



### Stress affects daily salivary cortisol profiles.

Do Thi Kim Anh<sup>1</sup>, Nattinee Jantaratnotai<sup>2</sup>, Somchai Manopatanakul<sup>1</sup>, Praewpat Pachimsawat<sup>1\*</sup>

<sup>1</sup>Department of Advanced General Dentistry, Faculty of Dentistry, Mahidol University, Bangkok, Thailand

<sup>2</sup>Department of Pharmacology, Faculty of Science, Mahidol University, Bangkok, Thailand

\*Corresponding author, E-mail: praewpat.pac@mahidol.ac.th

#### Abstract

Cortisol is a well-established biomarker of stress and measurement of salivary cortisol (sCort) has attracted research interest because saliva is a non-invasive and subject-friendly procedure that does not require medical staff. Previous studies showed inconsistent results in the association between stress and daily sCort profiles. This study aimed to compare sCort daily profiles between stressful and ordinary days in the same people. Twenty healthy participants collected saliva four times a day (awakening, at 10:00h, 12:00h, 16:00h) on an ordinary day where the participants had a general common duty and on a stressful day where there were known stressful events happening to the participants. The results showed that sCort levels on a stressful day were significantly higher than those on an ordinary day at two time points (10:00h and 12:00h,  $p = 0.000$  and  $p = 0.038$ , respectively). In addition, on an ordinary day, the sCort level at awakening was significantly higher than at 10:00h ( $p = 0.005$ ), at 12:00h ( $p = 0.005$ ), and at 16:00h ( $p = 0.000$ ). Meanwhile, the sCort value at 16:00h was the lowest value of the day with no difference between ordinary and stressful days. In summary, this study found the increased sCort values on a stressful day compared with an ordinary day and the sCort levels at different times of the day were also different.

**Keywords:** Stress, saliva, cortisol