

The Psychological Importance of Collective Assembly: Development and Validation of the Tendency for Effervescent Assembly Measure (TEAM)

Shira Gabriel, Jennifer Valenti,
and Kristin Naragon-Gainey
SUNY, University at Buffalo

Ariana F. Young
California Lutheran University

Although previous research suggests that connection to large, mostly anonymous groups is important for the fulfillment of psychological needs and a sense of psychological well-being, no measure exists to assess individual differences in this area. In 5 studies, we developed and provided support for the validity of the Tendency for Effervescent Assembly Measure (TEAM). Utilizing data from student and community samples, we conducted exploratory factor analyses to guide item selection for the scale (Study 1), evaluated the structure of the scale in an independent sample (Study 2), examined the convergent, discriminant, and incremental validity of the scale (Study 3), and assessed measurement invariance of the scale across different demographic groups (Study 4). Study 5 explored the role of social needs fulfillment in effervescent assembly, as well as examined the relationship of the scale with recent collective effervescence experiences. Results revealed that our final 11-item scale was unidimensional, with excellent internal consistency and good test–retest reliability over 2 months. Measurement invariance was established across gender, ethnicity, and religion, providing support for the validity of the measure across demographic subgroups. Importantly, the TEAM predicted decreased loneliness, increased positive feelings, a sense of meaning in one’s life, self-awareness, and spiritual transcendence, above and beyond the effects of the big 5 factors of personality and collective and relational interdependence. Furthermore, results suggested that positive outcomes associated with the TEAM are because of social need fulfillment.

Public Significance Statement

This research developed and found support for the validity of a scale to measure the tendency to connect to large, mostly anonymous groups (the Tendency for Effervescent Assembly Measure or TEAM). More important, the TEAM predicted numerous positive psychological benefits above and beyond the effects of the big 5 and other kinds of interdependence. This suggests that engagement with large, mostly anonymous groups is a previously unmeasured and important predictor of a healthy, fulfilled, and happy life.

Keywords: collective effervescence, effervescent assembly, need to belong, scale validation

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There are moments in life when being a part of a crowd feels intoxicating: a young person at a concert, swaying and dancing to the music with thousands of fellow fans; a congregant in a church, chanting prayers with hundreds of other devotees; or a sports spectator in a stadium, yelling encouragement from within a sea of similarly dressed faithful. These moments of collective behavior are a part of both modern and ancient human life, and exist across

culture and time. Durkheim (1912) argued that when people engage in these experiences they sometimes feel a sense of collective effervescence, which he defined as a psychological experience that occurs when a collective activity provides a feeling of connection to others in the crowd, a sense of engagement with something bigger than the self, and/or a “sensation of sacredness.” Pickering (1984) further expanded Durkheim’s arguments and coined the term “effervescent assembly” that describes a group activity in which collective effervescence is likely to occur. In the current research, we examined the tendency to revel in collective assembly and aimed to develop and provide support for a scale to measure this tendency. We also examined the hypotheses that people differ in the tendency to experience collective effervescence, and that this tendency has important psychological and social correlates such as greater psychological well-being and a sense of social connection.

Recent empirical inquiries into the effects of large groups on individual psychology is consistent with Durkheim’s thesis. Health

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Shira Gabriel, Jennifer Valenti, and Kristin Naragon-Gainey, Department of Psychology, SUNY, University at Buffalo; Ariana F. Young, Department of Psychology, California Lutheran University.

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Correspondence concerning this article should be addressed to Shira Gabriel, Department of Psychology, SUNY, University at Buffalo, Park Hall, Buffalo, NY 14260. E-mail: sgabriel@buffalo.edu

and well-being benefits of large group activity have been found for collective identity (Haslam, Jetten, Postmes, & Haslam, 2009), participating in collective events (Collins, 2004), and participation in social movements (Drury & Reicher, 2009). In addition, crowds tend to be highly supportive, altruistic, friendly, and fun places to be (Bond, 2014). Research also indicates that when people feel identification with the other members of the crowd, affiliating with a crowd leads to happiness and excitement (Novelli, Drury, Reicher, & Stott, 2013). In other words, social identification with the other people in a large group make being in that group a positive emotional experience for the self and for others. Social identification can be caused by simply being in a situation with other people (Drury, Cocking, & Reicher, 2009); thus, the more time people spend in a crowd situation, the more likely they are to experience benefits to health and well-being. Indeed, there is evidence that long-term mass gatherings, such as pilgrimage events, that involve long periods of contact with enormous groups lead to increases in self-reported well-being (e.g., energy levels) and decreases in symptoms of ill-health (e.g., body aches and pains; Tewari, Khan, Hopkins, Srinivasan, & Reicher, 2012).

More recently, Páez, Rimé, Basabe, Włodarczyk, and Zumeta (2015) studied individuals after they engaged in group activities both in the laboratory (an experimentally induced collective protest demonstration) and in the field (participants in pseudomilitary folkloric marches and protest demonstrations). Across four studies, participants who engaged in collective gatherings experienced increases in positive affect, happiness, positive social beliefs, identity fusion, and enhanced collective and personal self-esteem. Although the authors did not have a direct measure of collective effervescence, they measured emotional communion (i.e., perceived emotional synchrony with others in the group) that they argued was related to collective effervescence. Indeed, none of the previous work has been able to directly measure collective effervescence, because no direct measure of it has been developed to date. Thus, other researchers have examined related constructs such as emotional communion (Páez et al., 2015), contact with large groups (Tewari et al., 2012), and identification with group members (Novelli et al., 2013). Although they have found that engagement with large groups is generally positive, they have only been able to make assumptions about the direct role of collective effervescence.

It is, perhaps, not surprising that engagement with large groups is a positive experience given the strong and pervasive drive for a sense of belonging and connection with others (Ainsworth, 1989; Axelrod & Hamilton, 1981; Barash, 1977; Baumeister & Leary, 1995; Bowlby, 1969; Buss, 1990; Moreland, 1987). A great deal of research supports the contention that humans are social creatures who need connections for well-being and thus seek them out whenever possible (see Baumeister, 2005 for a review). Indeed, the need to belong is so strong that people have surprising flexibility in the means they can use to achieve their belonging needs (Gabriel, Valenti, & Young, 2016). To be sure, people often use traditional means such as close relationships (e.g., Cross & Morris, 2003) or groups (e.g., Caporael & Brewer, 1995). However, people also use less traditional means such as books (Gabriel & Young, 2011), TV shows (Derrick, Gabriel, & Hugenberg, 2009), food (Troisi & Gabriel, 2011), and pets (McConnell, Brown, Shoda, Stayton, & Martin, 2011) to achieve satiation of belonging needs.

The primary goal of the current work is to develop a scale to measure the tendency to engage in collective effervescence (Tendancy to Engage in Effervescent Assembly Measure or TEAM).

The Current Studies

In order of importance, the current article concerned with: (a) developing a self-report questionnaire to assess individual differences in the tendency to feel collective effervescence, (b) examining the psychometric properties of this questionnaire, and (c) empirically testing the extent to which these individual differences predict important psychological phenomena.

Overview and Hypotheses for Studies 1–4

To develop and provide support for the validity of the scale, we collected data from two undergraduate student samples and one community sample. We then used appropriate combinations of those samples across four studies. Specifically, we aimed to run exploratory factor analyses, select items, and evaluate the reliability of scale scores (i.e., internal consistency, test-retest) using the two student samples (Study 1), confirm the structure of the scale using the community sample (Study 2), examine the convergent, discriminant, and incremental validity of the scale using all three samples (Study 3), and examine possible measurement invariance of the scale across different demographic subgroups using all three samples (Study 4).

Convergent validity of the TEAM. We predict that TEAM scores will be related to measures that assess social connection beyond the traditional relational and collective means. For example, TEAM scores should be related to, but distinct from, allo-inclusive identity with people (i.e., the tendency to expand one's self-concepts to include the broader universe of the human species). Furthermore, TEAM scores should also be related to, but distinct from the metapersonal self (i.e., a level of self that includes all things in life and sees the self as connected to all of human kind and a part of the larger universe).

Because Durkheim argued that collective experiences involve a loss of self in favor of taking on group focus, we hypothesize that TEAM scores will be related to deindividuation. Although deindividuation is often looked at for its implications for negative behaviors such as aggression (Diener, Dineen, Endresen, Beaman, & Fraser, 1975), we predict that deindividuation will also be associated with collective effervescence and its generally positive correlates. Finally, we expect scores on the TEAM to be related to extraversion and agreeableness, as they are the two components of the big five factors of personality that are closely related to social behavior (Gebauer et al., 2014).

Incremental and discriminant validity of the TEAM. We hypothesize that the TEAM will predict a number of positive life outcomes above and beyond the effects of other relevant variables. We examined the big five factors of personality and other more traditional means of social connection (i.e., relational and collective connections) because those tend to be linked to positive life outcomes (Baumeister & Leary, 1995). We predicted that TEAM scores will be associated with positive life outcomes even when controlling for those factors. For example, we expect that TEAM scores will predict finding meaning in life, which many researchers and theorists argue is a fundamental component of the human

experience (Baumeister, 1991; Frankl, 1946; Johnson, 1987; Joske, 1981; Klinger, 2012). Social connection is strongly related to feeling meaning in one's life. For instance, people who are socially rejected experience a marked decrease in meaningful thought (Twenge, Catanese, & Baumeister, 2003), ostracism thwarts the sense that one's life has meaning (e.g., Sommer, Williams, Ciarocco, & Baumeister, 2001; Van Beest & Williams, 2006; Williams, Cheung, & Choi, 2000), and both single exclusion events and more chronic feelings of loneliness result in a reduction of a feeling of meaning in life (Stillman et al., 2009). Thus, we predict that TEAM scores should predict finding meaning in life. Furthermore, we predict that social variables such as loneliness, perceived social support, self-awareness, and dispositional positive emotions will be predicted by TEAM scores even when the big five personality traits and collective and relational interdependence are accounted for.

However, we predict that variables that are less strongly related to connection to the large groups, such as fear of negative evaluation and general emotional stability should be less strongly related to TEAM scores. Indeed, even those variables that are also strongly associated with positive outcomes, such as conscientiousness and including the natural world in the self, should show little or no relationship to TEAM scores because they are not related to connection to large groups.

Overview and Hypotheses for Study 5

A fifth study used a new undergraduate sample to explore the role of social needs fulfillment in effervescent assembly and examine the relationship of the scale with recent experiences of collective effervescence. We predict that of the three basic human needs of autonomy, relatedness, and competence (Deci & Ryan, 2000), TEAM scores will be most strongly related to the fulfillment of relational needs. We also predict that although people high in TEAM will be more likely to have had recent experiences of collective assembly, the positive correlates of TEAM will exist independent of those recent events.

Studies 1–4

Method

Participants and procedure. For these studies, we recruited three separate samples: two undergraduate student samples and one community sample. Student Sample 1 included 117 undergraduate students and Student Sample 2 included 163 undergraduate students. Both student samples were recruited from the introductory psychology subject pool at the University at Buffalo. All students received partial course credit for their participation. The Community Sample included 405 participants recruited from Amazon's Mechanical Turk (MTurk) website. These MTurk workers received payment for their participation. Table 1 provides a gender, age, ethnicity, and religious identification breakdown of these samples.

Participants from all samples followed a similar procedure. (Note that in Student Sample 2, relational and collective self-construal were assessed at an earlier mass testing session, rather than concurrently with the other measures.) Specifically, participants were asked to complete an online survey either through

Sona-Systems (the University's subject pool website) or MTurk. The survey included the TEAM, as well as a variety of questionnaires we predicted would relate to our measure. The exact questionnaires administered to each sample varied (with the exception of the TEAM, which was always completed). All questionnaires were completed in random order. Online Appendix B provides a list of each measure that was administered to each sample along with its corresponding Cronbach's α value.

Furthermore, a subset of the second student sample (44 participants, see Table 1 for demographic breakdown) completed just the 11-item TEAM approximately 2 months later while completing an unrelated experiment in the first author's research lab.¹ We selected a period of 2 months as a relatively stringent assessment of test-retest reliability, as we expect that the tendency to want to engage with collective events should be quite stable over time because it should not be specifically tied to the kind of collective events that happen to be available at that time, but instead to a general trait-like desire for any kind of large collective assembly.

Material

Tendency for Effervescent Assembly Measure (TEAM). Participants in both student samples completed the original pool of 32 items designed to assess their tendency to experience collective effervescence. Participants in the community sample completed the final 11-item scale (see Table 2 for the items). For each item, participants indicated their agreement on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. Higher scores indicate a greater tendency to feel collective effervescence.

The studies also used the following instrument: Relational Interdependent Self-Construal Scale (Cross, Bacon, & Morris, 2000); Collective Self-Construal Scale (Gabriel & Gardner, 1999); Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003); Big Five Inventory (John, Donahue, & Kentle, 1991); Brief Fear of Negative Evaluation Scale (Leary, 1983); UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980); Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006); Personal Growth Initiative Scale (Robitschek, 1998); Multidimensional Scale of Perceived Social Support (Wilcox, 2010); Metapersonal Self Scale (DeCicco & Stroink, 2007); Allo-Inclusive Identity Scale (Leary, Tipsord, & Tate, 2008); Awe Subscale of the Dispositional Positive Emotions Scale (Shiota, Keltner, & John, 2006); Spiritual Transcendence Scale (Piedmont, 1999); Self-Awareness Scale (Gino & Mogilner, 2014); Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975); Deindividuation (Prentice-Dunn & Rogers, 1980); and the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960). Detailed information about the materials can be found online in Appendix A.

Data Analysis Plan

Mplus 7.2 was used for exploratory and confirmatory factor analyses of the TEAM, whereas SPSS 22 was used for hierarchical

¹ There were additional scales measured in each study that were not listed in the methodology because they were not relevant to the main goals of these studies and were not included in any analyses. We would be happy to provide that data to anyone interested.

Table 1
Gender, Age, Ethnicity, and Religious Identification Breakdown for All Samples (Studies 1–5)

Sample	Student Sample 1	Student Sample 2	Student Sample 2 Subset (Study 1)	Community Sample	Student Sample 3 (Study 5)
Gender					
Men	55	77	23	228	71
Women	62	86	21	177	79
Age	19.03 (3.37)	18.90 (1.43)	18.12 (1.47)	35.36 (12.39)	19.42 (2.93)
Ethnicity					
White	48.7%	46.3%	53.5%	79.5%	59.3%
Other	51.3%	53.7%	46.5%	20.5%	40.7%
Religious identification					
Religious	68.4%	72.2%	70.7%	56.0%	
Not religious	31.6%	27.8%	29.3%	44.0%	

Note. Missing correlations indicate measures not collected in a given sample. Religious identification was not assessed in Student Sample 3 (Study 5). The *SDs* for age are provided next to the mean values (in parentheses). Participants who identified as Asian, Black, Hispanic, Native American, Middle Eastern, or Other were categorized as “Other.” Participants who identified as Catholic, Protestant, Evangelical, Jewish, Lutheran, Muslim, Buddhist, Hindu, or Other Religion were categorized as “Religious” and those who identified as Atheist, Agnostic, or Not Religious were categorized as “Not Religious.” Participants who indicated they were “Spiritual, But Not Religious” (Community Sample only) were not included in the breakdown because it was not clear in which group they should be included. The majority of religious participants in our samples were Catholic (17.7–45.6%). The samples differ significantly in age, $F(3) = 240.60, p < .001$, where the Community Sample is substantially older than Student Sample 1 and 2. The samples also differ in ethnicity, $\chi^2(3) = 140.85, p < .001$ such that there is a greater proportion of White participants in the Community Sample than Student Samples 1 and 2. Student Samples 1 and 2 have a greater proportion of religious participants than the Community Sample, $\chi^2(2) = 13.89, p < .01$. There was not a significant difference across Student Sample 1, Student Sample 2, and the Community Sample for gender, $\chi^2(3) = 6.90, p > .05$.

regression analyses. Although missing data was minimal, robust maximum likelihood estimators were used for the exploratory and confirmatory factor analyses, which incorporate all available information without biasing parameter estimates or *SEs* (Brown, 2015).

Exploratory factor analyses were conducted to evaluate the TEAM scale structure and to guide final item selection (Student Samples 1 and 2 combined), and confirmatory factor analysis was then run to test the structure of the final scale in an independent sample (Community Sample). To determine how many factors to extract in the exploratory factor analyses, we considered the eigenvalues and scree plot (where an inflection point in the plotted eigenvalues suggests the optimal number of factors; Cattell, 1966). We also utilized the minimum average partial test (MAP; Velicer, 1976), which is based on an examination of residual correlation matrices, and parallel analysis (Horn, 1965), which specifies that factor extraction should stop when random simulated eigenvalues become larger than the observed sample eigenvalues. Last, we considered interpretability of factor solutions.

In confirmatory factor analyses, we used several complementary fit indices (in addition to the model χ^2 test of exact fit) when evaluating model fit: the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean squared residual (SRMR). Interpretation of these indices is based on the guidelines set forth by Hu and Bentler (1999)² and Browne and Cudeck (1993). Hu and Bentler suggested that CFI should be “close to” .95 or above for good fit; however, given debate regarding the best cut-off value and difficulties in generalizing cut-off values across data sets and models (see Marsh, Hau, & Wen, 2004), values greater than or equal to .90 are often

considered acceptable in the personality literature (e.g., Hopwood & Donnellan, 2010; Simms et al., 2002). Hu and Bentler (1999) proposed that RMSEA should be less than or equal to .06, whereas Browne and Cudeck (1993) suggested that values below .08 and above .10 reflect good fit and poor fit, respectively. SRMR values should be less than or equal to .08 (Hu & Bentler, 1999). The solutions were also examined for any salient areas of strain that would suggest a theoretically sound modification to improve model fit.

Measurement invariance of the TEAM items was examined across four relevant demographic groups: gender, ethnicity, religious identification, and age (younger vs. older adults). Although we did not predict differences in age, gender, and ethnicity, we thought it prudent to carefully examine differences because of previous work suggesting differences in other kinds of social connecting (e.g., Gabriel & Gardner, 1999; Markus & Kitayama, 1991). Because of the prevalence of opportunities for collective effervescence experiences in religious setting, we thought it would be possible that religious individuals would score higher on the scale. This was tested with a series of confirmatory factor analyses to determine whether the items perform equivalently across

² We note that Hu and Bentler (1999) suggested considering particular combinations of fit indices when interpreting model fit. However, more recent confirmatory factor analysis texts (e.g., Brown, 2015) do not suggest using these combination rules, based on some simulation studies that have failed to support them (e.g., Fan & Sivo, 2005; Yuan, 2005). Therefore, we do not consider combinations of indices in single-group confirmatory factor analyses (see text for interpretation of measurement invariance analyses), but rather evaluate each index individually.

Table 2

TEAM Items With Descriptive Statistics From Scale Development Sample (Student Samples 1 and 2 Combined) and Confirmatory Factor Analysis From Validation Sample (Community Sample)

TEAM item	Student Samples 1 and 2		Community Sample	
	Mean	SD	Loading	SE
1. I feel very connected to others when in a large group activity I like, like going to a concert, church, or convention.	4.87	1.31	.73	.03
2. Times of national tragedy always give me a strong sense of being an American.	4.81	1.38	.45	.06
3. There is something really special about being at a very big music concert.	4.93	1.41	.64	.04
4. Even if I'm not that into the music, being at a big concert where the crowd is very excited is very fun.	4.86	1.49	.71	.04
5. Sometimes it is fun to be in large crowds of people.	5.05	1.32	.76	.03
6. Singing or playing music with lots of other people is a wonderful experience.	5.03	1.41	.65	.04
7. Having giant blizzards or other events that close down a city or area are bad, but the feeling of connection to neighbors and even other strangers going through the same thing almost makes them worth it.	4.69	1.41	.47	.05
8. When visiting a public memorial (Vietnam, WWII) I feel an overwhelming sense of solidary and connection to the other visitors.	4.50	1.39	.52	.05
9. I like attending large charity events or fundraisers.	4.72	1.43	.61	.04
10. When I attend a wedding, I feel a connection to the other people there.	4.59	1.42	.59	.04
11. I like attending festivals because I like to be around all of the people.	4.47	1.42	.78	.03

Note. All loadings are significant at $p < .001$. Factor loadings are standardized. TEAM = Tendency for Effervescent Assembly Measure.

groups. For each group, we first ran a configural model, in which the same structure was imposed across groups but factor loadings and item intercepts were freely estimated within groups. Next, factor loadings were constrained to be equal across groups (metric model); if this model fit similarly to the configural model, then metric invariance was supported. Last, both factor loadings and item intercepts were constrained to be equal across groups (scalar model), and this model was compared to the metric model. If fit between the two models was similar, measurement invariance may be assumed.

Traditionally, the χ^2 difference test is used to determine whether nested models (such as these) significantly differ in model fit, where a significant χ^2 difference test indicates poorer model fit for the more restrictive model (see Brown, 2015). However, the χ^2 difference test is known to be overpowered in large samples, sometimes leading to a significant test even when only minimal differences between two models exist (Brown, 2015). Because of this issue, Chen (2007) suggested additionally considering the following guidelines: metric invariance is supported when (relative to the configural model) $\Delta CFI < -.01$, and $\Delta RMSEA < .015$ or $\Delta SRMR < .030$. Scalar invariance is supported when (relative to the metric model) $\Delta CFI < -.01$, and $\Delta RMSEA < .015$ or $\Delta SRMR < .010$. We will consider these guidelines as well as the χ^2 difference test when interpreting the measurement invariance analyses.

Last, we used hierarchical multiple regression to evaluate the incremental validity of TEAM in predicting a number of potentially relevant outcomes (i.e., loneliness, meaning in life, personal growth, social support, self-awareness, spiritual transcendence, and positive emotions). We first accounted for the contribution of established predictors such as the big five (Step 1 of the hierarchical regressions), followed by collective and relational self-construal (Step 2), and then the TEAM (Step 3). Hunsley and Meyer's (2003) guidelines were followed when interpreting the magnitude of incremental associations, where a change in R^2 of about .03 to .05 (or greater) in the final step of a

hierarchical regression suggests a meaningful incremental contribution.

Study 1 Goal and Results: Scale Creation

The goal of the first study was to select items for the final TEAM scale from the original 32 items administered. An exploratory factor analysis was conducted on all items in Student Samples 1 and 2 combined ($N = 280$), using an oblique rotation (i.e., geomin) that allowed factors to correlate. The first 10 eigenvalues were 9.206, 2.717, 1.730, 1.554, 1.315, 1.249, 1.109, 1.067, 0.949, and 0.866, and the scree plot suggested extracting 1 or 2 factors. In addition, MAP indicated that two factors should be extracted, whereas parallel analysis indicated that four factors should be extracted. In light of this conflicting information regarding the optimal number of factors, we started by extracting one factor and increased the number of factors until solutions clearly were no longer interpretable or meaningful. The one factor solution, which accounted for 29% of the variance among the items, had significant standardized loadings that were generally moderate to large in magnitude (i.e., mean loading = .50; range = .25 to .68). When two factors were extracted, the first factor suggested a general sense of connection when in large groups of people, and its primary markers tended to be those that loaded highly in the single factor solution. The second factor was very strongly marked by a single item ("When in a crowded restaurant, I feel connected to the people around me;" standardized loading = .84), but there were few other strong primary indicators (i.e., only three indicators with loadings between .50 and .60). Notably, these indicators did not seem to share specific features that might represent a component or facet of collective effervescence. Overall, the pattern of loadings suggested that the first factor was most closely aligned with the definition of collective effervescence as a whole, whereas the second factor was not particularly interpretable or coherent. In the three-factor solution, an uninterpretable factor with no strong loadings (i.e., all less than .45; only three loadings significant at

$p < .05$) emerged, while the four-factor solution yielded an additional factor with no significant loadings ($p > .05$).

Given that we did not have an a priori expectation of a multi-dimensional structure for the TEAM and because the solutions with more than one factor were not easily interpretable, the single factor solution was retained for subsequent analyses. A subset of items for the final scale was selected based on the following criteria as applied to the one-factor EFA results: (a) items should have strong standardized loadings, in an absolute sense (e.g., approximately .55 to .75; Brown, 2015) and relative to other items in the analysis; (b) the subset of items that met Criterion 1 above, items for the final scale should reflect a variety of interests/content (e.g., music, patriotism, crowds in general, celebrations, etc.) so that the scale is broadly applicable; (c) we wanted a short scale that is practical to use in a variety of settings, so we aimed for about 10–15 items in total. The 11 items that form the final scale are shown in Table 2, along with their means and SDs in this sample (Student Samples 1 and 2). The standardized loadings for these items in the single-factor solution ranged from .56 to .68. Correlations among items were moderate ($r = .27$ to $.58$), response distributions did not exhibit substantial kurtosis or skew, and the full range of response options was utilized for each item.

Internal consistency of scale scores was strong (Cronbach's $\alpha = .88$). Test–retest reliability was evaluated with a subset of 44 participants from Student Sample 2 who completed the scale a second time approximately 2 months later. The correlation between the two administrations of the scale was .67, suggesting good test–retest reliability of scale scores and providing evidence that the tendency to experience collective effervescence is moderately stable over time.

Study 2 Goal and Results: Validation of Structure

The goal of the second study was to evaluate the structure of the TEAM in an independent community sample. A confirmatory factor analysis of the scale indicated acceptable to poor fit, depending on the index: $\chi^2(44) = 325.06$, $p < .001$, CFI = .805, RMSEA = .126, SRMR = .075. An examination of modification indices revealed two significant sources of strain in the model, suggesting that items 3 and 4 should be allowed to correlate (both focus on attending big music concerts), as well as items 2 and 8 (both address national tragedies and patriotism). Because of the shared content of these pairs of items, their error terms were allowed to covary in a revised model. This revised model provided an acceptable fit to the data, confirming a single-factor structure in an independent sample: $\chi^2(42) = 183.916$, $p < .001$, CFI = .908, RMSEA = .092, SRMR = .058, and both error covariances were significant ($p < .001$). (Note that when these error covariances were included in a CFA of the scale in Student Samples 1 and 2, they were also significant ($p < .01$), indicating that the shared item covariances are robust across samples). Standardized factor loadings and SEs are shown in Table 2, and internal consistency of scale scores was good in this sample ($\alpha = .88$).

Study 3 Goals and Results: Construct Validity

The goal of Study 3 was to examine the convergent and discriminant validity of the TEAM. We did so by examining variables

we predicted to be highly related to the scale and others that should be relatively independent of the scale. In addition, we examined the predictive value of the TEAM above and beyond the predictive value of other related constructs. Finally, we examined the degree to which the scale predicted real life experiences with collective effervescence. In other words, do high scores on the TEAM predict self-reports of frequency of experiencing collective effervescence?

Convergent and Discriminant Validity

Table 3 shows convergent and discriminant correlations with the TEAM in all three samples. In terms of convergent validity, we expected the TEAM to be moderately associated (i.e., $r_s = .30$ – $.60$) with multiple related, but not identical, constructs. These included collective and relational self-construal, deindividuation, extraversion, agreeableness, and other constructs denoting a sense of connection with people and the universe (e.g., metapersonal sense of self, allo-inclusive identity with regard to people). (Note that in Student Sample 2, relational and collective self-construal were assessed at an earlier mass testing session, rather than concurrently with the other measures, likely attenuating correlations.) Convergent correlations between the TEAM and these constructs ranged from .25 to .58 (mean r excluding Student Sample 2 self-construal = .40). Thus, the TEAM was moderately associated with these constructs as hypothesized, although correlations with agreeableness were a bit weaker than expected ($r_s = .25$ to $.36$). More important, no correlations were so strong as to suggest conceptual redundancy, providing support for the hypothesis that the tendency to feel collective effervescence as assessed by the TEAM is a new and distinct construct in the social psychology literature.

Discriminant validity was examined via correlations between the TEAM and several constructs with which it should correlate fairly weakly or not at all. Specifically, we hypothesized that correlations with the remaining big five traits (i.e., openness to experience, emotional stability, and conscientiousness), anxious social tendencies (i.e., fear of negative evaluation), and allo-inclusive identity with regard to the natural world should show weaker associations with the TEAM. This hypothesis was generally supported, as discriminant correlations ranged from $-.03$ to $.34$ (mean $r = .14$), although correlations with openness to experience were stronger in some samples than expected ($r_s = .12$, $.34$, and $.20$ in Student Sample 1, Student Sample 2, and Community Sample, respectively). Furthermore, TEAM scores were not significantly correlated with socially desirable responding. Overall, the pattern of convergent and discriminant correlations support the expected associations of the TEAM with similar and distinct established constructs.

Incremental Criterion Validity

We next examined whether the TEAM can uniquely predict important life outcomes in a series of hierarchical regressions, where TEAM was added after the big five and collective and relational self-construal. Although different specific measures were available in different samples, we were interested in whether one's tendency to feel collective effervescence could predict adaptive outcomes such as satisfaction with one's social connections

Table 3
Convergent and Discriminant Correlations With the TEAM

Outcome	Student Sample 1	Student Sample 2	Community Sample
Convergent correlations			
Collective self-construal ^a	.45***	.30***	.58***
Relational self-construal ^a	.40***	.27***	.47***
Metapersonal self	—	.46***	.52***
Deindividuation	—	.40***	.29***
Subjective state of deindividuation	—	.47***	—
Extraversion	.30**	.49***	.39***
Agreeableness	.25**	.36***	.29***
Allo-inclusive identity–people	—	.33***	—
Discriminant correlations			
Openness	.12	.34***	.20***
Emotional stability	.08	–.03	.22***
Conscientiousness	.16	.15*	.12*
Fear of negative evaluation	.14	—	—
Allo-Inclusive identity–natural world	—	.02	—
Social desirability			
Marlowe–Crowne attribution	—	.11	—
Marlowe–Crowne denial	—	–.02	—

Note. Missing correlations indicate measures not collected in a given sample.

^a For Student Sample 2 only, collective and relational self-construal were assessed before the rest of the study measures in a mass testing session, likely attenuating correlations with these two scales. TEAM = Tendency for Effervescent Assembly Measure.

* $p < .05$. ** $p < .01$. *** $p < .001$.

(i.e., low loneliness, low isolation, perceived social support), a strong sense of meaning and self (i.e., meaning in life, self-awareness, personal growth initiative), positive emotions, and spiritual transcendence. Results are shown in Table 4. After accounting for the predictive power of the big five and collective and relational self-construal, the TEAM was a significant predictor of the above constructs in 8 out of 10 analyses across the three

samples (in addition, there was a trend toward significance for a ninth outcome), such that a greater tendency to feel collective effervescence was associated with more positive/adaptive life outcomes. In analyses in which the TEAM was a significant predictor, it incrementally accounted for between 3.1 and 9.9% of the variance in the outcomes, meeting or exceeding Hunsley and Meyer's (2003) guideline for a meaningful incremental contribution.

Table 4
Tests of Measurement Invariance

Model	Model $\chi^2(df), p$	χ^2 diff. test (df), p	CFI	RMSEA	SRMR
Gender					
Configural	261.734 (84), <.001	NA	.916	.079	.053
Metric	281.792 (94), <.001	18.141 (10), >.05	.911	.076	.064
Scalar	297.358 (104), <.001	12.128 (10), >.05	.908	.074	.067
Ethnicity					
Configural	235.234 (84), <.001 NA	.927	.073	.051	
Metric	248.277 (94), <.001	10.282 (10), >.05	.926	.069	.057
Scalar	295.709 (104), <.001	53.890 (10), <.001	.908	.073	.064
Religion					
Configural	206.912 (84), <.001 NA	.931	.069	.050	
Metric	219.447 (94), <.001	10.113 (10), >.05	.929	.066	.058
Scalar	265.873 (104), <.001	52.936 (10), <.001	.909	.071	.067
Age					
Configural	272.723 (84), <.001	NA	.911	.081	.055
Metric	292.177 (94), <.001	17.025 (10), >.05	.906	.079	.065
Scalar	354.991 (104), <.001	71.279 (10), <.001	.882	.084	.077

Note. n_s for gender = 358 men and 325 women; n_s for ethnicity = 453 White and 229 other ethnic identification, n_s for religion = 383 religious and 229 nonreligious, n_s for age = 364 age 18–25 and 316 age 26–79. The total sample size for the religion invariance analyses is smaller because those in the Community Sample had the option of responding as “Spiritual, But Not Religious,” whereas those in the Student Sample did not. Therefore, individuals who endorsed being spiritual in the Community Sample were omitted from these analyses, as it was not clear in which group they should be included. See text for a description of configural, metric, and scalar models, as well as guidelines for interpreting fit indices. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Finally, at the end of the study for Community Sample participants, we provided a definition of collective effervescence and asked participants about their experiences and feelings regarding collective effervescence. As shown in Table 5, after accounting for the big five and relational and collective self-construal, TEAM scores predicted the number of times participants reported experiencing collective effervescence during their life, the extent to which they hope to experience collective effervescence in the future, and how pleasurable collective effervescence would be for them (change in $R^2 = .030$ to $.079$). Thus, the TEAM appears to reflect real-life experiences with and reactions to collective effervescence.

Study 4 Goal and Results: Measurement Invariance Across Demographic Groups

The goal of Study 4 was to examine if the TEAM functions similarly across different groups of people. Specifically, we evaluated invariance across different genders (men vs. women), ethnicities (white vs. other ethnicity), and religious identification (religious vs. not) in a combined sample consisting of both student samples and the community sample. Although we were also interested in examining invariance across age, there was a highly skewed distribution because of our recruitment of college students (i.e., over half of the combined sample was age 18–25, whereas the rest ranged in age from 26 to 79). Thus, we assessed age invariance by dividing individuals into the above two age groups, but it should be noted that these analyses collapse across a very wide range of ages and that age is confounded with sample type (student vs. community), limiting our ability to draw precise conclusions.

Measurement Invariance

We next examined configural, metric, and scalar invariance; the two error covariances described in Study 2 were specified in all

analyses, as they were significant across all samples and improved model fit. Results of the measurement invariance analyses are shown in Table 4. The nonsignificant χ^2 difference tests and fit indices supported configural, metric, and scalar invariance across gender. For ethnicity, religion, and age, the minimal change in fit indices and nonsignificant χ^2 difference test suggested configural and metric invariance across groups. However, for these three demographic variables, constraining the item intercepts to be equal across groups (in the scalar model) resulted in a significant decrement in model fit ($ps < .001$) as assessed by the χ^2 difference test, relative to the metric model (for ethnicity, $\Delta\chi^2(10) = 53.890$; for religion, $\Delta\chi^2(10) = 52.936$; for age, $\Delta\chi^2(10) = 71.279$). The changes in other fit indices for ethnicity and gender were within the guidelines suggestive of measurement invariance as described by Chen (2007): for ethnicity, $\Delta CFI = -.018$, $\Delta RMSEA = .004$, $\Delta SRMR = .007$; for religion, $\Delta CFI = -.020$, $\Delta RMSEA = .005$, $\Delta SRMR = .009$. In contrast, the change in fit indices for age did not support measurement invariance: $\Delta CFI = -.024$, $\Delta RMSEA = .005$, $\Delta SRMR = .012$. Thus, we concluded that ethnicity and religion also demonstrated measurement invariance across groups, indicating that scores across subgroups in these domains are comparable in meaning and magnitude, but age did not.

Demographic Group Means

Next, we compared group scores on the collective effervescence factor formed from the 11 scale items for all of the above demographic variables except age (as it was noninvariant). In each case, the factor mean for the reference group was set to zero to provide a scale for the latent construct. Female participants had significantly higher mean scores than male participants on the collective effervescence factor, though the magnitude of the difference was small (men = 0, women = $.217$, $p = .02$). In addition, those who identified as religious scored significantly higher than those who did not (religious = 0, nonreligious = $-.549$, $p < .001$). In contrast, there was not a significant difference in scores on the

Table 5
Hierarchical Regression Analyses of the Incremental Validity of the TEAM For Relevant Criteria

Outcome	Step 1: Big five					Step 2: Self-construal		Step 3: TEAM	Total R^2	ΔR^2 for Step 3
	E	O	ES	A	C	Collective	Relational			
Student sample 1										
Loneliness	-.09	-.07	.15	.15	.10	-.05	-.20	-.28*	.225	.053
Meaning in life	.06	-.01	.06	.12	.01	.17	.05	.32**	.289	.068
Personal growth initiative	.19	.12	-.08	.04	.04	.01	.03	.26*	.180	.047
Student Sample 2 ^a										
Perceived social support	.15	-.02	.12	.34***	.04	-.03	.28**	.23**	.443	.031
Self-awareness	.02	.26**	.08	.15	-.02	-.02	-.08	.40***	.366	.099
Spiritual transcendence	-.12	.16*	-.14	.22*	.11	.03	-.01	.35***	.355	.073
Dispositional positive emotions	.06	.36***	-.01	.15	-.09	-.07	.06	.21*	.301	.024
Community sample										
Meaning in life	.08	.07	-.04	.11*	.19***	.16**	.15*	.25***	.314	.035
Self-awareness Scale	-.10*	.17	-.09	.11*	.27***	-.15*	.28***	.08	.261	.003
CE experiences–Times	.04	.16**	.00	.09	-.01	.09	.08	.23***	.217	.030
CE experiences–Future	-.04	.18***	-.81	.10*	.01	.11	.12*	.38***	.354	.079
CE experiences–Pleasurable	-.05	.15**	.01	.09	-.02	.09	.13*	.34***	.309	.066

Note. Standardized betas from the final model are shown. CE = Collective effervescence; E = extraversion; O = openness to experience; ES = emotional stability; A = agreeableness; C = conscientiousness.

^a For Student Sample 2 only, collective and relational self-construal were assessed approximately 1 month before the rest of the study measures in a mass testing session, likely attenuating the contribution of these two scales in this sample.

$p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. The F statistic associated with each of the final regression models is significant ($p < .003$).

collective effervescence factor between those who identified as white and those who identified as another ethnicity ($p = .98$).

Study 5

The first four studies evaluated the validity, reliability, and psychological correlates of scores on the TEAM. We argue that collective assembly is associated with important psychological outcomes, such as decreased loneliness and a feeling of meaning in one's life, because it provides one pathway to the fulfillment of social needs. However, although the data in Studies 1–4 are consistent with that argument, they do not provide direct support for the social pathway of TEAM scores. Thus, one goal of Study 5 is to more directly explore the role of social need fulfillment in the positive effects of a life high in effervescent assembly. We did this by measuring TEAM and the three basic human needs of autonomy, relatedness, and competence (Deci & Ryan, 2000). We predicted that TEAM scores would be most strongly related to the fulfillment of relational needs.

In addition, we wanted to more fully explore the relationship between TEAM scores and recency of a collective effervescence experience. Given that past research suggests that effervescent assembly leads to positive outcomes including positive affect and self-esteem (Páez et al., 2015), it is possible that the TEAM was only positively related to a plethora of positive outcomes in our samples (Study 3) because people who are high in TEAM are more likely to have recently engaged in a collective effervescence experience as compared with those who are low in TEAM. Thus, it could be that the positive constructs associated with TEAM are only because of the recency of events and not because of the consistent individual differences that we are suggesting. Study 5 examined this hypothesis as well as the general relationship between TEAM and recency of collective experiences. We predict that although people high in TEAM will be more likely to have had recent experiences of collective assembly, the positive correlates of TEAM will exist independent of those recent events.

Method

Participants and procedure. Participants were 150 undergraduate students from the University at Buffalo who received course credit in their introductory psychology course for their participation. Table 1 provides a demographic breakdown of the sample. Upon arrival to the lab, participants completed a variety of questionnaires including the TEAM, measures we predicted to be related to the construct, and an item assessing the recency of their last collective effervescence experience. This study was completed as part of a larger unrelated experiment.

Materials

TEAM. Participants completed the 11-item measure established in the first studies.

Recency of collective effervescence experience. Participants were provided with the same description of collective effervescence used in the Community Sample and then asked: "How long has it been since you had a collective effervescence experience?" Participants indicated on a 1 (*within the last week*) to 7 (*never*) scale how recently they experienced collective effervescence.

Higher numbers on this scale indicate less recent collective effervescence experiences. This item was specifically created for this study; therefore, the psychometric properties have not been evaluated in any previous work. However, this measure is relatively face valid.

Participants also completed the following measures: Basic Psychological Needs Scale (Deci & Ryan, 2000); Social Connectedness Scale (Lee & Robbins, 1995); Positive and Negative Affective Schedule—Expanded Form (Watson & Clark, 1994); Preference for Affiliation Scale (Buunk, Nauta, & Molleman, 2005). More information on the scales can be found in online Appendix C.

Study 5 Results and Discussion

Basic human needs and TEAM scores. An examination of simple correlations suggested that, consistent with our initial studies, TEAM scores were correlated with positive affect ($r = .369$; $p < .001$), social connectedness ($r = .471$; $p < .001$), and preference for affiliation ($r = .504$; $p < .001$). TEAM scores were not related to negative affect, $r = .001$, $p > .5$.

Next we examined our hypothesis that TEAM scores are most strongly related to the fulfillment of social needs by examining the correlations of TEAM scores with all three kinds of goal fulfillment. The TEAM was correlated with relatedness ($r = .478$, $p < .001$), autonomy ($r = .308$, $p < .001$), and competence ($r = .336$, $p < .001$). We then ran a regression analysis with relatedness, autonomy, and competence needs entered concurrently. When all were entered together, only relatedness remained a significant predictor of TEAM scores ($\beta = .468$, $p < .001$). Autonomy ($\beta = .032$, $p = .736$) and competence ($\beta = -.0138$, $p = .90$) were no longer related to TEAM scores. Thus, consistent with our hypothesis that effervescent assembly is related to the fulfillment of social needs, relatedness needs were the only needs related to TEAM scores when all three kinds of basic human needs were examined together.

Recency of collective effervescence experience and TEAM scores. The modal response on the item measuring recency of collective effervescence experience was within the last week. Specifically, 34% of participants reported that they had experienced collective effervescence within the last week. Thirty-one percent of participants reported having experienced collective effervescence within the last month (but not the last week), and this was the median response. Only 3% of participants reported never having experienced collective effervescence.

Consistent with our hypothesis that TEAM scores would be related to experiencing collective effervescence, recency of a collective effervescence experience was positively correlated with TEAM scores ($r = .327$, $p < .001$).

Next we were interested in examining whether the TEAM would still be related to important outcomes, even when controlling for recency of a collective effervescence experience. We examined this two different ways. First, we selected only participants for whom it had been more than a month since their last collective effervescence experience ($n = 47$). Past work suggests that the positive effects of collective effervescence typically last up to 1 week (Rimé et al., 2010), but can, for extreme events, last up to 3 weeks (Páez et al., 2007). If TEAM scores still related to positive outcomes for people who did not have a collective effervescence experience, we would expect to find a significant relationship between TEAM scores and positive outcomes in this sample.

vescence experience within the past month, it would strongly suggest that the positive correlates of TEAM scores are not because of the carryover of a recent event. Indeed, as predicted, when examining those who had not experienced a collective effervescence event in the past month, TEAM scores were still significantly correlated with relatedness ($r = .405, p = .003$), positive affect ($r = .426, p = .002$), social connectedness ($r = .361, p = .009$), and preference for affiliation ($r = .454, p = .001$). Thus, according to the results of this analysis, the effects did not seem because of the recent experience of a collective effervescence event.

We also ran regressions with TEAM scores and recency of collective effervescence experiences. Of primary interest was whether the main effect for TEAM scores would still be significant when controlling for recent experiences. For all analyses the predictor variables were (a) TEAM scores, (b) recency of collective effervescence experience, and (c) the interaction of TEAM scores and the recency of collective effervescence experiences. We included the interaction term because it was possible that recency of effervescent assembly would impact participants differently depending on TEAM scores. For example, it could be that people high in TEAM are more affected by recent effervescent assembly as compared with those low in TEAM. All predictors were centered at their means. For social connection, preference for affiliation, and positive affect, the effects for the TEAM remained significant even when recency of collective effervescence experience and the interaction between recency of the event and TEAM scores was controlled for. Specifically, our analyses for social connection revealed a significant effect for TEAM scores ($\beta = .446, p < .001$). High scores on the TEAM predicted greater feelings of social connection. The effects for recency of a collective effervescence event and the interaction of the two variables were not significant ($ps > .10$). Our analyses for preference for affiliation revealed a significant effect for TEAM scores ($\beta = .497, p < .001$). High scores on the TEAM predicted greater preference for affiliation. The effects for recency of a collective effervescence experience and the interaction of the two variables were not significant ($ps > .26$). Our analyses for preference for positive affect revealed a significant effect for TEAM scores ($\beta = .395, p < .001$). High scores on the TEAM predicted more positive affect. The effects for recency of a collective effervescence experience were marginally significant ($\beta = .152, p = .067$), such that having a recent collective effervescence experience predicted more positive affect. The interaction of the two variables was not significant ($p = .20$). Thus, for these positive outcomes, TEAM scores still predicted positive outcomes even when recency of a collective effervescence experience and the interaction of recency and TEAM scores were examined. This strongly suggests that the TEAM is not just tapping into the psychological consequences of recent effervescent assembly.

In contrast to the other outcomes, relatedness and negative affect were significantly predicted by the interaction of the two variables. Specifically, our analyses for relatedness revealed a significant effect for TEAM scores ($\beta = .481, p < .001$). High scores on the TEAM predicted greater feelings of relatedness. The effect for recency of a collective effervescence experience was not significant ($p = .14$). However, the interaction of the two variables was significant ($\beta = .175, p = .021$). Specifically, when people were low in TEAM, the recency of a collective effervescence experience

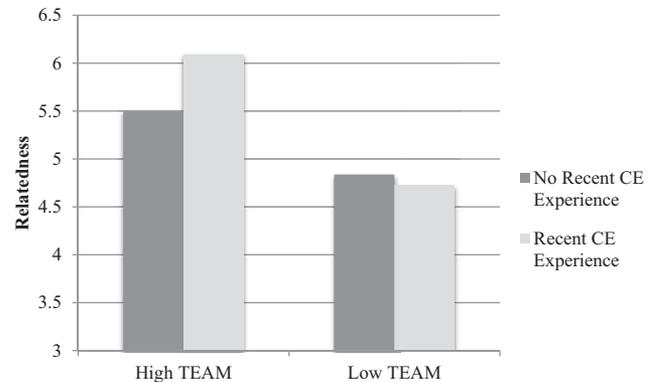


Figure 1. Relatedness (Study 5). Predicted values are plotted at 1 SD above and below the mean of the TEAM. CE = collective effervescence.

did not affect relatedness. However, when they were high in TEAM, recency of a collective effervescence experience predicted relatedness (see Figure 1). For negative affect, there was no main effect for TEAM scores ($p = .83$) but a significant effect for recency of collective effervescence experiences ($\beta = .18, p = .042$). That main effect was qualified by a significant interaction of the two variables ($\beta = .19, p = .05$). Similarly, when people were low in TEAM, the recency of collective effervescence experiences did not predict negative affect. However, when they were high in TEAM, recency of collective effervescence experiences predicted negative affect (see Figure 2). These analyses suggest that people who are high in TEAM are affected by experiences of collective effervescence differently than those who are low in TEAM. In other words, people who have a tendency toward collective effervescence experience negative affect and decreased social needs fulfillment when they have not experienced it for a while, whereas those low in this tendency are unaffected by a lack of recent collective effervescence. Overall, Study 5 suggests that effervescent assembly is especially important to people who are high in TEAM and that scores are specifically linked to the fulfillment of relatedness needs. More important, the results also suggest that the recency of a collective effervescence experience is not the underlying cause of the positive effects of the TEAM.

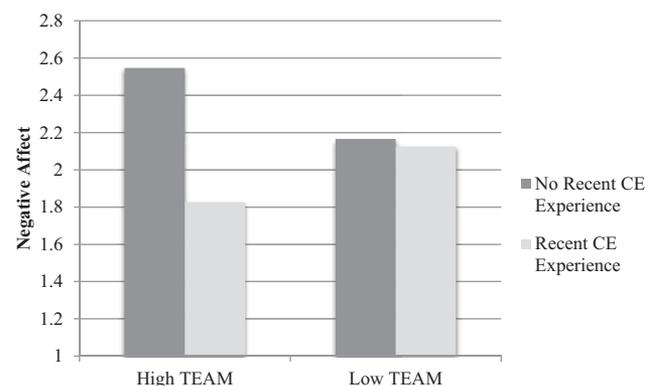


Figure 2. Negative Affect (Study 5). Predicted values are plotted at 1 SD above and below the mean of the TEAM. CE = collective effervescence.

General Discussion

Across five studies and with four different samples we constructed and provided initial support for the reliability and validity of scores on the TEAM. We created a brief scale that is unidimensional and broadly applicable to most people's daily lives with scores that showed excellent internal consistency. TEAM scores had good test–retest reliability and were related to variables with which we predicted significant associations, such as collective and relational self-construals, deindividuation, and allo-inclusive identity with other people. Conversely, TEAM scores were only weakly related to constructs to which we suspected it would not relate. The TEAM performed similarly regardless of gender, ethnicity, or religion, indicating that it is valid to compare scores across different demographic groups. However, analyses suggested that scores may not be comparable between younger and older adults (however, note the limitations in this specific analysis described previously). Gender and religiosity were significantly related to TEAM scores. The difference for gender was relatively small, but suggested that women had slightly higher TEAM scores than men. The difference by religiosity is not surprising given the tendency for religious organizations to provide the platform for experiences of collective effervescence. Indeed, the idea of collective effervescence was first introduced as a means of explaining behavior in group religious ceremonies (Durkheim, 1912).

As expected, TEAM scores were related to the experience of collective effervescence. People with high TEAM scores had more collective effervescence experiences in their lives, found collective effervescence more pleasurable, and hoped to have more collective effervescence experiences in the future, as compared to those low in TEAM. People high on TEAM were also more likely to have recently experienced collective effervescence and were likely to report negative affect and a lack of social connection when they had not had a collective effervescence experience for a while. However, even among people who had not had an experience over the past month, high scores on TEAM were still related to feelings of social connection and well-being. This suggests that it is not just the effect of one recent collective effervescence experience that leads to the positive correlates of TEAM, but rather these effects are likely because of the cumulative effects of effervescent assembly.

More important, TEAM scores predicted life outcomes related to a sense of social connection even when controlling for other means of social connection and the big five factors of personality. The scale predicted decreased loneliness, increased positive feelings, a feeling of meaning in one's life, self-awareness, and spiritual transcendence above and beyond the effects of the big five and collective and relational interdependence. In other words, the tendency to feel collective effervescence was related to outcomes that most people strive for and seek out in their lives—positive affect, less loneliness, and a sense of meaning. The scale had predictive value above and beyond that of personality traits and other means of social connection, suggesting that there is something unique and important about the propensity to feel connected to large, generally anonymous groups of people.

We have framed the effects of effervescent assembly as social effects. We do so for three reasons. First, effervescent assembly is a social phenomenon. It occurs, by definition, in the company of other people and with the synchronicity of behavior with others.

Second, the correlates of a life filled with effervescent assembly are the same as the correlates of a life filled with other social connections—decreased loneliness, an increased feeling of belonging, higher positive emotions, and a sense of meaningfulness in life. Third, when examined concurrently in Study 5, TEAM scores were strongly related only to the fulfillment of social needs and not to the fulfillment of competence or autonomy needs. Nonetheless, it is possible that some of the effects of effervescent assembly are not completely social in nature. Future research will be necessary to carefully disentangle the social from individual effects of effervescent assembly.

The current work is consistent with theory and research suggesting that human beings are flexible and creative in their means to fulfill their needs for social connection (for a review see Gabriel et al., 2016). Although we tend to think of social needs being filled through real, tactile contact with other people, humans are able to gain a sense of social connection through a myriad of means. People can feel social connection through their favorite TV shows (Derrick et al., 2009), their favorite books (Gabriel & Young, 2011), and even their favorite foods (Troisi & Gabriel, 2011). Future work will need to look at just how this myriad of paths to social connection balance. For example, are some people content with just one path to connection? Do people need more than one? Are there individual differences that predict different paths to social connection? Although the effects of the TEAM were found to be independent of the effects of other kinds of social connection, we are not implying that effervescent assembly can—or should—be thought of as a replacement for other kinds of connections. Clearly, there are some things that people can gain from close relationships that cannot be gained from effervescent assembly. However, we argue that effervescent assembly opportunities are more psychologically meaningful and important than most people assume. Future work is necessary to understand the specific benefits of various types of social connection and will greatly benefit from the ability to measure the TEAM alongside more traditional measures of social connection.

An interesting find was that the TEAM seemed to be primarily related to positive outcomes (e.g., more positive mood, greater meaning in life, and less loneliness). Although we predicted that TEAM scores would be related to positive outcomes, some previous work does suggest that the kind of deindividuation that can occur in large groups can also sometimes be associated with negative outcomes, such as increased aggression and antisocial behavior (e.g., Zimbardo, 1969). Although we did not find any such relationships in the current work, it would be interesting for future work to examine whether there are specific instances in which the TEAM predicts negative behaviors.

Further work will also be needed to examine potential limitations of our examination of the TEAM, and to provide further evaluation of the psychometric properties of the measure across different samples and settings. The current work is limited somewhat by its use of a student sample from only one university (albeit a public university with a diverse student body and a large international student population) and an MTurk sample, which is limited to people familiar with Amazon's Mechanical Turk website. Future research will be necessary to test the TEAM in broader populations with a fuller age range (including children and the elderly), and with a finer-grained examination of different specific ethnic and religious groups (as opposed to the dichotomous ap-

proach—White vs. other ethnicities, religious vs. not—used here). In addition, future work would benefit from a longitudinal design to clarify the temporal nature of the current findings.

Conclusion

The current work suggests that effervescent assembly contributes to a life filled with a sense of meaning, increased positive affect, an increased sense of social connection, and a decreased sense of loneliness—all essential components of a healthy, happy life. It is consistent with the idea that collective assembly is more than just people coming together to distract themselves from life by watching a game, concert, or play—instead it is an opportunity to feel connected to something bigger than oneself; it is an opportunity to feel joy, social connection, meaning, and peace. Collective assembly has long been a part of the human experience and the current work begins to quantify its important psychological benefits.

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