s List of Recent Experiences (Henderson, Byrne, &Duncan-Jones, 1981), which not only list these events but also assess thepositive and negative impacts. Assessing

traumatic events is also important fordetermining levels of distress in an individual. In a study conducted by Marxand Sloan (2003), participants that experienced childhood sexual abuseexhibited higher levels of psychological distress than those that experiencedother types of childhood trauma or no childhood trauma at all. Additionally, they found that women experienced higher levels of distress in response to thesame stressors, but there were no differences found in stress response byethnicity or race. However, this lack of stress-level differences by race and ethnicitycould be misleading, as this study only examined the relationship betweenchildhood trauma and distress and did not specifically examine race-relatedstressors. There are many factors at play inexamining stress levels.

Self-reports are used almost exclusively when evaluatingchronic stress (Glaser, et al., 1993). Unfortunately, self-reports areinherently biased and not always reliable. There are other possibilities formeasuring chronic stress, such as biofeedback machines, however thesebiofeedback machines are more for helping reduce chronic stress levels ratherthan just measure them (Giggins, Persson, & Caulfield, 2013), since theycan be expensive and time consuming. Therefore, measuring stress accurately canbe difficult and even biased. The Biology of Psychological StressAcute psychological stress stimulates therelease of catecholamines like epinephrine, norepinephrine, and dopamine; theseare largely responsible for the sympathetic nervous system’s “ fight or flight” response (Saladin, 2015).

These neurotransmitters excite beta-receptors andcause an increase in heart rate, blood pressure, and the force of myocardialcontractions (Liu & Mori, 1999; Saladin, 2015). Acute stress also increasedwhite blood cell (WBC)

counts, blood viscosity, and anticoagulants (Epel , 2014; Liu & Mori, 1999). Although catecholamines themselves arereactive and related to increased oxidative stress, they can actually bebeneficial for cellular functioning by increasing cells' resistance tooxidative stress (Epel & Lithgow, 2014). Stress also stimulates the overrelease of glucocorticoids.

Glucocorticoids' main functions are to maintainmetabolism and regulate other hormones (Vyas, et al., 2016). Chronic stressleads to long-term elevation of glucocorticoid levels, which can cause damageto biomolecular structures due to the elevated levels of reactive oxygenspecies (ROS) associated with them (Vyas, et al., 2016). Chronically highglucocorticoid levels are linked to increased oxidative stress that off-balancecellular homeostasis and can lead to premature aging and age-related diseases (Tomiyama, et al.

, 2014). Glucocorticoids are responsible for many cellular changes (seeFigure 3). Elevated levels of cortisol are also linked to depression (Zhu, etal.

, 2014). Both catecholamines and glucocorticoids are stimulated through thehypothalamus-pituitary-adrenal (HPA) cortex. Cortisol is synthesized andreleased from the adrenal cortex (Vyas, et al.

, 2016) and catecholamines aresynthesized in the adrenal medulla (Liu & Mori, 1999). Hyperactivity of theHPA axis plays a significant roll in psychological stress levels and oxidativestress (Tomiyama, et al., 2014; Zhu, et al., 2014)