

Real-life correlates of physical activity: An ecological momentary assessment study examining the association between affect and subsequent physical activity

Christina Niermann, Christian Herrmann, Birte von Haaren, Dave Van Kann, Martina Kanning

Purpose: Traditionally, motivational and volitional determinants have been used to explain and predict health behaviors such as physical activity. Recently, the role of affect in influencing and regulating health behaviors received more attention. Affects as internal cues may automatically activate unconscious processes of behavior regulation. Affective states underlie dynamic fluctuations across days and even within-days. Studies using single, retrospective self-reported ratings of affect did not address this issue because of limitations such as recall bias. Ecological momentary assessment (EMA) enables us to assess affective states within persons during a week in participants' natural environment and to combine this with real-time measurement of physical activity using accelerometers. The aim of our study was to examine the within association between affect and subsequent physical activity in daily life using an EMA design.

Methods: The EMA study was conducted with 89 persons (33.7% male, 25 to 65 years, $M=45.2$, $SD=8.1$). Affect was assessed in the afternoon on 5 weekdays using smartphones. Physical activity was measured objectively using accelerometers and subjectively using smartphones in the evening. The outcomes were objectively and subjectively measured moderate-to-vigorous physical activity (MVPA) performed after work. Multilevel regression models were used to analyze the association between affect and after work MVPA.

Results: Positive affect was positively related to objectively measured and self-reported after work MVPA: the greater the positive affect the more time persons subsequently spent on MVPA. An inverse relationship was found for negative affect: the greater the negative affect the less time persons spent on subsequent MVPA.

Conclusions: The results of this study confirm previous results and indicate that affect plays an important role for the regulation of physical activity behavior in daily life. Using EMA designs enables researchers to examine time- and context specific correlates of physical activity and other health behaviors such as sedentary behavior or dietary intake. It is possible to address within person dynamics of health behaviors and correlates and to examine their real time interrelations in natural settings. These insights are crucial for a better understanding of health behaviors and barriers for behavior change in daily life.