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What Are the Personality and Trauma Dynamics That Contribute to Posttraumatic Growth?

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The goal of the current study is to explore the impact of different trauma types and some personality dynamics and their interactions on enhancing or impeding posttraumatic growth (PTG). We proposed a framework that describes such interactions based on the dual information processing systems theory. A sample of 620 college students from two Egyptian universities was tested. We used the Almost Perfect Measure (i.e., high standards, order, and self-discrepancy) to measure in part the precognitive value processing system (VPS), along with measures of PTG, posttraumatic stress disorder (PTSD), complex PTSD, as well as a cumulative trauma scale that measures different trauma types. We used path analysis to test the proposed framework. Results confirmed the basic premises of the framework and replicated previous findings of the differential contribution of trauma types (based on their severity) to PTG. Striving for "standards" and "order" contributed significantly to PTG and predicted a significant reduction in mental health syndromes whereas self-discrepancy predicted decreases in PTG and increases in mental health symptoms. Furthermore, the results highlighted some of the trajectories resulted from the interface among personality dynamics, trauma severity, and suffering. We discuss the implications of the results for future research and interventions.

Keywords: posttraumatic growth, value processing, self-discrepancy, trauma types, striving for standards and order

Adversities and suffering can potentiate development and growth across the life span because they may ultimately facilitate stronger meaning-making structures and the maturity of a stronger more resilient actor. For individuals exposed to severe adversities, although several negative changes occur in their daily functioning (including their psychological functioning), only a small subset of them develop posttrauma disorders (e.g., posttraumatic stress disorder [PTSD], depression, phobic disorders, somatization, and alcoholism; <10%; e.g., Breslau, 2009). The rest (>90%) are more resilient (McFarlane & Yehuda, 1996). Some of that 90% may develop posttraumatic growth (PTG). However, some of the 10% who suffer posttrauma disorders may also develop PTG. A longitudinal study found that PTG is facilitated and maintained by the presence rather than the absence of PTSD (Dekel, Ein-Dor, & Solomon, 2012). Two perspectives tried to explain this phenomenon. One concluded that it is the emotional struggle in the wake of trauma that pushes forward real growth. The other view looks at this phenomenon as powerful self-enhancing/or negative self-deceptive illusions and defensive strategies that attempt to alleviate distress (e.g.,

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Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000). It is possible that both authentic and illusive PTG dynamics exist, and the question is to determine how much genuine and how much illusive is PTG for an individual.

The frameworks of PTG (Tedeschi & Calhoun, 1996) and positive psychology (Seligman & Csikszentmihalyi, 2000) offer some perspectives on these dynamics. Whereas the PTG framework emphasizes the growth that may be produced by adversities and suffering, positive psychology emphasizes the positive personality attributes and dynamics that may facilitate this growth. However, the connection between the two frameworks has never been explored.

There are lingering unanswered questions about the dynamics and trajectories that produce these disparate outcomes in different individuals. What are the relationships among PTG, positive and nonpositive personality dynamics, and different types of adversities? Do all different trauma types equally lead to PTG? What is the connection between PTG and other personality dynamics that may directly facilitate or constrain PTG?

One of the underlying assumptions of PTG is that traumatic events facilitate personality growth whereas the PTSD model assumes that such events contribute to the production of PTSD. However, there is replicated empirical evidence of the nonlinear relationships among trauma, PTSD, and PTG (Kira, Abou-Mediane, et al., 2013; Levine, Laufer, Hamama-Raz, Stein, & Solomon, 2008; Shakespeare-Finch & Lurie-Beck, 2014). This evidence of nonlinearity suggests that PTG occurs more often in the experience of moderate stressors and distress and less often in either low or extreme stressors/distress conditions. PTG appears to be more likely to happen in the experience of certain kinds of trauma that produce moderate stress (e.g., PTSD) than in those that produce severe stress conditions (e.g., complex PTSD). Shakespeare-Finch and Armstrong (2010) found lower levels of PTG in victims of sexual abuse compared with victims of bereavement (a kind of Type I secondary trauma). Consistent with the nonlinear hypothesis, a recent empirical study (Kira, Abou-Mediene, et al., 2013) found that Type I traumas (a single event such as car accident and secondary traumas such as witnessing a traumatic event) were likely to be associated with PTG. However, the most intense Type II (repeated sequence of events that happened and stopped such as sexual abuse and incest) and III (continuous and chronic traumatic stressors such as intersected discriminations and oppression) traumas were not significantly associated with PTG. Furthermore, the study found that those severe Type III traumas, and some early childhood trauma (abandonment or attachment disruptions), were negatively associated with PTG. In addition, Schott (2016) found that most childhood traumas were associated with lower levels of PTG.

Although the focus of PTG is on personality changes, most of the research on PTG is not sufficiently informed by relevant research in personality psychology (Jayawickreme & Blackie, 2014). The current focus of research on PTG is on the impact of traumatic events, and less attention has been paid to the personality dynamics that may facilitate PTG upon exposure to adversities. There is a need for a conceptual framework that integrates trauma, personality dynamics, and growth. There is converging evidence that people are inclined to create a sense of growth when they recall personal change and rewrite their relationship histories to create a sense of progress. They frequently deprecate their former self as a way to view the current self in a more positive light (e.g., Frazier et al., 2009). The presence of such dynamics means that the reported PTG can be more of a personality dynamic than an actual measured growth (Taylor et al., 2000; Tennen & Affleck, 2009).

The personality factors models such as the Five-Factor Model, the Three-Factor Model, and other models (e.g., Eysenck, 1991; Goldberg, 1990; John & Srivastava, 1999) that focus on personality traits and structures are well articulated. However, personality processes, such as perceptual and information processes, are critical variables in understanding how the personality operates, changes, and grows over time, especially after exposure to adversities (Bruner, 1951; Robinson & Wilkowski, 2015).

Dual information processing systems theory (DIPST; e.g., Epstein, 2014) may provide a helpful framework that can be expanded to connect personality and cognitive processes and growth after trauma. DIPST identifies two interacting information processing systems: the perceptual system and the conceptual system. The conceptual system processes rules, beliefs,

and values that shape the contextual meaning of events provided by the perceptual system. Such a value processing system (VPS) configures the emotional and motivational noncognitive (or precognitive and metacognitive) components that bias, maintain, and modulate the appraisal, reappraisal, meta-appraisal, and meaning making of the perceived events (Baumeister & Vohs, 2002; Kira, 1987, 1997; Park & Folkman, 1997). VPS is the part of the personality that biases appraisal and meaning making and can facilitate PTG. PTG processes may also facilitate its reconfiguration and modulation of components over time. VPS includes various deep structures and dynamics such as learned, adopted, or transmitted religious and nonreligious beliefs; observable standards and criteria; and generalized assumptions and stereotypes. It includes the core attachment, independence and interdependence styles, enduring knowledge structures, and cognitive appraisal capacities that are acquired or evolved through a person's development. It also includes striving to self-actualize and achieve an individual's personal, role, and social identities as well as striving for self-control, and orderly behavior. In addition, one of the VPS's principal components is core self-evaluations. To conclude, preappraisal VPS and the conceptual subsystems are related to one's self-identity executive function that controls automatic and controlled perceptual system processes and can bias or distort its operations (e.g., automatic stereotyping; e.g., Ito et al., 2015). A self-identity executive function is a self as an organizing and regulating executive agent.

For example, collective identity and political concerns that grow out of asymmetric intergroup relations (e.g., Social Dominance Orientation [SDO] and Right Wing Authoritarianism [RWA]), ideology, and prejudice processes (values, beliefs, and values/beliefs processing) bias appraisal of social adversities. Other parallel personal identity concerns that stem from interpersonal and attachment dynamics bias appraisal in interpersonal adversities. Value processing subsystems that grow out of the asymmetric developmental relationship in interpersonal and social levels are directly related to the person's different identities (personal, collective, and role identity), which constitute some of the person's developmental assets, bias appraisal, perception, and different automatic and controlled cognitive and emotional responses. They are the core etiological factor of the traumatization process. In addition, some of the reactions to potentially traumatic events are automatic with no time to think or appraise. Preappraisal and preautomatic reaction personality factors (e.g., stimulus–response associations, avoidant approach tendencies) control such automatic reactions and bias perceptions and gut reactions.

Different traumas can shake the VPS and cause varying levels of disturbances, creating uncertainty, turbulence, and dynamical chaos, and they can shutter some or all of its stable and initial assumptions (e.g., Janoff-Bulman, 2010). Such chaos can perturb the appraisal processes that are VPS dependent. However, some classes of adversities and related distress have the potential to transform this personality VPS, restructuring or modulating its disturbed assumptions (e.g., through the differential assignment of values of relevance and importance to events and strategies), increasing its functionality, and leading to posttraumatic individual growth. Other classes of adversities can cause severe persistent disturbance and chaos in the VPS and lead to PTSD, complex PTSD, and other posttrauma spectrum disorders.

Although a complete measurement of the VPS system is a complex task beyond the scope of the current project, striving for high standards and order may represent one component of the VPS personality dynamic. Self-discrepancy is another related personality dynamic that may present the initial pretrauma level of VPS system disturbance and chaos. Such nondynamical chaos can impede the personality VPS's potential growth upon exposure to adversities and facilitate PTSD, complex PTSD, and other mental health problems. The concepts of striving for perfectionism and self-discrepancy may help us operationalize and measure some modules of the meaning-making and preappraisal conceptual VPS.

Previous research differentiated between two unique personality dynamics related to perfectionism (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Stoeber & Otto, 2006): perfectionistic strivings (striving for high standards and order) and the perceived discrepancy between striving (and ideals) and actual behavior. A significant body of research has supported the association between this dimension and a host of positive characteristics, processes, and out-

comes such as conscientiousness, adaptive coping, and positive affect as well as higher levels of subjective well-being and psychological adjustment (see Stoeber & Otto, 2006, for a comprehensive review). There is evidence that perfectionism striving contributes significantly to postevent processing (e.g., Brown & Kocovski, 2014; Shikatani, Antony, Cassin, & Kuo, 2015). Consistent with the underlying assumptions of the meaning-making framework, striving for high standards and orderliness may contribute to PTG as a response to certain kinds of adversities. However, no studies have examined such potential associations.

In contrast, the self-discrepancy (vs. self-congruence) between aspirations for high standards and orderliness and one's actual performance contribute to internal dynamics that may impede positive growth and development, facilitate less functional responses to adversities, and trigger poststress and trauma spectrum disorders (Higgins, 1987, 2012). Self-discrepancy theory (SDT; Higgins, 1987) was developed to conceptualize how problems in the self-regulation of personal goal pursuit contribute to mood and anxiety disorders. SDT identified two types of personal goals or self-guides: hopes and aspirations (ideal self-guides) versus duties and obligations (ought to self-guide). According to SDT, what produces different emotional syndromes is the interaction among various adversities and the types of self-guide they are using. SDT provided an integrative translational model linking self-regulatory cognition with the basic science literature on motivation and emotion. Related to SDT is the emerging moral injury framework that defines moral injury as a group of symptoms including shame, anger, guilt, demoralization, self-handicapping, self-harm, and PTSD-like symptoms (e.g., Currier, Holland, Drescher, & Foy, 2013; Litz et al., 2009). This constellation of symptoms results from the actions, inactions, or witnessing of events that challenge deeply held moral beliefs or values (Litz et al., 2009).

Numerous studies have found an association between self-discrepancy and various negative characteristics, processes, and outcomes. Examples are neuroticism, maladaptive coping, and negative affect as well as higher level indicators of psychological maladjustment and disorder (e.g., Rice, Ashby, & Slaney, 2007; see Stoeber & Otto, 2006, for a comprehensive review). However, no studies examined self-discrepancy's potential negative association with PTG.

A Conceptual Framework for the Dynamics of PTG

On the basis of the previous discussion of the literature, we assume that although the three trauma types (Types I, II, and III) disrupt the VPS (operationalized as striving for standards and order), only the Type I trauma enhances PTG. Trauma Types II and III may not enhance PTG. Whereas striving for standards and order increases PTG, self-discrepancy constrains PTG. Each of the three trauma types, as well as self-discrepancy, predicts increased mental health distress (e.g., PTSD and complex PTSD symptoms). Although moderate suffering (e.g., PTSD) may predict PTG, severe distress (e.g., complex PTSD) may not. Figure 1 illustrates this model.

The overarching goal of the current study is to examine the contribution of personality dynamics of striving for standards and order as well as self-discrepancy to PTG. Another sec-

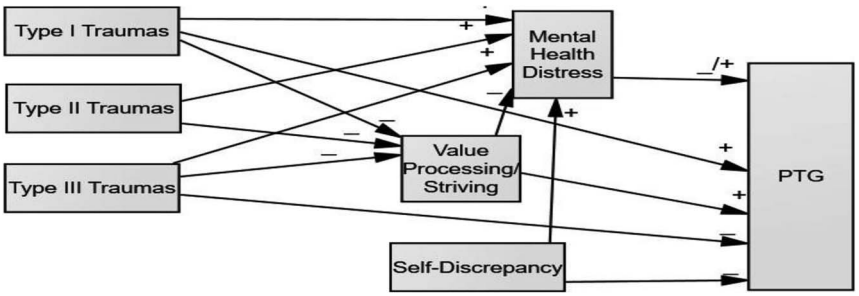

Figure 1. A conceptual model for the dynamics of posttraumatic growth (PTG).

ondary objective is to potentially replicate the previous findings of the different effects of various trauma types on PTG and their nonlinear dynamics and examine the potential interactions between such personality and stress dynamics that might enhance or impede PTG.

Hypotheses

On the basis of the developed theoretical framework and the previous empirical findings, we expect the following:

Hypothesis 1: Aspirations to standards and order will predict higher PTG and fewer mental health syndromes (e.g., PTSD, complex PTSD [Cumulative Trauma-Related Disorders measure]).

Hypothesis 2: Self-discrepancy will predict decreased PTG and increased mental health symptoms.

Hypothesis 3: Different trauma types will show different patterns of relationships with PTG according to severity and types of traumas, replicating previous findings (Type III traumas will predict negative PTG and Type I traumas will predict [or be associated with] PTG whereas Type II traumas will not predict either negative or positive PTG). In addition, moderate distress (e.g., in PTSD) and not high distress (e.g., in complex PTSD) will predict PTG.

Hypothesis 4: Although there may be no previous studies on the interaction between personality and trauma dynamics that guide us at this point, we assume that different trauma types (mostly internal or external events) and self-discrepancy (personality dynamics) will independently contribute to increases in mental health symptoms. The aspiration to standards and orders and Type I traumas will contribute independently to PTG.

Method

Participants in the study included 620 undergraduate students enrolled in Cairo University (Cairo, Egypt Capital) and South Valley University (Qina, in Upper Egypt). Participants were recruited from the population of students taking undergraduate courses and included students at various levels (e.g., freshmen, sophomores, juniors, and seniors) and different majors (e.g., humanities and science). Of those invited, 620 agreed to participate in the study (90% response rate). Among participants, 69% were females. Their mean age was 20.66 years with a standard deviation of 1.94. For their academic status, 29.7% were freshmen, 47.1% were sophomores, 12.3% were juniors, and 10% were seniors. Among participants, 51.6% were majoring in arts and humanities and 48.4% were majoring in science; 51.9% were from Cairo University and the remainder from South Valley University. Regarding religion, 93.2% were Muslims and the rest were Christians. Regarding marital status, 91% were single, 8% were married, and 1% were divorced. In addition, 56% of participants came from rural areas.

Scientific Translation of Scales

The measures used in the study translated into Arabic according to the guidelines for translating psychological tests (International Test Commission, 2010). The committee of translators consisted of three bilingual professionals whose native language was Arabic. Each professional translated the scale independently from English to Arabic. The translations were compared until an agreement was reached on an optimal translation. Back translation was conducted independently by two different bilingual professionals with expertise in psychology and linguistics. The back-translated versions of the scales were compared to the original English language version for linguistic equivalence.

Measures

Cumulative Trauma Scale–Short Form. The Cumulative Trauma Scale–Short Form (CTS-S) is a measure that is based on the development-based trauma framework (DBTF) framework (Kira et al., 2008). The CTS-S is a 32-item instrument that measures cumulative trauma regarding occurrence, frequency, type, and negative and positive appraisals. In response to each item, participants were instructed to indicate their experience with a traumatic event on a 5-point Likert-type scale (0 = *never*; 4 = *many times*). If participants endorsed that they had experienced the traumatic event, then they were asked to indicate the effect of the event on a 7-point Likert-type scale (1 = *ex-*

tremely positive; 7 = *extremely negative*). In the analysis, the appraisal scale was divided into two subscales: positive appraisal (1–4) and negative appraisals (5–7). CTS-S includes two general scales for cumulative trauma dose (occurrence and frequency of experience) and two appraisal subscales (negative and positive appraisal of the events). We generated these four subscales for each trauma type.

The measure identifies six trauma types: collective identity trauma, personal identity traumas, survival traumas, attachment traumas, secondary traumas, and gender discriminations. Collective identity traumas include traumas related to exposure to war and torture as well as discrimination based on race, ethnicity, or national origin. Secondary traumas include traumas related to having witnessed a traumatic event occurring to another individual or group and affecting social interdependence. Personal identity traumas include traumas related to sexual abuse, rape, incest, and being robbed. Survival traumas include car accidents, life-threatening illnesses, and natural disasters. Attachment traumas include abandonment by parents. Gender discrimination includes gender discrimination by parents (family) and gender discrimination by society and institutions. Another scoring strategy divides traumas into three types: Type I (single episode; e.g., car accident), Type II trauma (e.g., sexual abuse), and Type III traumas (continuous chronic trauma such as discriminations). The CTS-S has shown adequate internal consistency ($\alpha = .85$; Kira et al., 2008; Kira, Fawzi, & Fawzi, 2013), and test–retest stability (.74 in 6 weeks). Evidence for the instrument's predictive validity includes cumulative trauma significantly predicting PTSD, $r = .54$, $p < .001$; complex PTSD or cumulative trauma-related disorders, $r = .24$, $p < .001$; and poor health, $r = .37$, $p < .001$ (Kira et al., 2008). CTS-S has also shown divergent validity because it was significantly negatively correlated with sociocultural adjustment, $r = -.25$, $p < .001$, and futuristic orientation, $r = -.37$, $p < .001$. CTS-S has been used with various clinical and community samples of adults and adolescents from numerous sociocultural groups. It has proven to have adequate reliability (α ranged between .80 and .92). It has good construct validity (e.g., Kira et al., 2008; Kira, Templin, & Lewandowski, et al., 2012; Kira, Alawneh, Aboumediene, Lewandowski, & Laddis, 2014; Kira, Alawneh, et al., 2011; Kira, Lewandowski, Somers, Yoon, & Chiodo, 2012; Kira, Lewandowski, Yoon, Somers, & Chiodo, 2012; Kira, Templin, et al., 2011; Kira, Shuwiekh, & Bujold-Bugeaud, 2016). The measure has been used in several studies as a comprehensive measure of stress and trauma (e.g., Gillespie & Gates, 2013; Head, Singh, & Bugg, 2012; Millender, 2013; Omidy, 2012; Schott, 2016).

In the current data, Cronbach α for the main scale of occurrence was .80 and was .75 for Type I traumas, .82 for Type II traumas, and .70 for Type III traumas, which are the measures that we will utilize in the analysis.

Almost Perfect Scale–Revised. The Almost Perfect Scale–Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby 2001) consists of 23 items rated on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The APS-R consists of three subscales: High Standards (7 items), Order (4 items), and Discrepancy (12 items). The psychometric properties of the APS-R have been validated through a series of studies by Slaney and his colleagues (see Mobley, Slaney, & Rice, 2005). Slaney et al. (2001) reported that the internal consistency estimates of the APS-R ranged from .85 to .92. Evidence for the concurrent validity of the APS-R includes positive correlations with other measures of perfectionism (Ashby & Rice, 2002). In earlier studies, the reliability and validity of the Arabic version of the APS-R also proved to be adequate (Shuwiekh, Kira, Ashby, & Rice, 2016). In the current study, the striving for order and standards subscale have a Cronbach's α reliability of .76 and the discrepancy subscale has a Cronbach's α of .77.

Post-Traumatic Growth Inventory. The Post-Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) assesses perceived positive life changes (e.g., enhanced relationships, greater life appreciation) after stressful experiences. In completing the 21 items, participants respond on a scale from 0 (*I did not experience this change as a result of my experience*) to 5 (*I experienced this change to a very significant degree*). The measure includes five subscales designed to measure relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. In a validation study, Tedeschi and Calhoun (1996) found the internal consistency (α) of the total PTGI to be .90 and

the test–retest reliability (*R*) to be .71. The measure also appears to have sound psychometric properties in the Arabic language version (Kira, Abou-Mediene, et al., 2012, 2013), with an α of .96 for the main measure. Cronbach's α for the main scale in the current study was .90. Cronbach's α coefficients ranged between .83 and .70 for its five subscales.

Clinician-Administered PTSD Scale. The Clinician-Administered PTSD Scale (CAPS-2) is a structured clinical interview that assesses 17 PTSD and related symptoms rated on frequency and severity on a 5-point scale. The CAPS-2 has demonstrated high reliability, with a range from .92 to .99, and good convergent and discriminant validity (Weathers, Keane, & Davidson, 2001). The current study utilized the frequency subscale, which researchers widely use in psychiatric research. The instrument has four factor subscales, including reexperiencing, avoidance, arousal, and emotional numbness/dissociation. The measure has high reliability, with a Cronbach's α of .91.

Cumulative Trauma-Related Disorders measure. The Cumulative Trauma-Related Disorders (CTD) measure (complex PTSD syndromes; Kira, Templin, Lewandowski, Ashby, et al., 2012) is a 16-item measure developed on five community and clinic samples of adolescent and adult Iraqi refugees, Arab Americans, and African Americans. It is an index designed to measure 13 trauma-related symptoms that include memory deficits, loss of self-control, somatization, dissociation, auditory and visual hallucinations, paranoid ideations, concentration, and suicidal feelings. A score of 0 indicates that the symptom query was not applicable, 1 = *not sure*, 2 = *somewhat present*, 3 = *present*, and 4 = *very much present*. Exploratory and confirmatory factor analyses have offered empirical support for four factors: executive function deficits, suicidality, dissociation, and depression/anxiety/somatization comorbidity. The scale appears to have adequate reliability (ranging from .85 and .98 in five different studies). Test–retest reliability in a 6-week interval was .76. The measure also seems to have good convergent, divergent, and predictive validity. For instance, in one study different kinds of traumas and cumulative trauma generally accounted for significant variance as predictors of CTD symptoms (Kira, Templin, Lewandowski, Ashby, et al., 2012). The scale has a Cronbach's α coefficient of .86 in the current study.

Statistical Analyses

Data were analyzed using IBM-SPSS 22 and Amos 22 software. We calculated the descriptives of sample participants and the occurrences of each trauma. The reliability of the scales was investigated using the calculated Cronbach's α coefficients. We tested plausible path models that match the discussed theoretical framework for direct, indirect, and total effects of different types of trauma as well as self-discrepancy (as independent variables) on PTG and mental health variables mediated/moderated by aspirations to standards and order. We used the bootstrap procedure with 10,000 bootstrap samples to examine the significance of direct, indirect, and total effects as well as 95% bias-corrected confidence intervals (CIs). Criteria for good model fit included a nonsignificant χ^2, $\chi^2/df > 2$, comparative fit index (CFI) values $\geq$0.90, and root-mean-square error of approximation (RMSEA) values $\leq$0.06 (Weston & Gore, 2006). To explore the dynamics of the relations among different trauma types, the personality dynamics of striving for high standards and order (meaning making), self-discrepancy, and PTG, we tested the discussed model. The model fit well without modifications; however, trimming the model by eliminating the nonsignificant paths improved the final model fit.

Results

Descriptive Results

For participants' trauma, 86% reported having at least one trauma type in their life. Karam et al. (2014) found an empirical criterion of four traumas at which point the behavior parameters start to critically change, which may indicate a risk threshold for the serious negative mental health effects of cumulative trauma. In this sample, 41% reported having four or more trauma types.

Thirty-eight percent (38%) reported personal identity trauma inclusive of physical and sexual abuse (28% experienced them). Fourteen percent experienced collective identity traumas (e.g., discriminations), and 6% reported attachment traumas (e.g., abandonment by one of the

parents). In addition, 18% reported achievement traumas (e.g., failed business or school failure), 45% reported survival traumas (e.g., severe car accident or serious attack by a weapon), and 57% reported secondary traumas (e.g., witnessing others or close relatives experiencing traumas). Although there are no epidemiological or empirical studies on trauma and PTG population wide in Egypt or on Egyptian college students, the level of traumatization in these Egyptian college students seems high in such a population that is experiencing political chaos in addition to other types of adversities. However, comparing their cumulative trauma level to its level in mental health clients in an Egyptian sample (Fawzi, Kira, Fawzi Jr, Mohamed, & Fawzi, 2013; Kira, Fawzi, & Fawzi, 2013), they have, as to be expected, less cumulative trauma load. This study may be the first to provide data on the epidemiology of trauma in Egyptian college students.

PTG scores ($M = 64.24$, $SD = 19.62$) indicated a moderate to fair level reflected in the five areas of growth, with the least in spiritual growth. Reported perfectionism scores indicate relatively moderate standards ($M = 38.78$, $SD = 6.85$) and order ($M = 23.03$, $SD = 4.58$) striving as well as relatively high self-discrepancy ($M = 57.06$, $SD = 12.84$).

Calculating the relationship between the age at experiencing each trauma and PTG, we found a significant positive association between the age of the experience and PTG ($r = .15$, $p < .001$). This means that the younger the age of experienced trauma, the less chance of the victims to experience PTG and vice versa. That was particularly present in the appreciation of life ($r = .18$, $p < .001$) and new possibilities ($r = .16$, $p < .001$) subscales. On the other hand, we found a negative association between trauma age and striving for order ($r = -.14$, $p < .001$), which means that the younger the age the trauma occurred, the less striving for order.

Path Analysis Results

We tested two similar path models: (a) the detailed model that included all six trauma types (attachment, personal identity, collective identity, role identity, survival, and secondary) as independent variables and (b) a more parsimonious model that included the general types of traumas (Type I, II, and III) as independent variables. Both models (the detailed and the parsimonious) reflected the study conceptual framework. In both models, we included striving (order and standards) and self-discrepancy (a personality dynamic) as mediating/moderating variables and post-stress, trauma spectrum disorders (PTSD and complex PTSD [CTD]), and PTG as outcome variables. The two models fit well: $\chi^2 = 11.817$, $df = 13$, $p = .543$, CFI = 1.000, RMSEA = .00 for the first model and $\chi^2 = 16.161$, $df = 18$, $p = .581$, CFI = 1.000, RMSEA = .00 for the second model. The results were consistent in the two models. We report in detail the second parsimonious model results. In the model, Type III traumas (intersected discriminations) had statistically significant direct negative effects on striving, indirect negative effects on PTG, and indirect positive effects on increased PTSD and complex PTSD. Type I traumas (e.g., secondary traumas and life-threatening single events) had direct positive effects on increased PTSD and indirect positive effects on complex PTSD. Type I traumas had direct and indirect effects on increased PTG. Type II traumas (e.g., abandonment by parent, sexual and physical abuse and neglect) had direct negative effects on striving, direct and indirect effects on increased PTSD, and indirect effects on complex PTSD. Their indirect negative effects on PTG were statistically nonsignificant. On the other hand, PTSD had direct effects on increased PTG, which did not exist in the case of the effects of the most distressful symptoms of complex PTSD. In the model, striving had direct negative effects on decreased PTSD and indirect effects on decreased complex PTSD. It had direct positive effects on increased PTG and small indirect negative effects on PTG. However, its total effects were positive and statistically significant. Self-discrepancy had direct positive effects on increased PTSD and direct and indirect stronger effects on increased complex PTSD. It had close to statistically significant direct negative effects on PTG and positive indirect statistically significant effects on PTG. However, self-discrepancy's total negative effects were not statistically significant. Figure 2 represents the direct effects and Table 1 presents the direct, indirect, and total effects and their 95% CIs as well as the statistical significance for each of the

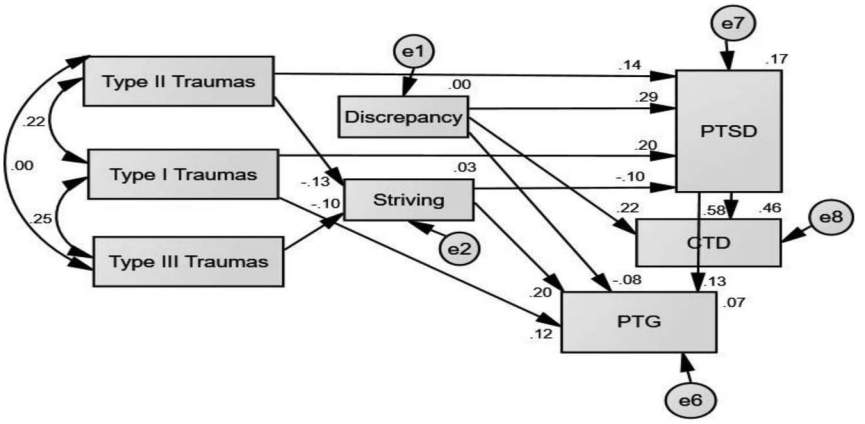

Figure 2. Path model for the direct, indirect, and total effects of different trauma types, strivings, discrepancy, and posttraumatic stress disorder (PTSD) on posttraumatic growth (PTG).

independent, mediating/moderating, and outcome variables.

Discussion

The results support the overarching hypotheses on the role of personality dynamics that trigger or mediate the differential effects of each trauma type on PTG. The results offer support for the proposed framework that multiple trauma and personality variables independently influence PTG. We should note that the correlation between discrepancy and different trauma types (the independent variables) was statistically insignificant, indicating, as predicted, that discrepancy and traumas are independent of each other as sources for mental health, meaning making, and PTG. However, the personality and trauma factors do interact. Types II and III traumas do negatively affect aspirations to standards and orders, reducing indirectly the capacity for PTG, which provides an explanation of their negative associations with it. The personality dynamics of self-discrepancy and traumatic events independently predicted poor mental health in the model.

The provided evidence that personality dynamics contributes to promoting or impeding PTG beyond the effects of traumatic events is one of the significant findings in the current study. Specifically, the dynamics of meaning making (e.g., aspiration to standards and order) appear to predict higher PTG whereas the dynamics of self-discrepancy (initial VPS disturbance) also seem to play a role in the prediction of lower PTG. Initial high aspirations for standards and order appear to facilitate PTG upon exposure to adversities whereas the opposite is true for self-discrepancy. Initial or ongoing self-discrepancies may limit the potential for PTG. Such personality dynamics contribute to disturbing or resetting the meaning-making preappraisal subsystems, ensuing dynamic changes in appraisal, reappraisal, and meta-appraisal processes.

Different trauma types showed different patterns of relationship with PTG according to severity and types of traumas. Types II and III traumas predicted a decrease in order and standards, indirectly reducing PTG. The results replicated and extended previous findings (Kılıç, Magruder, & Koryürek, 2016; Kira, Abou-Mediene, et al., 2013; Shakespeare-Finch & Armstrong, 2010). Type III chronic traumas (e.g., intersected discrimination) tend to prevent PTG whereas Type I (single and secondary traumas) traumas tends to stimulate PTG. Type II (early childhood traumas) traumas have mixed effects, with attachment trauma impeding PTG and sexual and physical abuse neither enhancing nor significantly hindering growth. Attachment and Type III traumas had inverse linear associations with PTG. One of the important replicated findings is that the younger the age of experienced trauma, the less chance of the victims to experience PTG, as well as striving, and vice versa (e.g., Schott, 2016). It is worth noting that a previous study found similar patterns of

Table 1
The Direct, Indirect, and Total Effects of Different Trauma Types, Discrepancy, and Striving for High Standards and Order on PTG and Mental Health Disorders (PTSD, Complex PTSD)

Causal variables	Endogenous variables			
	Striving	PTSD	Complex PTSD	PTG
Type III traumas				
Direct effects	−.10* (−.20/−.01)	—	—	—
Indirect effects	—	.01* (.01/.03)	.01* (.00/.02)	−.02* (−.04/−.00)
Total effects	−.10* (−.20/−.01)	.01* (.01/.03)	.01* (.00/.02)	−.02* (−.04/−.00)
Type I trauma				
Direct effects	—	.20*** (.13/.28)	—	.12*** (.05/.18)
Indirect effects	—	—	.12*** (.07/.16)	.03** (.01/.05)
Total effects	—	.20*** (.13/.28)	.12*** (.07/.16)	.15*** (.08/.21)
Type II traumas				
Direct effects	−.13* (−.27/−.00)	.14** (.04/.24)	—	—
Indirect effects	—	.02* (.00/.04)	.09** (.03/.15)	−.01 (−.04/.02)
Total effects	−.13* (−.27/−.00)	.16** (.05/.26)	.09** (.03/.15)	−.01 (−.04/.02)
Striving				
Direct effects	—	−.10** (−.17/−.02)	—	.20*** (.13/.28)
Indirect effects	—	—	−.06** (−.10/−.01)	−.01* (−.03/−.00)
Total effects	—	−.10** (−.17/−.02)	−.06** (−.10/−.01)	.19*** (.12/.26)
Self-discrepancy				
Direct effects	—	.29*** (.22/.37)	.22*** (.15/,29)	−.09+ (−.18/.01)
Indirect effects	—	—	.17*** (.13/.21)	.04** (.01/.07)
Total effects	—	.29*** (.22/.37)	.39*** (.31/.47)	−.05 (−.13/.04)
PTSD				
Direct effects	—	—	.58*** (.52/.63)	.13* (.03/.22)
Indirect effects	—	—	—	—
Total effects	—	—	.58*** (.52/.63)	.13* (.03/.22)
R^2	.026	.174	.461	.069

Note. PTG = posttraumatic growth; PTSD = posttraumatic stress disorder. Values in parentheses are 95% CIs.
* $p < .05$. ** $p < .01$. *** $p < .001$.

relationships between the same trauma types and enhancement or suppression of cognitive functioning and IQ (Kira, Lewandowski, sommer, et al., 2012).

These results are consistent with the findings of potential nonlinear relationships between trauma and PTG (Kira, Abou-Mediene, et al., 2013; Levine et al., 2008; Shakespeare-Finch & Lurie-Beck, 2014). PTG occurs more often in the experience of moderate stress (e.g., secondary and Type I traumas) and less often in extreme stress (e.g., Types II and III traumas) conditions. The same nonlinear relationship exists between PTSD and PTG. PTSD predicted PTG; however, complex PTSD that indicates more intense distress did not, which replicates previous findings (see Helgeson, Reynolds, & Tomich, 2006, for meta-analysis).

It is important to note that the results obtained from the sample used in this study may not apply to every individual within the group. Some persons may show positive growth in some traumas that associated with PTG inhibition at the group level. However, the findings do contribute to the potential of identifying and better understanding the dynamics of enhancing or suppressing PTG. In addition, the results offer potential insights into how to best work to enhance PTG in those who have experienced different types of trauma. Victims of Type III trauma (e.g., ethnic minorities) and attachment trauma (a Type II trauma; e.g., foster care children), as well as victims of sexual abuse (a Type II trauma), especially need more intensive and targeted interventions. Clinicians may target the discrepancy dynamics and the preappraisal (precognitive) motivational and meaning-making VPS system. They may use active processing, reprocessing, and metaprocessing (e.g., reappraisal and meta-appraisal that lead to increased self- awareness and control) of current, chronic, and past adversities. Such interventions

may help to reset levels of aspiration to order and standards (the VPS) and to enhance self-congruency and genuine PTG. Furthermore, the results suggest that it is important to analyze the trauma profiles of individuals and groups, as well as the internal valuation dynamics and self-discrepancies, to better understand and design targeted interventions to enhance their growth after traumas. New paradigms of intervention along this line are emerging (e.g., Kira, Ashby, Omidy, & Lewandowski, 2015; Kira, Lewandowski, Ashby & Omidy, 2015; Kira & Tummala-Narra, 2015; Kira & Wroble, 2016).

Limitations

The current study has several limitations. One of the limitations is that the study used a sample of college students; such samples may involve limited and biased representation. We recommend more studies using probability community samples. Another limitation of the study is that we used measures that use participants' self-reports, which could be subject to under- or overreporting of events because of current symptoms, embarrassment, shame, or social desirability. In addition, the study used a cross-sectional design; as a result. we can only draw probabilistic conclusions.

Despite these limitations, the results of this study provide evidence of associations that may help in the prediction and formulation of additional research hypotheses and in identifying some of the dynamics of the relationship between different trauma types, personality dynamics, and mental health and PTG outcomes in future studies. These results challenge the assumption that each trauma generates growth, which may be too general and inaccurate. They also contest the assumption that PTG is only trauma dependent. PTG is a result of interaction between personality dynamics and traumatic stress intensity.

The current study highlighted the utility of the new DBTF in identifying the trauma types that have the potential to enhance or impede PTG. However, a framework of personality dynamics (i.e., VPS) that interacts with traumatic stressors and guides PTG and personal development needs further development in future conceptual and empirical endeavors. The current study provided a prototype and some of the potential components of this precognitive system. Preappraisal value processing (VPS) may include "will to live, survive, and thrive" and an individual's developmental assets (such as secure attachment, developed personal and collective (social) and role identities, and interdependence). In addition, it may include self-beliefs, self-evaluation, personality factors, and underlying dispositions such as those included in the HEXACO model of personality factors (e.g., Ashton, & Lee, 2007) in addition to aspirations to standards and order and self-congruency. Such critical dynamical components may be parts of such a framework. Future studies can test their relationships with PTG.

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