

Abstract

Psychological stress-induced mental health problems such as depression have a strong negative impact on socio-economic burdens. Yet, not everyone who is under high stress would develop psychological disorders. Those who are more resistant to the development of psychological disorders are known as resilient people. Psychological resilience (hereafter named as resilience) is defined as the ability to rebound from adverse events. Cultivation of resilience is, therefore, believed to prevent the development of psychological disorders. There are increasing numbers of resilience research that attempt to prove the potential beneficial effect of resilience on the mental well-being in different populations. Despite the obvious potential, implementation of resilience training and monitoring programs remains difficult, which is mainly due to the absence of reliable and objective methodology to assess resilience. To date, subjective reports remain the most commonly used tool to assess resilience in research. Although this approach has value, self-report bias is inevitable with this method. An alternative is the application of standardized and validated biomarkers in describing and predicting resilience. These measures are less prone to subject manipulation; thus, improvement of assessment accuracy can be achieved. For instance, baseline heart rate variability (HRV), cardiovascular recovery, cortisol to dehydroepiandrosterone (DHEA) ratio and cytokine responses measured after stress, have been suggested to be reliable biomarkers in predicting resilience. Although the two methods have complementarity, the combination of these methods is rarely applied to explain and predict resilience. This proposed study aims to evaluate the predictive power of the combination of the above biomarkers together with self-report measures in predicting resilience in healthy adults. Perceived stress, subjective resilience level, resilience components and mental health status will be assessed using self-reported questionnaires on the experiment day, followed by HRV assessment and saliva sampling at baseline. Participants will then go through a laboratory stress task with their heart rate being monitored throughout the task. Saliva sampling will be performed again immediately, and at 5, 10 and 20 minutes after the task for the measurement of cortisol, DHEA and cytokines levels. The association of the level of subjective resilience with putative biomarkers of resilience and self-reported resilience components will be examined. Subjects will be followed up for a year. Their mental health status, perceived stress and self-reported resilience level will be assessed again at the 3rd, 6th, 9th and 12th month after the experiment. Results from this study will provide insight into the development of comprehensive assessments of resilience.