Stress is viewed as the leading cause of mental health issues. Positive events, however, could act as a buffer against stress. Since the stress-buffering effects of positive events in previous studies were mainly examined by subjective self-reporting, continuous tracking research at individual behavioral levels still remains to be explored. In this study, we collected microblogs (n=27,346) from a group of high school students (n=500) to examine the relationship between positive events and stress-buffering patterns at both the content and behavioral levels. Through a pilot study of scheduled exam intervals under two situations, namely, 1) existing neighboring positive scheduled events (n=75) and 2) no neighboring positive events,

we found that students taking exams with neighboring positive events appeared to exhibit less intense stress and more stable stress fluctuations. Most students talked less about exams when positive events occurred nearby, at a lower frequency and a lower ratio. Hypothetical tests for stress-buffering effects of positive events and monotonic changes in the stress intensity under the impact of positive events were further conducted based on automatically extracted positive events (n=1,914) from the microblogs. The results showed that the stress-buffering effects of positive events were closely correlated with adolescents’ stress-change modes, microblog linguistic expressions, and posting behaviors. The occurrence of positive events was verified to offset the impact of stressor events through talking about positive topics at the same time. Adolescents tended to post more forwarded microblogs, more positive microblogs and less stressful microblogs when positive events appeared; however, the total frequency of microblogs did not appear to change significantly under the impact of positive events. The study also showed that positive events buffered monotonic changes in stress intensity caused by stressor events. Based on these theoretical findings, the stress-buffering patterns around positive events were further incorporated for stress prediction in adolescents, and the predictive performance was improved. This study could inform the use of social networks to estimate and track mental health transition in adolescents under stress. The theoretical and practical implications, limitations of this study and future work are discussed.