

Emotions in Everyday Life During Social Movements: Prospective Predictions of Mental Health

Wai Kai Hou

The Education University of Hong Kong

George A. Bonanno

Teachers College, Columbia University

Emotion mobilizes and demobilizes a social movement while the movement itself impacts people's emotions. An evidence base is needed for developing timely emotion-focused counseling services for affected populations worldwide. This experience sampling study investigated the impact of a social movement on everyday emotional reactivity, variability, instability, and persistence, and whether and how these predicted subsequent psychological distress and well-being among 108 community-dwelling adults. Fifty-four participants reported momentary events and emotions 5 times daily over 7 days during the Umbrella Movement in Hong Kong. An age-matched, sex-matched comparison group ($n = 54$) participated during a period without major social/political movement. Psychological distress and well-being were assessed at baseline (Time 1 [T1]) and 3-month follow-up (Time 2 [T2]). Hierarchical linear modeling revealed lower valence ratings of positive events during the Umbrella Movement. Lower positive emotional reactivity and higher negative emotional reactivity in positive events were reported during the movement. Controlling for demographics and T1 scores, the positive association between negative emotional reactivity in positive events and T2 depressive symptoms, and the inverse association between positive emotional instability and T2 positive emotions, were significant only among the comparison group. The positive association between positive emotions in positive events and T2 life satisfaction was significant only among the Umbrella Movement group. People could experience significant changes in their emotions in everyday life during a social movement, even if it is short and relatively nonviolent like the Umbrella Movement. Maximizing positive emotions in positive events during a social movement can uniquely contribute to higher subsequent psychological well-being.

Public Significance Statement

The current study provides one of the first empirical findings on the unique everyday emotional experiences during a social movement relative to ordinary time. Counseling services that enhance positive emotions in positive events during a social movement could contribute to higher subsequent psychological well-being among affected populations.

Keywords: social movement, emotion, everyday life, mental health, experience sampling

How do acute periods of social movements influence our daily emotions? Does this influence have any lasting consequences? The Umbrella Movement, originally called “Occupy Central,” emerged between September 26 and December 15, 2014, in the Hong Kong Special Administrative Region. Hong Kong citizens blocked traffic at three major business and administrative districts by building encampments that were occupied for nearly 3 months. An esti-

mated 20.1% of the 7.2 million citizens reported having stayed in the occupied areas (Chinese University of Hong Kong, 2014). The Umbrella Movement was probably the first large-scale prodemocracy movement among Chinese since the Tiananmen Square protests in 1989. A population-based study ($N = 1,208$) showed a high prevalence of clinical anxiety and depressive symptoms (50% and 14%, respectively) 2 months after the movement, suggesting a significant emotional impact of the movement, though possible variability in clinically significant depressive symptoms is yet to be addressed by longitudinal research (Hou et al., 2015; Lau et al., 2016, 2017).

Emotion and Social Movements

The world has witnessed growing populations that are and were affected by the trend of sociopolitical movements to advance social justice and democracy in recent years (della Porta & Mattoni, 2014). Emotion is one of the indispensable elements of social movements and should potentially be targeted for interventions (Benski & Langman, 2013; Costa, Rotabi, Murnane, & Choud-

Wai Kai Hou, Laboratory of Psychology and Ecology of Stress (LoPES), Department of Psychology, and Centre for Psychosocial Health, The Education University of Hong Kong; George A. Bonanno, Department of Counseling and Clinical Psychology, Teachers College, Columbia University.

This research was supported by Research Grants Council, University Grants Committee, Hong Kong SAR (Project No.: HKIED859113).

Correspondence concerning this article should be addressed to Wai Kai Hou, Department of Psychology, The Education University of Hong Kong, 10 Lo Ping Road, Tai Po, NT, Hong Kong. E-mail: wkh@eduhk.hk

hury, 2015; Jasper, 2014). Yet an evidence base is lacking for developing timely emotion-focused counseling services that aim to promote well-being of the affected populations (Trott, 2016).

Emotion theorists have highlighted the crucial role played by a broad range of contextual factors that influence the nature of emotional experience and expression and the ways in which emotions influence other people and long-term adjustment (Aldao, 2013; Bonanno & Burton, 2013; Cole, Michel, & Teti, 1994). Social context, in particular, plays an important and often reciprocal role in people's emotional life. For example, not only do emotions communicate important information to others—they also directly influence the behavior of others (Keltner & Haidt, 1999). By the same token, the social context provides important cues by which people regulate their emotions and their consequences (Beer, Heerey, Keltner, Scabini, & Knight, 2003; Côté, 2005). The sheer size of the social context in social movements presents an even broader form of reciprocal influence on emotion. Broad social contexts, for example, can magnify the impact of emotional experience and expression as well as social feedback that regulates emotion (Lieberman, Golden, & Earp, 2013; Richard, Gauvin, & Raine, 2011).

Emotion dynamically impacts mobilization, demobilization, and solidarity among protesters in social movements (Benski & Langman, 2013; Jasper, 2014). It is the sanctioning emotion that instigates dissatisfaction toward people or governments with opposing stances (Rodgers, 2010). When legitimate routes for social or political changes are closed, contempt motivates some people to organize activities for galvanizing the public into action (Jasper, 2014). Understanding the sources of political threat results in feelings of hatred, suspicion, and indignation, which then powerfully mobilize the movements and protest actions (Jasper, 2011). Protests are also considered a form of collective action and rely heavily on participants' sense of belonging to the movements and whether the cause of action resonates with the participants' emotions (van Stekelenburg, Klandermans, & Van Dijk, 2011). Meanwhile, immersion within the collective identity brings about positive experiences and positive emotions (van Stekelenburg, 2013). The strength of collectivism in social movements originates from the shared meanings and reciprocal emotions toward fellow group members, such as enthusiasm and assertiveness in the goals of the movements (Klandermans, 2014).

Existing evidence further suggests that positive and negative emotional experiences are likely highly variable and dependent upon the conditions of social movements. Analysis of social media data revealed that Brazilians expressed more protest-related negative than positive emotions during the summer of 2013, a period of conflicts and riots across more than 100 cities in Brazil (Costa et al., 2015). Neutral emotions peaked in the beginning of the conflict period, declined in conjunction with greater intensity of conflicts and protests, and then rose up again toward the conclusion. Patterns of emotional ups and downs could be highly related to psychological distress and well-being (Trull, Lane, Koval, & Ebner-Priemer, 2015; Wichers, Wigman, & Myin-Germeys, 2015). This current theoretical and empirical evidence leads to our research question: Are changes in emotion life during social movements associated with subsequent psychological distress and well-being of the affected populations?

Currently, there is a deficit of knowledge about whether people have different emotional experiences in everyday life during a

social movement compared with people during a period without a major social movement, and whether and how the purported differential emotional experiences during the social movement contribute to subsequent mental health. A social movement is not static but incubates, develops, and changes over time (Dupont & Passy, 2011; Kurzman, 2015; Lagi, Bertrand, & Ber-Yam, 2011). This study took into account both distal emotional outcomes and more proximal variations in emotional reactivity over time. We attempted to assess these factors using experience sampling method (ESM), which is also known as ecological momentary assessment, and compare Hong Kong Chinese people during the Umbrella Movement with a matched comparison group of Chinese who were assessed in a period without a major social/political movement. Thorough analyses were conducted on emotional reactivity and variations in it, namely, variability, instability, and persistence. The conceptual and empirical literature on these emotion variables, and the associations of them with psychological distress and well-being among clinical and healthy populations, were reviewed.

Emotional Reactivity

Emotional reactivity refers to the average intensity or magnitude of people's emotional responses to differential events. Cognitive theories suggest that people with depression are more likely to demonstrate negative inferential style, rumination over negative events and emotions, and selective attention to negative information in response to stressors in everyday life (Ingram, Miranda, & Segal, 1998; Nolen-Hoeksema, 1991). Higher negative emotional reactivity in everyday life reflects failure to regulate negative emotions and, thus, poorer mental health. Negative emotional reactivity was consistently associated with higher affective symptoms and poorer effectiveness of cognitive therapy in community or clinical samples of women with and without depression (Wichers et al., 2009, 2010). The associations were significant after taking into account genetic markers, previous symptom severity, or personality risk factors like neuroticism. Positive emotional reactivity, on the other hand, demonstrates adaptive utility. Among people vulnerable to or affected by major depressive disorder (MDD), higher positive emotional reactivity in everyday life predicted lower affective symptoms and higher effectiveness of pharmaceutical treatment, especially among women with childhood trauma and recent stressful events (Geschwind et al., 2010, 2011).

Emotional Variability and Instability

Variations in emotional reactivity can be assessed by taking into account the frequency of changes in emotions over time on top of average intensity (Larsen & Diener, 1987). Emotional variability is defined as the extent to which intensity of emotional reactions deviates from the average level over time, whereas emotional instability takes into account variability as well as temporal progressions of changes in emotional reactivity over time (Jahng, Wood, & Trull, 2008).

More variable or unstable positive and negative emotions have been related to poorer mental health across different age groups. Early and late adolescents demonstrating more variable and unstable positive emotions in everyday life reported higher levels of depressive symptoms (van Roekel et al., 2015). Secondary analy-

ses of archived data found that positive emotional variability and instability predicted higher anxiety and/or depressive symptoms and lower life satisfaction among separate samples of American and French adults (Gruber, Kogan, Quidbach, & Mauss, 2013). More variable and unstable negative emotions in everyday life were positively associated with affective symptoms among adults with MDD (Wichers et al., 2010) and anxiety disorders (Bowen, Baetz, Hawkes, & Bowen, 2006).

Specifically, negative emotional instability in everyday life has unique association with prospective mental health over and above reactivity and variability. Negative emotional instability in everyday life predicted higher depressive symptoms independent of the effects of average negative emotional reactivity and variability (Koval, Pe, Meers, & Kuppens, 2013). People with MDD ($n = 53$), relative to nondepressed controls ($n = 53$), demonstrated higher average positive and negative emotional reactivity and higher negative emotional instability in intensive assessments over 7 to 8 days (Pe et al., 2015; Thompson et al., 2012). People with MDD and controls did not differ in positive emotional instability, and in positive and negative emotional variability (Thompson et al., 2012).

Emotional Persistence

On the flip side of variability and instability is persistence of emotional reactivity. The term “emotional inertia” has been used to describe the extent to which emotional states tend to persist but not change over time (Kuppens, Allen, & Sheeber, 2010; Suls, Green, & Hillis, 1998). The emotional context insensitivity hypothesis asserts that negative emotions that persist across positive and negative situations contribute to poorer adjustment (Coifman & Bonanno, 2010; Rottenberg, Gross, & Gotlib, 2005). People with depression, relative to nondepressed people, reported similar levels of sadness following watching a sad movie, but the former also reported higher levels of sadness following watching neutral and happy movies (Rottenberg et al., 2005; Rottenberg, Kasch, Gross, & Gotlib, 2002). Persistence of everyday happiness, excitement, anger, anxiety, and depressed mood, in aggregate across 14 consecutive days, were inversely associated with self-esteem among college students (Kuppens et al., 2010). Nevertheless, it should be noted that when considered individually, more persistent positive emotions in everyday life predicted lower subsequent depressive symptoms among a community sample of women, and better responses to pharmaceutical and psychological treatments among people with depressive histories (Höhn et al., 2013).

The Present Study

This study aims to investigate the impact of social movements (i.e., the Umbrella Movement) on valence ratings and emotions in everyday life events, and whether emotional reactivity, variability, instability, and persistence in everyday life during a social movement predict subsequent psychiatric symptoms and subjective well-being. Based on the current literature, we predicted that, relative to the comparison group, people directly exposed to the Umbrella Movement would experience less positive and more negative events, lower positive but higher negative emotional reactivity, more variable/unstable positive and negative emotions, less persistent positive emotions, and more persistent negative emotions. We also predicted that lower positive but higher negative emotional reactivity, more vari-

able/unstable positive and negative emotions, less persistent positive emotions, and more persistent negative emotions would be associated with poorer mental health at follow-up. Finally, we predicted that emotions in everyday life during the Umbrella Movement, relative to emotions assessed during a period without major social or political movements, would be more strongly associated with mental health at follow-up.

Method

Participants and Procedure

This study is part of a larger research project on everyday experiences and health. Upon obtaining ethics committee approval from the university, a research service company was contracted to recruit community-dwelling adults by probability sampling from a database representative of the population. The professional research service company, Field and Tab Research Services Limited, has 7 years of experience in providing services on participant recruitment and data management for academic research in Hong Kong. Inclusion criteria were Chinese ethnicity, Cantonese fluency, and elementary education level or above. The sample was heterogeneous with respect to sex, education level, and household income. Exclusion criteria were self-reported histories of psychiatric conditions and present cognitive impairments. The research service company identified suitable people and introduced the study to them; voluntary participation and data confidentiality were emphasized. The company confirmed potential participants' eligibility and obtained their written informed consent. A questionnaire was administered to the participants through face-to-face interview prior to the ESM protocol (Time 1 [T1]) and 3 months upon completion of the protocol (Time 2 [T2]). Follow-up interviews were conducted between March and July 2015, a period without a major social movement. Upon completion of the follow-up, participants received supermarket coupons that valued HK\$400 (~US\$52) as compensation.

Fifty-four participants finished the ESM protocol between October and December 2014. The mean number of days since the start of the Umbrella Movement was 66.65 ($SD = 10.29$, range = 45–81). The participants ranged in age between 19 and 68 years ($M = 43.39$, $SD = 17.76$), 39 (72%) were females, and 24 (44%) were married. Thirty-one (57%) received secondary education and 23 (43%) received tertiary education or above. The 54 age-matched and sex-matched control participants completed the ESM protocol between January and April 2015. The mean number of days since the start of the Umbrella Movement was 157.56 ($SD = 37.20$, range = 100–207). The participants ranged in age from 19 to 73 years ($M = 44.21$, $SD = 18.63$), 39 (72%) were females, and 24 (44%) were married. Six (11%) participants received primary education, 23 (43%) received secondary education, and 25 (46%) received tertiary education or above.

Experience Sampling Method

The assessment period covered 5 weekdays and 2 weekend days. Each participant received extensive individual instructions and trainings on the experience sampling tasks. Participants' demographics were separated from the experience sampling data. On each sampling day, alarms rang five times, which were distributed

throughout a time window of 12 hr, with the first alarm time determined by participants' awakening habits and the remainders determined randomly with a minimum interval of 90 min. If participants did not respond to an alarm, the alarm would ring again in 5 min and again in 10 min. If there were still no response, the sampling moment would be closed after 15 min. If fewer than four sampling moments were recorded on a given day, the experience sampling period would be extended for 1 day. Average number of days in study was 11, with 51 participants completing all assessments within 7 days (compliance rate = 86.8%).

Events and emotional reactivity. Each sampling moment began with 12 validated items assessing positive and negative emotions (Hou et al., 2016; Hou, Ng, & Wan, 2015). Six items assessed positive and negative emotions, respectively. Positive emotions included "excited," "joyful," "happy," "content," "relaxed," and "comfortable"; negative emotions included "irritable," "frightened," "bitter," "sad," "disappointed," and "depressed." The scale is linguistically and structurally equivalent to the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). Participants used a 5-point scale (0 = *very slightly or not at all*, 4 = *very much*) to indicate the extent to which they experience each emotional state at the moment. Separate summation scores were calculated for positive and negative emotional reactivity (range = 0–24). The scale was demonstrated to be reliable ($\alpha > .85$) among Hong Kong Chinese (Hou et al., 2015, 2016). In the current administration, alphas were .95 and .93 for Positive Emotion and Negative Emotion subscales, respectively. Participants were then instructed to determine the valence of the event at the sampling moment: Item 1 was "How would you regard the event(s) that you experienced since waking/previous alert?" (answer = "positive" or "negative"), and Item 2 was "How would you rate the positivity/negativity of the event?" (answer = 7-point scale, from 0 = *not at all* to 6 = *very much*).

Each participant's ESM data on positive and negative emotional reactivity was also transformed in order to indicate variability, instability, and persistence for hierarchical linear modeling and regression analyses, respectively.

Emotional variability. For hierarchical linear modeling, variability at a sampling moment referred to the extent to which positive or negative emotions at the moment deviated from the average levels (Eid & Diener, 1999). For example, if an individual negative emotion score at a sampling moment is 12 and the average negative emotion score across all sampling moments is 10, then a score of 2 will indicate variability at the sampling moment (i.e., $12 - 10 = 2$). For regression analyses, variability was indicated by the standard deviation of the summed score of positive or negative emotions across all relevant sampling moments (Gruber et al., 2013; Koval et al., 2013; Peeters, Berkhof, Delespaul, Rottenberg, & Nicolson, 2006; Wichers et al., 2010).

Emotional instability. For hierarchical linear modeling, instability of positive or negative emotions was calculated into square successive differences (SSDs) between sampling moments. An emotion score at a sample moment was subtracted by the score at the subsequent moment; the difference was then squared. Because sampling moments were randomized and irregularly spaced in time in the present study, each SSD score was divided by the time interval between the current and subsequent moments (Jahng et al., 2008; Thompson et al., 2012). We preprocessed the time series of SSD, referred to as SSD_{ij}, in which "i" refers to a person and "j" refers to a session. The series of SSD_{ij}s was log transformed to adjust for

skewness of the distribution and calculated separately for positive and negative emotions (Jahng et al., 2008; Pe et al., 2015). For regression analyses, mean SSD scores were calculated by averaging the SSD within each day and then averaging those scores across the 7 days (Rosen & Factor, 2015; Solhan, Trull, Jahng, & Wood, 2009).

Emotional persistence. For hierarchical linear modeling, persistence of positive or negative emotions was calculated into within-person autoregressive slope, denoting the extent to which emotion at a previous sampling moment (i.e., $t-1$) is correlated with emotion at a particular moment (i.e., t). Emotional persistence was estimated at Level 1 in the hierarchical linear models and allowed to vary randomly across participants at Level 2 (Koval, Sütterlin, & Kuppens, 2016; Thompson et al., 2012). For regression analyses, emotional persistence referred to autocorrelation coefficients of positive or negative emotions, indicating the average correlations of emotions reported between consecutive sampling moments (Jahng et al., 2008; Koval et al., 2013; Thompson et al., 2012).

Measures

Sociodemographic characteristics. A standardized pro forma was used to obtain demographic information, including age in years, sex, marital status, education level, employment status, monthly household income, and years of residence in Hong Kong.

Anxiety and depressive symptoms. Anxiety symptoms at T1 and T2 were assessed using the Chinese version of the 20-item state version of the State-Trait Anxiety Inventory (Shek, 1988). Participants rated the frequency of 20 anxiety-related emotional states during the past 2 weeks on a 4-point scale (1 = *not at all*, 4 = *very much*). Scores on 10 positively worded items were reverse coded. A total score was calculated by summing across the 20 items (range = 20–80). Alphas were .92 at T1 and .91 at T2, respectively. Depressive symptoms at T1 and T2 were assessed using the Chinese version of the 20-item Center for Epidemiologic Studies-Depression (CES-D) scale (Cheung & Bagley, 1998). Participants rated the frequency of 20 symptoms during the past week, on a scale from 0 = *rarely or none of the time (<1 day)* to 3 = *most or all of the time (5–7 days)*. Higher scores indicated more severe depressed mood (range = 0–60). The Chinese CES-D has been found to be reliable and validly associated with stressful life events among Hong Kong Chinese adults (Cheung & Bagley, 1998). In this study, alphas were .95 (T1) and .94 (T2), respectively.

Psychological well-being. State positive emotions at T1 and T2 were assessed using the six items as in the ESM protocol. In the current study, Cronbach's alphas were .87 and .91, respectively. Life satisfaction at T1 and T2 was assessed using the Chinese version of the Satisfaction with Life Scale on a 4-point scale (1 = *strongly disagree*, 4 = *strongly agree*; Diener, Emmons, Larsen, & Griffin, 1985). A summation score (range = 5–20) was used to indicate life satisfaction. Cronbach's alphas were .83 at T1 and .82 at T2.

Analytic Plan

Mann-Whitney *U* tests were used to identify any differences in ordinal demographic variables (i.e., marital status, education level, employment status, and monthly household income) between the Umbrella Movement group and the comparison group. Employment status ($z = -2.02$, $p = .04$) was included as a dummy-coded categorical covariate (reference = full-time

employed, 1 = part-time employed, 2 = retired, 3 = housewife, 4 = unemployed) in subsequent analyses. Independent samples *t* tests were conducted on all T1 and T2 measures of psychological distress and well-being, showing higher T2 anxiety symptoms among the Umbrella Movement group, $t(106) = 2.292, p = .024$.

Hierarchical linear modeling. To address our predictions about the negative impact of social movements on everyday emotional experiences, we conducted hierarchical linear modeling using HLM 7.0 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011). Hierarchical linear modeling used all available data, consisting of a maximum of 35 sets (i.e., five assessments across 7 days if without missing data) nested within each participant. Models were constructed to test group differences in frequency and valence ratings of positive and negative events and emotional reactivity, variability, instability, and persistence in positive and negative events. All models consisted of two levels: sessions (Level 1) and individuals (Level 2). In each model, Level 1 (γ_{ti}) consisted of within-person average levels of an emotion variable, and Level 2 (π_{0i}) consisted of average levels of the variable among the comparison group (β_{00}), group (0 = comparison group, 1 = Umbrella Movement group; β_{01}/β_{11}) to represent group difference in the variable, and employment status as the demographic covariate ($\beta_{02} + \beta_{05}$).

Four models tested group differences in frequency and valence ratings of positive and negative events.

Level 1 model:

$$\gamma_{ti} = \pi_{0i}(\text{frequency/valence ratings}) + \epsilon_{ti}$$

Level 2 model:

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{group}) + [\beta_{02} + \beta_{05}(\text{dummy} \\ - \text{ coded employment status})] + r_{0i}$$

In the Level 1 model, γ_{ti} represented frequency or valence ratings of positive or negative events for participant *i* at sampling moment *t*. π_{0i} was a random coefficient representing within-person average frequency or valence ratings of positive or negative events (i.e., intercept), and ϵ_{ti} was the Level 1 (within-person) random effect. β_{00} represented average frequency or valence ratings of positive or negative events among the comparison group. β_{01} was a fixed coefficient of group (0 = comparison group, 1 = Umbrella Movement group) that represented group differences in the frequency or valence ratings of positive or negative events (“Estimate [SE]” in Table

1). β_{02} to β_{05} were dummy-coded employment status, and r_{0i} represented the Level 2 (between-person) random effect.

Twelve models tested group differences in positive/negative emotional reactivity, variability, or instability in positive and negative events. Valence ratings (π_{1i}) was added as a Level 1 variable to classify events into positive or negative; π_{1i} represented correlations between valence ratings and an emotion variable (i.e., emotional reactivity/variability/instability) across sampling moments (i.e., slope; $\beta_{10} + r_{1i}$).

Level 1 model:

$$\gamma_{ti} = \pi_{0i} + \pi_{1i}(\text{valence ratings}) + \epsilon_{ti}$$

Level 2 model:

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{group}) + [\beta_{02} + \beta_{05}(\text{dummy} \\ - \text{ coded employment status})] + r_{0i} \\ \pi_{1i} = \beta_{10} + r_{1i}$$

In the Level 1 model, γ_{ti} represented positive/negative emotional reactivity, variability, or instability, π_{0i} was a random coefficient representing within-person average positive/negative emotional reactivity, variability, or instability (i.e., intercept), and ϵ_{ti} was the Level 1 (within-person) random effect. β_{00} represented average positive/negative emotional reactivity, variability, or instability among the comparison group. β_{01} was a fixed coefficient of group (0 = comparison group, 1 = Umbrella Movement group) that represented group differences in positive/negative emotional reactivity, variability, or instability (i.e., slope; “Estimate [SE]” in Table 1).

Four models tested group differences in positive and negative emotional persistence in positive and negative events. Emotional persistence of each participant was estimated at Level 1 and allowed to vary randomly across participants at Level 2 (Koval et al., 2016; Thompson et al., 2012). Valence ratings (π_{2i}) was added as a Level 1 variable to classify events into positive or negative; π_{2i} represented correlations between valence ratings and emotional reactivity across sampling moments (i.e., slope; $\beta_{20} + r_{2i}$).

Level 1 model:

$$\gamma_{ti} = \pi_{0i} + \pi_{1i}(\gamma_t - 1i) + \pi_{2i}(\text{valence ratings}) + \epsilon_{ti}$$

Level 2 model:

$$\pi_{0i} = \beta_{00} + \beta_{01} + [\beta_{02} + \beta_{05}(\text{dummy} \\ - \text{ coded employment status})] + r_{0i} \\ \pi_{1i} = \beta_{10} + \beta_{11}(\text{group}) + r_{1i}$$

Table 1

Descriptive Statistics and Intercorrelation Matrix of Emotion Variables in the Hierarchical Linear Modeling of Positive Events

Variable	Mean (SD)	1	2	3	4	5	6	7	8
1. Frequency of positive events	27.92 (5.57)	—	.03	.14**	-.14**	-.14**	.06**	-.18**	-.13**
2. Valence ratings of positive events	3.71 (1.15)		—	.51**	.01	.01	-.25**	-.14**	-.05*
3. Positive emotional reactivity	13.78 (5.39)			—	-.15**	-.06**	-.25**	-.21**	-.06**
4. Positive emotional variability	2.09 (2.12)				—	.37**	-.03	.26**	.10**
5. Positive emotional instability	15.55 (42.81)					—	-.02	.12**	.32**
6. Negative emotional reactivity	3.28 (4.45)						—	.38**	.17**
7. Negative emotional variability	1.59 (1.95)							—	.38**
8. Negative emotional instability	9.75 (37.55)								—

Note. Emotional persistence was calculated into within-person autoregressive slope in the models and thus no correlation was shown. * $p < .05$. ** $p < .01$.

$$\pi_{2i} = \beta_{20} + r_{2i}$$

In the Level 2 model, π_{0i} was a random coefficient representing within-person average positive/negative emotional reactivity (i.e., intercept). π_{1i} ($\gamma_t - 1i$) represented correlations between positive or negative emotional reactivity at $t - 1$ sampling moment and the same emotional reactivity at t sampling moment (i.e., slope; Kuppens et al., 2010; Thompson et al., 2012). β_{10} represented average positive/negative emotional persistence among the comparison group. β_{11} was a fixed coefficient of group (0 = comparison group, 1 = Umbrella Movement group) that represented group differences in positive/negative emotional persistence (i.e., slope; “Estimate [SE]” in Table 1).

Hierarchical multiple regression. To examine the predicted group differences in the associations of emotion variables with psychological distress and well-being at 3-month follow-up, we conducted a series of hierarchical multiple regressions using SPSS (Version 21; SPSS Inc., Chicago, IL). Because of multicollinearity with emotional instability ($r = .73-.85$) and previous evidence on the independent impact of emotional instability (Koval et al., 2013; Pe et al., 2015; Thompson et al., 2012), data on emotional variability was excluded from subsequent analyses. Experience sampling data on emotional instability and persistence were averaged into separate scores. Separate sets of regression models were conducted on reactivity, instability, or persistence as the outcome. In each model, Step 1 entered demographic covariates and T1 scores of the outcome. Step 2 entered emotional reactivity, or emotional instability and persistence.

Another series of hierarchical regressions examined moderating effects of group (0 = comparison group, 1 = Umbrella Movement group) on the significant associations between positive/negative emotional reactivity, instability, or persistence and the outcomes. In each model, Step 1 entered demographic covariates and T1 scores of the outcome, and Step 2 controlled for the effects of nonpredictor positive/negative emotional reactivity, instability, or persistence. Step 3 entered the centered predictor variable and group, followed by an interaction term of the two variables in the fourth step. Simple slope tests were then conducted on the significant moderating effects of group.

Results

Emotional Experiences During Social Movements

Descriptive statistics and intercorrelations of the variables in the hierarchical linear models are summarized in Table 1 (positive events) and Table 2 (negative events). Emotional persistence was

calculated into the within-person autoregressive slope in the models, and thus no correlation was shown. Hierarchical linear modeling revealed that, controlling for demographic covariates, the Umbrella Movement group showed lower valence ratings of positive events (estimate = $-.53$, standard error [SE] = $.16$, 95% confidence interval [CI] [$-.84, -.22$], $p < .001$), lower positive emotional reactivity in positive events (estimate = -2.49 , SE = $.92$, 95% CI [$-4.29, -.69$], $p = .01$), but higher negative emotional reactivity in positive events (estimate = 2.49 , SE = $.71$, 95% CI [$1.10, 3.88$], $p < .001$), relative to the comparison group. The Umbrella Movement group was more likely to perceive lower positivity of positive events and demonstrate lower positive and higher negative emotional reactivity in positive events relative to the comparison group. No group difference was identified in frequency of positive and negative events, valence ratings on negative events, positive and negative emotional reactivity in negative events, and positive and negative emotional variability, instability, and persistence in both positive and negative events. The statistics are summarized in Table 3.

Predictive Utility of Emotional Reactivity, Instability, and Persistence

Descriptive statistics and correlations of everyday emotion variables with T2 outcome variables are shown in Table 4.

Emotional reactivity in positive events. Positive emotional reactivity was inversely associated with T2 life satisfaction ($\beta = -.657$, 95% CI [$-.523, -.172$], $p < .0001$). Negative emotional reactivity was positively related to T2 depressive symptoms ($\beta = .439$, 95% CI [$.268, 2.044$], $p = .012$) and inversely related to T2 life satisfaction ($\beta = -.524$, 95% CI [$-.515, -.165$], $p < .0001$).

Emotional reactivity in negative events. Positive emotional reactivity was inversely associated with T2 anxiety symptoms ($\beta = -.558$, 95% CI [$-2.426, -.170$], $p = .025$) and depressive symptoms ($\beta = -.670$, 95% CI [$-2.605, -.728$], $p < .001$). Positive emotional reactivity was positively associated with T2 life satisfaction ($\beta = .827$, 95% CI [$.322, .691$], $p < .0001$).

Emotional instability and persistence. Positive emotional instability was positively associated with T2 anxiety symptoms ($\beta = .258$, 95% CI [$.006, .240$], $p = .039$) and inversely associated with T2 positive emotions ($\beta = -.265$, 95% CI [$-.115, -.001$], $p = .047$). Both positive and negative emotional persistence were not associated with T2 outcomes.

Table 2

Descriptive Statistics and Intercorrelation Matrix of Emotion Variables in the Hierarchical Linear Modeling of Negative Events

Variable	Mean (SD)	1	2	3	4	5	6	7	8
1. Frequency of negative events	2.46 (5.32)	—	.09	-.44**	-.16*	-.13	.32**	-.09	-.04
2. Valence ratings of negative events	3.27 (1.48)		—	.03	.08	.18*	.51**	.30**	.15*
3. Positive emotional reactivity	6.28 (5.32)			—	-.13*	.00	.06	.16**	-.06
4. Positive emotional variability	3.35 (2.67)				—	.52**	-.00	.35**	.34**
5. Positive emotional instability	23.11 (43.99)					—	.04	.27**	.57**
6. Negative emotional reactivity	9.71 (6.25)						—	.46**	.15*
7. Negative emotional variability	3.94 (4.00)							—	.37**
8. Negative emotional instability	28.96 (53.69)								—

Note. Emotional persistence was calculated into within-person autoregressive slope in the models and thus no correlation was shown. * $p < .05$. ** $p < .01$.

Table 3

Group Differences in Emotional reactivity, Variability, Instability, and Persistence in Positive and Negative Everyday Life Events

Variable	Positive events						Negative events					
	Estimate (SE)	<i>t</i>	95% CI	<i>p</i>	<i>df</i>	<i>N</i>	Estimate (SE)	<i>t</i>	95% CI	<i>p</i>	<i>df</i>	<i>N</i>
Frequency (β01)	1.54 (1.15)	1.35	-.71, 3.79	.18	101	107	.86 (1.10)	.78	-1.30, 3.02	.44	41	47
Valence ratings (β01)	-.53 (.16)	-3.31	-.84, -.22	<.001	101	107	-.26 (.33)	-.77	-.91, .39	.45	41	47
Positive emotional												
Reactivity (β01)	-2.49 (.92)	-2.72	-4.29, -.69	.01	101	107	.29 (1.32)	.22	-2.30, 2.88	.83	41	47
Variability (β01)	-.11 (.24)	-.44	-.58, .36	.67	101	107	.75 (.61)	1.23	-.45, 1.95	.22	41	47
Instability (β01)	-.06 (.15)	-.41	-.35, .23	.69	100	106	-.59 (.35)	-1.70	-1.28, .10	.10	39	45
Persistence (β11)	.07 (.06)	1.37	-.05, .19	.17	105	107	-.30 (.22)	-1.38	-.73, .13	.17	43	45
Negative emotional												
Reactivity (β01)	2.49 (.71)	3.53	1.10, 3.88	<.001	101	107	1.21 (1.49)	.82	-1.71, 4.13	.42	41	47
Variability (β01)	.23 (.29)	.79	-.33, .80	.43	101	107	-.21 (1.08)	-.19	-2.33, 1.91	.85	41	47
Instability (β01)	.22 (.16)	1.35	-.09, .53	.18	100	106	-.24 (.40)	-.60	-1.02, .54	.55	39	45
Persistence (β11)	.01 (.07)	.22	-.12, .15	.83	105	107	-.09 (.20)	-.46	-.48, .30	.65	43	45

Note. Statistics for each variable reflected the difference between groups (0 = comparison group, 1 = Umbrella Movement group). Significant *p* values are in bold font. The demographic covariate (i.e., employment status) and random-effect coefficients have been removed to enhance readability of the table. The full table is available from the corresponding author. *SE* = standard error; *CI* = confidence interval; *df* = degrees of freedom.

Exposure to Umbrella Movement as moderator. Group (0 = comparison group, 1 = Umbrella Movement group) moderated the positive association between negative emotional reactivity in positive events and T2 depressive symptoms ($\beta = -.426$, $t = -2.618$, 95% CI [-2.753, -.351], $p = .013$, $\Delta R^2 = .061$). A simple slope test revealed that the positive association was significant among the comparison group (estimate = .78, $t = 2.02$, $p = .05$) but not the Umbrella Movement group (estimate = -.04, $t = -.12$, $p = .90$; see Figure 1).

Group moderated the inverse association between positive emotional instability and T2 positive emotions ($\beta = .247$, $t = 2.090$, 95% CI [.005, .190], $p = .040$, $\Delta R^2 = .039$). A simple slope test revealed that the inverse association was significant among the comparison group (estimate = -.05, $t = -1.99$, $p = .05$) but not the Umbrella Movement group (estimate = .04, $t = .43$, $p = .67$; see Figure 2).

Group moderated the inverse association between positive emotional reactivity in positive events and T2 life satisfaction ($\beta = .235$, $t = 2.056$, 95% CI [.003, .440], $p = .047$, $\Delta R^2 = .031$). A simple slope test revealed a significant positive association between positive emotional reactivity in positive events and T2 life satisfaction among the Umbrella Movement group (estimate =

.28, $t = 3.00$, $p < .01$) but not the comparison group (estimate = .03, $t = .42$, $p = .67$; see Figure 3).

Discussion

There has only been limited study of the psychological impact of social and political movements, not to mention investigation of everyday life events and emotions in the midst of wars, conflicts, or political unrests (de la Sablonnière, Bourgeois, & Najih, 2013). In an earlier study of the Umbrella Movement, losses of personal and social resources predicted increased risk of higher anxiety and depressive symptoms (Hou et al., 2015; Lau et al., 2016). One study described the emotional life of Brazilians during conflicts and riots in the summer of 2013 based on social media data (Costa et al., 2015), but correspondence of retrospectively reported emotions with actual emotional experiences is questionable because of possible biases of memory retrieval and recall (Moskowitz, Russell, Sadikaj, & Sutton, 2009).

In an attempt to build an evidence base for emotion-focused counseling services among populations under the influence of the global trend of sociopolitical movements, the current study thoroughly investigated the impact of social movements on experiences of everyday life events and emotions, and whether positive and negative

Table 4

Descriptive Statistics and Correlations of Everyday Emotion Variables with Time 2 (T2) Outcome Variables in Regression Analysis

Variable	Mean (SD)	T2 anxiety symptoms	T2 depressive symptoms	T2 positive emotions	T2 life satisfaction
Positive emotional reactivity (positive events)	13.57 (4.67)	-.35**	-.22	.29**	.19
Negative emotional reactivity (positive events)	3.35 (3.80)	.20*	.17	-.01	-.17
Positive emotional reactivity (negative events)	7.90 (4.03)	-.45**	-.41**	.38**	.45**
Negative emotional reactivity (negative events)	8.85 (4.52)	.10	.08	.06	-.15
Positive emotional instability	16.51 (19.50)	.16	.01	-.11	-.03
Negative emotional instability	11.29 (17.37)	.11	-.03	-.08	-.23*
Positive emotional persistence	.18 (.25)	.09	.17	.02	.15
Negative emotional persistence	.20 (.25)	.21*	.21*	-.07	-.06
Mean (SD)		43.60 (9.37)	9.10 (10.01)	14.81 (4.27)	13.54 (2.47)

* $p < .05$. ** $p < .01$.

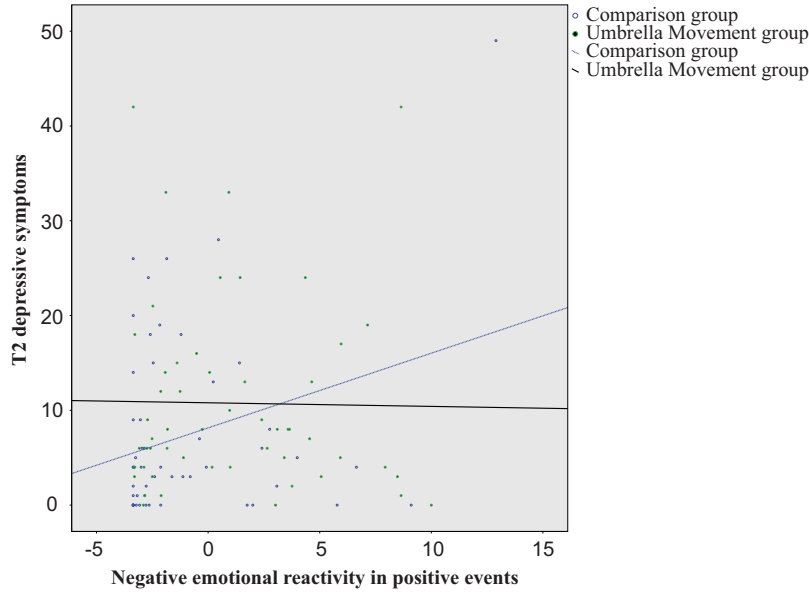


Figure 1. Plot of the moderating effect of group on the association between negative emotional reactivity in positive events and Time 2 (T2) depressive symptoms. See the online article for the color version of this figure.

emotional reactivity, variability, instability, and persistence in everyday life during a social movement predicted subsequent psychiatric symptoms and subjective well-being. We used experience sampling method and hierarchical linear modeling to compare participants that were assessed during the Umbrella Movement and those assessed during a period without a major social movement. We observed a number of effects that differentiated the two groups.

Adding to previous data on social media (Costa et al., 2015), we found that the Umbrella Movement had a significant impact on

emotions in everyday life. Even though the movement was short and nonviolent, participants tended to perceive positive events as less positive and show lower positive and higher negative emotional reactivity in positive events during the movement. In addition, previous findings on a positive association between negative emotional reactivity and depressive symptoms (Wichers et al., 2009, 2010), and an inverse association between positive emotional instability and psychological well-being (Gruber et al., 2013), did not emerge among the Umbrella Movement group in the

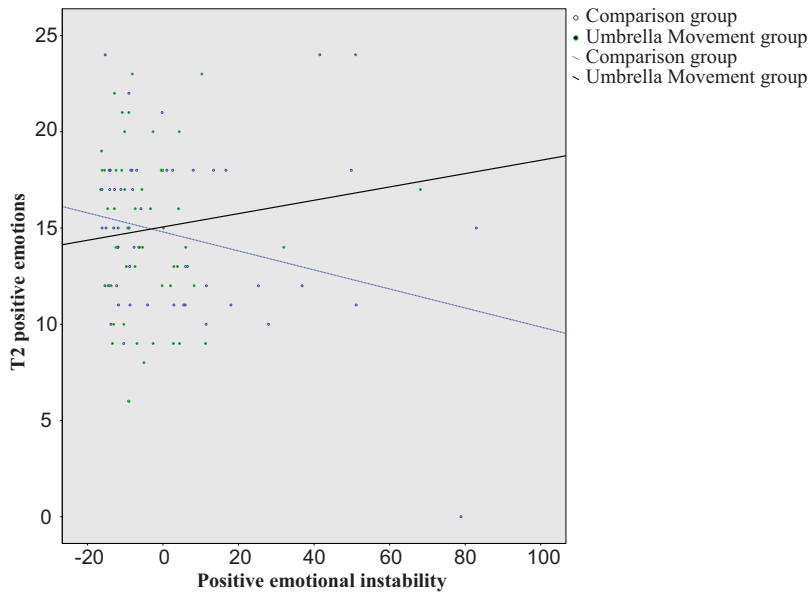


Figure 2. Plot of the moderating effect of group on the association between positive emotional instability and Time 2 (T2) positive emotions. See the online article for the color version of this figure.

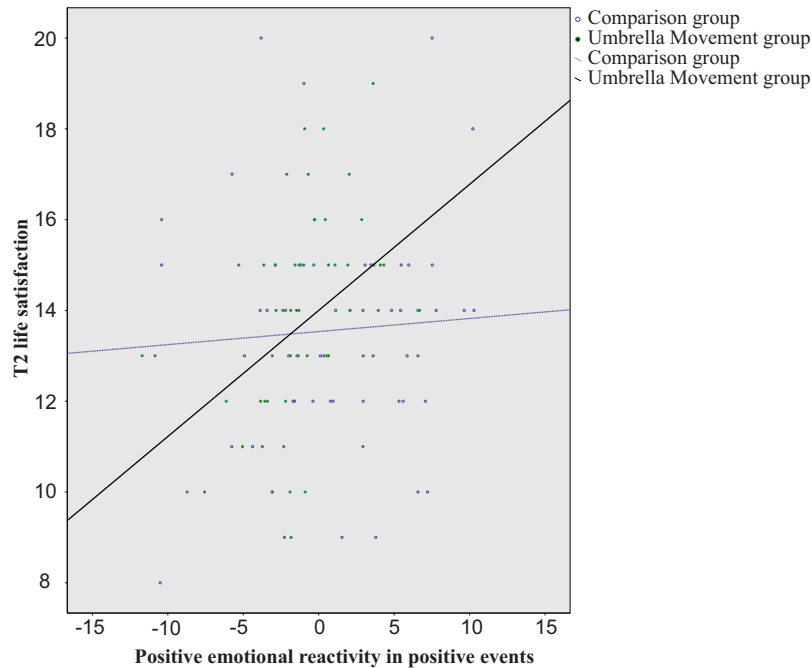


Figure 3. Plot of the moderating effect of group on the association between positive emotional reactivity in positive events and Time 2 (T2) life satisfaction. See the online article for the color version of this figure.

current study. The findings suggest that everyday emotional experiences that are contextualized in a social movement could demonstrate unique associations with subsequent mental health.

The current study also revealed the possible impact of social movements on positive emotional responding. Bonanno and Burton (2013) propose a framework of *regulatory flexibility* to capture the person-situation dynamics in adaptation to stress. *Sensitivity to context* refers to the degree to which people could accurately perceive and understand situational demands and opportunities. Based on Bonanno and Burton's regulatory flexibility perspective, participants undergoing the Umbrella Movement could be less sensitive to positive cues and find it more difficult to produce or upregulate context-congruent positive emotions. As a result, they experienced lower positive emotions and higher negative emotions during positive events.

In the heat of pessimism toward Hong Kong's future and dissatisfaction with the government, savoring daily positive events and emotions during a social movement could be an important first step for safeguarding future subjective well-being, especially when positive events were possibly devalued and positive emotions were lower. Bryant and Veroff (2007) suggested three key savoring strategies, namely, reminiscing past positive experiences, savoring the moment, and anticipating upcoming positive experiences. Perceived capability of savoring positive events predicted higher daily positive emotional reactivity in positive events among college students in the United States (Carl, Fairholme, Gallagher, Thompson-Hollands, & Barlow, 2014). New Zealand college students reporting higher savoring of positive events in their everyday life also demonstrated higher positive emotional reactivity in those events (Jose, Lim, & Bryant, 2012). An important point to note is that these findings were obtained mainly from Caucasian college students and thus might not be readily generalizable to the current

Chinese sample, although perceived capability of savoring has been found to be adaptive among Chinese people (Hou et al., 2016, 2017). Therefore, it is important, both theoretically and empirically, to study how savoring during social movements contributes to physical and mental health across diverse populations.

The results of the current study are consistent with the theoretical and empirical literature on the role of positive emotions in counteracting negative emotions and, by extension, psychological distress. Across the Umbrella Movement and the comparison groups, lower positive emotional reactivity in negative events was consistently associated with higher anxiety and depressive symptoms. Positive emotions could become bipolar to negative emotions and have the power of undoing negative psychological impact of stressful situations (Hou et al., 2015; Tugade & Fredrickson, 2004; Zautra, Smith, Affleck, & Tennen, 2001). More anxious attachment was found to contribute to shorter duration of contentment in daily events, which in turn was associated with higher psychiatric symptoms (Ng & Hou, 2017). The counterregulation perspective further implicates the human tendency to attend to context-incongruent information across situations depending on activated motivational and/or emotional states (Rothermund, Voss, & Wentura, 2008). Previous experimental evidence has shown that when under threat to important life domains such as physical health, people selectively attended to positive information (Grevin, Sassenberg, & Fetterman, 2015). Our results showed the importance of upholding positive emotions in everyday negative events on enhancing subsequent mental health.

We also found that life satisfaction was predicted by both higher positive emotional reactivity in negative events and lower negative emotional reactivity in positive events across both groups. Co-occurrence of positive and negative emotions has been suggested

to reflect adaptive emotion regulation during stressful encounters (Hay & Diehl, 2011; Zautra et al., 2001). The hypothesized bidirectional influences between positive and negative psychological processes in stress are well documented (Coifman, Bonanno, & Rafaeli, 2007; Hou & Lam, 2014). One recent experience sampling study further suggested that co-occurrence of positive and negative emotions reflect intrusions of negative emotions into positive emotions during positive events (Scott, Sliwinski, Mogle, & Almeida, 2014). One should not only upregulate positive emotions but also downregulate negative emotions during positive events in order to facilitate higher psychological well-being.

The inverse association between positive emotional reactivity in positive events and life satisfaction at follow-up in regression analysis should be interpreted with cautions. The inverse association between positive emotional reactivity in positive events and T2 life satisfaction seemed counterintuitive and might reflect multicollinearity between predictors or nonlinear relationship between the two variables. Yet tolerance and variance inflation factor statistics did not indicate multicollinearity among the emotion variables. We conducted additional analyses and found a positive correlation between positive emotional reactivity in positive events and T2 life satisfaction in the Umbrella Movement group ($r = .420, p = .002$) and the whole sample ($r = .188, p = .052$) only. There was limited correlation between the two variables among the comparison group ($r = .060, p = .666$). The reverse association could be related to significant group differences in the association between positive emotional reactivity in positive events and subsequent life satisfaction. However, we could not resolve this issue with the data available from the current study. Future research may shed more light on the finding.

Limitations

Several limitations warrant cautions. First, this experience sampling study was conducted in a small sample of Hong Kong Chinese ($N = 108$). Sociocultural characteristics could limit generalizability of the findings to people in other sociocultural contexts. Second, potential confounders, such as exposure to the Umbrella Movement, were not assessed. Exposure to the movement could systematically impact emotional experiences. Third, the Umbrella Movement group was defined as those who completed the study within the Movement (September–December 2014), whereas the comparison group completed the study after the Movement between January and April 2015. We could not rule out the possibility that control participants recruited close to conclusion of the Umbrella Movement were under comparable influence of the Movement. Fourth, we did not examine both positive and negative valences of the events. Our participants chose the valence, either positive or negative, of the event at each sampling moment. Some events might be more mixed, such as very negative but also some positive. People experiencing mixed positive-negative valence tend to cope better, whereas polarity of valence ratings is a marker of poor coping (Lindquist & Barrett, 2008).

Conclusions and Practical Implications

Notwithstanding these limitations, the present study is one of the first to investigate emotional reactivity and variations in reactivity in everyday life during a social movement, and the extent to which these emotional variables predict psychiatric symptoms and sub-

jective well-being postmovement. Timely counseling services for enhancing well-being of affected populations during and after social movements are needed but are understudied (Trott, 2016). Daily stressors have been suggested to be a missing, yet essential, component for mental health intervention among conflict-affected populations (Miller & Rasmussen, 2014). The drive to thrive theory further suggests that stress resilience is determined by sustaining everyday practices and routines among those populations (Hou, Hall, & Hobfoll, in press). Apart from dealing with stressors and regulating practices and routines in everyday life during social movements, the present findings indicate that savoring intervention (Smith, Harrison, Kurtz, & Bryant, 2014) could be implemented to facilitate more recalls of past positive events, positive moment-to-moment attentional focus, and anticipation of desirable experiences in their everyday life during a social movement. This comprehensive approach could be useful for enhancing positive emotions during a period with devalued positive events, contributing, in turn, to higher subsequent mental health.

References

- Aldao, A. (2013). The future of emotion regulation research: Capturing context. *Perspectives on Psychological Science*, 8, 155–172. <http://dx.doi.org/10.1177/1745691612459518>
- Beer, J. S., Heerey, E. A., Keltner, D., Scabini, D., & Knight, R. T. (2003). The regulatory function of self-conscious emotion: Insights from patients with orbitofrontal damage. *Journal of Personality and Social Psychology*, 85, 594–604. <http://dx.doi.org/10.1037/0022-3514.85.4.594>
- Benski, T., & Langman, L. (2013). The effects of affects: The place of emotions in the mobilizations of 2011. *Current Sociology*, 61, 525–540. <http://dx.doi.org/10.1177/0011392113479751>
- Bonanno, G. A., & Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science*, 8, 591–612. <http://dx.doi.org/10.1177/1745691613504116>
- Bowen, R., Baetz, M., Hawkes, J., & Bowen, A. (2006). Mood variability in anxiety disorders. *Journal of Affective Disorders*, 91, 165–170. <http://dx.doi.org/10.1016/j.jad.2005.12.050>
- Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ: Erlbaum.
- Carl, J. R., Fairholme, C. P., Gallagher, M. W., Thompson-Hollands, J., & Barlow, D. H. (2014). The effects of anxiety and depressive symptoms on daily positive emotion regulation. *Journal of Psychopathology and Behavioral Assessment*, 36, 224–236. <http://dx.doi.org/10.1007/s10862-013-9387-9>
- Cheung, C. K., & Bagley, C. (1998). Validating an American scale in Hong Kong: The Center for Epidemiological Studies Depression Scale (CES-D). *The Journal of Psychology: Interdisciplinary and Applied*, 132, 169–186. <http://dx.doi.org/10.1080/00223989809599157>
- Chinese University of Hong Kong. (2014). *Public opinion and political development in Hong Kong*. Retrieved from http://www.com.cuhk.edu.hk/ccpos/images/news/TaskForce_PressRelease_141218_English.pdf
- Coifman, K. G., & Bonanno, G. A. (2010). When distress does not become depression: Emotion context sensitivity and adjustment to bereavement. *Journal of Abnormal Psychology*, 119, 479–490. <http://dx.doi.org/10.1037/a0020113>
- Coifman, K. G., Bonanno, G. A., & Rafaeli, E. (2007). Affective dynamics, bereavement, and resilience to loss. *Journal of Happiness Studies*, 8, 371–392. <http://dx.doi.org/10.1007/s10902-006-9014-5>
- Cole, P. M., Michel, M. K., & Teti, L. O. D. (1994). The development of emotion regulation and dysregulation: A clinical perspective. *Monographs of the Society for Research in Child Development*, 59, 73–100. <http://dx.doi.org/10.2307/1166139>

- Costa, J. M., Rotabi, R., Murnane, E. L., & Choudhury, T. (2015). It is not only about grievances—Emotional dynamics in social media during the Brazilian protests. In M. Cha, C. Mascolo & C. Sandvig (Eds.), *In Proceedings of the ninth international AAAI conference on web and social media* (pp. 594–597). Palo Alto, CA: AAAI Press.
- Côté, S. (2005). A social interaction model of the effects of emotion regulation on work strain. *The Academy of Management Review*, *30*, 509–530. <http://dx.doi.org/10.5465/AMR.2005.17293692>
- de la Sablonnière, R., Bourgeois, L. F., & Najih, M. (2013). Dramatic social change: A social psychological perspective. *Journal of Social and Political Psychology*, *1*, 253–272. <http://dx.doi.org/10.5964/jsp.p.v1i1.14>
- della Porta, D., & Mattoni, A. (2014). *Spreading protest: Social movements in times of crisis*. Colchester, UK: ECPR Press.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49*, 71–75. http://dx.doi.org/10.1207/s15327752jpa4901_13
- Dupont, C., & Passy, F. (2011). The Arab spring or how to explain those revolutionary episodes? *Swiss Political Science Review*, *17*, 447–451. <http://dx.doi.org/10.1111/j.1662-6370.2011.02037.x>
- Eid, M., & Diener, E. (1999). Intraindividual variability in affect: Reliability, validity, and personality correlates. *Journal of Personality and Social Psychology*, *76*, 662–676. <http://dx.doi.org/10.1037/0022-3514.76.4.662>
- Geschwind, N., Nicolson, N. A., Peeters, F., van Os, J., Barge-Schaapveld, D., & Wichers, M. (2011). Early improvement in positive rather than negative emotion predicts remission from depression after pharmacotherapy. *European Neuropsychopharmacology*, *21*, 241–247. <http://dx.doi.org/10.1016/j.euroneuro.2010.11.004>
- Geschwind, N., Peeters, F., Jacobs, N., Delespaul, P., Derom, C., Thiery, E., . . . Wichers, M. (2010). Meeting risk with resilience: High daily life reward experience preserves mental health. *Acta Psychiatrica Scandinavica*, *122*, 129–138. <http://dx.doi.org/10.1111/j.1600-0447.2009.01525.x>
- Greving, H., Sassenberg, K., & Fetterman, A. (2015). Counter-regulating on the Internet: Threat elicits preferential processing of positive information. *Journal of Experimental Psychology: Applied*, *21*, 287–299. <http://dx.doi.org/10.1037/xap0000053>
- Gruber, J., Kogan, A., Quoidbach, J., & Mauss, I. B. (2013). Happiness is best kept stable: Positive emotion variability is associated with poorer psychological health. *Emotion*, *13*, 1–6. <http://dx.doi.org/10.1037/a0030262>
- Hay, E. L., & Diehl, M. (2011). Emotion complexity and emotion regulation across adulthood. *European Journal of Ageing*, *8*, 157–168. <http://dx.doi.org/10.1007/s10433-011-0191-7>
- Höhn, P., Menne-Lothmann, C., Peeters, F., Nicolson, N. A., Jacobs, N., Derom, C., . . . Wichers, M. (2013). Moment-to-moment transfer of positive emotions in daily life predicts future course of depression in both general population and patient samples. *PLoS ONE*, *8*, e75655. <http://dx.doi.org/10.1371/journal.pone.0075655>
- Hou, W. K., Hall, B. J., Canetti, D., Lau, K. M., Ng, S. M., & Hobfoll, S. E. (2015). Threat to democracy: Physical and mental health impact of democracy movement in Hong Kong. *Journal of Affective Disorders*, *186*, 74–82. <http://dx.doi.org/10.1016/j.jad.2015.07.005>
- Hou, W. K., Hall, B. J., & Hobfoll, S. E. (in press). Drive to thrive: A theory of resilience following loss. In N. Morina & A. Nickerson (Eds.), *Mental health in refugee and post-conflict populations*.
- Hou, W. K., & Lam, J. H. M. (2014). Resilience in the year after cancer diagnosis: A cross-lagged panel analysis of the reciprocity between psychological distress and well-being. *Journal of Behavioral Medicine*, *37*, 391–401. <http://dx.doi.org/10.1007/s10865-013-9497-6>
- Hou, W. K., Lau, K. M., Ng, S. M., Cheng, A. C., Shum, T. C. Y., Cheng, S. T., & Cheung, H. Y. S. (2017). Savoring moderates the association between cancer-specific physical symptoms and depressive symptoms. *Psycho-Oncology*, *26*, 231–238. <http://dx.doi.org/10.1002/pon.4114>
- Hou, W. K., Lau, K. M., Ng, S. M., Lee, T. M. C., Cheung, H. Y. S., Shum, T. C. Y., & Cheng, A. C. K. (2016). Psychological detachment and savoring in adaptation to cancer caregiving. *Psycho-Oncology*, *25*, 839–847. <http://dx.doi.org/10.1002/pon.4019>
- Hou, W. K., Ng, S. M., & Wan, J. H. Y. (2015). Changes in positive affect and mindfulness predict changes in cortisol response and psychiatric symptoms: A latent change score modelling approach. *Psychology & Health*, *30*, 551–567. <http://dx.doi.org/10.1080/08870446.2014.990389>
- Ingram, R. E., Miranda, J., & Segal, Z. V. (1998). *Cognitive vulnerability to depression*. New York, NY: Guilford Press.
- Jahng, S., Wood, P. K., & Trull, T. J. (2008). Analysis of affective instability in ecological momentary assessment: Indices using successive difference and group comparison via multilevel modeling. *Psychological Methods*, *13*, 354–375. <http://dx.doi.org/10.1037/a0014173>
- Jasper, J. M. (2011). Emotions and social movements: Twenty years of theory and research. *Annual Review of Sociology*, *37*, 285–303. <http://dx.doi.org/10.1146/annurev-soc-081309-150015>
- Jasper, J. M. (2014). Constructing indignation: Anger dynamics in protest movements. *Emotion Review*, *6*, 208–213. <http://dx.doi.org/10.1177/1754073914522863>
- Jose, P. E., Lim, B. T., & Bryant, F. B. (2012). Does savoring increase happiness? A daily diary study. *The Journal of Positive Psychology*, *7*, 176–187. <http://dx.doi.org/10.1080/17439760.2012.671345>
- Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition and Emotion*, *13*, 505–521. <http://dx.doi.org/10.1080/026999399379168>
- Klandermans, P. G. (2014). Identity politics and politicized identities: Identity processes and the dynamics of protest. *Political Psychology*, *35*, 1–22. <http://dx.doi.org/10.1111/pops.12167>
- Koval, P., Pe, M. L., Meers, K., & Kuppens, P. (2013). Affect dynamics in relation to depressive symptoms: Variable, unstable or inert? *Emotion*, *13*, 1132–1141. <http://dx.doi.org/10.1037/a0033579>
- Koval, P., Sütterlin, S., & Kuppens, P. (2016). Emotional inertia is associated with lower well-being when controlling for differences in emotional context. *Frontiers in Psychology*, *6*, 1997. <http://dx.doi.org/10.3389/fpsyg.2015.01997>
- Kuppens, P., Allen, N. B., & Sheeber, L. B. (2010). Emotional inertia and psychological maladjustment. *Psychological Science*, *21*, 984–991. <http://dx.doi.org/10.1177/0956797610372634>
- Kurzban, R. (2015). *Terrorism cases involving Muslim-Americans, 2014*. Chapel Hill, NC: University of North Carolina.
- Lagi, M., Bertrand, K. Z., & Ber-Yam, Y. (2011). *The food crises and political instability in North Africa and the Middle East*. Cambridge, UK: New England Complex Systems Institute.
- Larsen, R. J., & Diener, E. (1987). Affect intensity as an individual difference characteristic: A review. *Journal of Research in Personality*, *21*, 1–39. [http://dx.doi.org/10.1016/0092-6566\(87\)90023-7](http://dx.doi.org/10.1016/0092-6566(87)90023-7)
- Lau, J. T. F., Kim, Y., Wu, A. M. S., Wang, Z., Huang, B., & Mo, P. K. H. (2017). The Occupy Central (Umbrella) movement and mental health distress in the Hong Kong general public: Political movements and concerns as potential structural risk factors of population mental health. *Social Psychiatry and Psychiatric Epidemiology*, *52*, 525–536. <http://dx.doi.org/10.1007/s00127-017-1340-x>
- Lau, K. M., Hou, W. K., Hall, B. J., Canetti, D., Ng, S. M., Lam, A. I. F., & Hobfoll, S. E. (2016). Social media and mental health in democracy movement in Hong Kong: A population-based study. *Computers in Human Behavior*, *64*, 656–662. <http://dx.doi.org/10.1016/j.chb.2016.07.028>
- Lieberman, L., Golden, S. D., & Earp, J. A. L. (2013). Structural approaches to health promotion: What do we need to know about policy and environmental change? *Health Education & Behavior*, *40*, 520–525. <http://dx.doi.org/10.1177/1090198113503342>

- Lindquist, K. A., & Barrett, L. F. (2008). Constructing emotion: The experience of fear as a conceptual act. *Psychological Science, 19*, 898–903. <http://dx.doi.org/10.1111/j.1467-9280.2008.02174.x>
- Miller, K. E., & Rasmussen, A. (2014). War experiences, daily stressors and mental health five years on: Elaborations and future directions. *Intervention: Journal of Mental Health and Psychosocial Support in Conflict Affected Areas, 12*, 33–42. <http://dx.doi.org/10.1097/WTF.0000000000000066>
- Moskowitz, D. S., Russell, J. J., Sadikaj, G., & Sutton, R. (2009). Measuring people intensively. *Canadian Psychology, 50*, 131–140. <http://dx.doi.org/10.1037/a0016625>
- Ng, S. M., & Hou, W. K. (2017). Contentment duration mediates the associations between anxious attachment style and psychological distress. *Frontiers in Psychology, 8*, 258. <http://dx.doi.org/10.3389/fpsyg.2017.00258>
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology, 100*, 569–582. <http://dx.doi.org/10.1037/0021-843X.100.4.569>
- Pe, M. L., Kircanski, K., Thompson, R. J., Bringmann, L. F., Tuerlinckx, F., Mestdagh, M., . . . Gotlib, I. H. (2015). Emotion-network density in major depressive disorder. *Clinical Psychological Science, 3*, 292–300. <http://dx.doi.org/10.1177/2167702614540645>
- Peeters, F., Berkhof, J., Delespaul, P., Rottenberg, J., & Nicolson, N. A. (2006). Diurnal mood variation in major depressive disorder. *Emotion, 6*, 383–391. <http://dx.doi.org/10.1037/1528-3542.6.3.383>
- Raudenbush, S. W., Bryk, A. S., Cheong, Y., Congdon, R., & du Toit, M. (2011). *HLM 7.0: Hierarchical linear modeling*. Lincolnwood, IL: Scientific Software International.
- Richard, L., Gauvin, L., & Raine, K. (2011). Ecological models revisited: Their uses and evolution in health promotion over two decades. *Annual Review of Public Health, 32*, 307–326. <http://dx.doi.org/10.1146/annurev-publhealth-031210-101141>
- Rodgers, K. (2010). “Anger is why we’re all here”: Mobilizing and managing emotions in a professional activist organization. *Social Movement Studies, 9*, 273–291. <http://dx.doi.org/10.1080/14742837.2010.493660>
- Rosen, P. J., & Factor, P. I. (2015). Emotional impulsivity and emotional and behavioral difficulties among children with ADHD: An ecological momentary assessment study. *Journal of Attention Disorders, 19*, 779–793. <http://dx.doi.org/10.1177/1087054712463064>
- Rothermund, K., Voss, A., & Wentura, D. (2008). Counter-regulation in affective attentional biases: A basic mechanism that warrants flexibility in emotion and motivation. *Emotion, 8*, 34–46. <http://dx.doi.org/10.1037/1528-3542.8.1.34>
- Rottenberg, J., Gross, J. J., & Gotlib, I. H. (2005). Emotion context insensitivity in major depressive disorder. *Journal of Abnormal Psychology, 114*, 627–639. <http://dx.doi.org/10.1037/0021-843X.114.4.627>
- Rottenberg, J., Kasch, K. L., Gross, J. J., & Gotlib, I. H. (2002). Sadness and amusement reactivity differentially predict concurrent and prospective functioning in major depressive disorder. *Emotion, 2*, 135–146. <http://dx.doi.org/10.1037/1528-3542.2.2.135>
- Scott, S. B., Sliwinski, M. J., Mogle, J. A., & Almeida, D. M. (2014). Age, stress, and emotional complexity: Results from two studies of daily experiences. *Psychology and Aging, 29*, 577–587. <http://dx.doi.org/10.1037/a0037282>
- Shek, D. T. (1988). Reliability and factorial structure of the Chinese version of the State-Trait Anxiety Inventory. *Journal of Psychopathology and Behavioral Assessment, 10*, 303–317. <http://dx.doi.org/10.1007/BF00960624>
- Smith, J. L., Harrison, P. R., Kurtz, J. L., & Bryant, F. B. (2014). Nurturing the capacity to savor: Interventions to enhance the enjoyment of positive experiences. In A. C. Parks & S. M. Schueller (Eds.), *The Wiley Blackwell handbook of positive psychological interventions* (pp. 42–65). Oxford, UK: Wiley-Blackwell. <http://dx.doi.org/10.1002/9781118315927.ch3>
- Solhan, M. B., Trull, T. J., Jahng, S., & Wood, P. K. (2009). Clinical assessment of affective instability: Comparing EMA indices, questionnaire reports, and retrospective recall. *Psychological Assessment, 21*, 425–436. <http://dx.doi.org/10.1037/a0016869>
- Suls, J., Green, P., & Hillis, S. (1998). Emotional reactivity to everyday problems, affective inertia, and neuroticism. *Personality and Social Psychology Bulletin, 24*, 127–136. <http://dx.doi.org/10.1177/0146167298242002>
- Thompson, R. J., Mata, J., Jaeggi, S. M., Buschkuhl, M., Jonides, J., & Gotlib, I. H. (2012). The everyday emotional experience of adults with major depressive disorder: Examining emotional instability, inertia, and reactivity. *Journal of Abnormal Psychology, 121*, 819–829. <http://dx.doi.org/10.1037/a0027978>
- Trott, C. D. (2016). Constructing alternatives: Envisioning a critical psychology of prefigurative politics. *Journal of Social and Political Psychology, 4*, 266–285. <http://dx.doi.org/10.5964/jsp.p.v4i1.520>
- Trull, T. J., Lane, S. P., Koval, P., & Ebner-Priemer, U. W. (2015). Affective dynamics in psychopathology. *Emotion Review, 7*, 355–361. <http://dx.doi.org/10.1177/1754073915590617>
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*, 320–333. <http://dx.doi.org/10.1037/0022-3514.86.2.320>
- van Roekel, E., Ha, T., Verhagen, M., Kuntsche, E., Scholte, R. H., & Engels, R. C. (2015). Social stress in early adolescents’ daily lives: Associations with affect and loneliness. *Journal of Adolescence, 45*, 274–283. <http://dx.doi.org/10.1016/j.adolescence.2015.10.012>
- van Stekelenburg, J. (2013). The political psychology of protest. *European Psychologist, 18*, 224–234. <http://dx.doi.org/10.1027/1016-9040/a000156>
- van Stekelenburg, J., Klandermans, B., & Van Dijk, W. W. (2011). Combining motivations and emotion: The motivational dynamics of protest participation. *Revista de Psicología Social, 26*, 91–104. <http://dx.doi.org/10.1174/021347411794078426>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070. <http://dx.doi.org/10.1037/0022-3514.54.6.1063>
- Wichers, M., Geschwind, N., Jacobs, N., Kenis, G., Peeters, F., Derom, C., . . . van Os, J. (2009). Transition from stress sensitivity to a depressive state: Longitudinal twin study. *The British Journal of Psychiatry, 195*, 498–503. <http://dx.doi.org/10.1192/bjp.bp.108.056853>
- Wichers, M., Peeters, F., Geschwind, N., Jacobs, N., Simons, C. J. P., Derom, C., . . . van Os, J. (2010). Unveiling patterns of affective responses in daily life may improve outcome prediction in depression: A momentary assessment study. *Journal of Affective Disorders, 124*, 191–195. <http://dx.doi.org/10.1016/j.jad.2009.11.010>
- Wichers, M., Wigman, J. T. W., & Myin-Germeys, I. (2015). Micro-level affect dynamics in psychopathology viewed from complex dynamical system theory. *Emotion Review, 7*, 362–367. <http://dx.doi.org/10.1177/1754073915590623>
- Zautra, A., Smith, B., Affleck, G., & Tennen, H. (2001). Examinations of chronic pain and affect relationships: Applications of a dynamic model of affect. *Journal of Consulting and Clinical Psychology, 69*, 786–795. <http://dx.doi.org/10.1037/0022-006X.69.5.786>

Received March 6, 2017

Revision received May 10, 2017

Accepted May 10, 2017 ■