



Posttraumatic growth in cancer: Reality or illusion? ☆

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ABSTRACT

Research in posttraumatic growth (PTG) among cancer patients has been triggered primarily by the inclusion of serious illnesses among the events that can lead to posttraumatic stress disorder (PTSD); increasing survival rates among cancer patients; and, attempts at encouraging a positive psychology that focuses on a patient's ability to fight adversity. The difficulties encountered in clearly defining the processes associated with this subjective feeling of growth following recovery raise doubts concerning the real or illusory nature of the phenomenon and its adaptative value. This paper explains why cancer may be different than other traumas and why PTG may interact with this ecology of circumstances in different ways. Difficulty in identifying a single stressor, the internal source of the event, cancer as a future, ongoing and chronic integration threat, and greater perceived control differences between cancer and others traumas. This review brings together the latest studies of PTG in cancer, and focuses in the debate of the real or illusory nature of the PTG and his adaptative value. The ongoing threat, uncertainty and vulnerability associated with cancer are the variables that have been related most consistently with PTG and tend to confuse the relationship between PTG and emotional well-being, too.

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1. Introduction

A number of studies reflect recent interest in the positive effects reported by those who have experienced events, such as cancer, that produce extreme stress. These events are typically defined as traumatic, though in an attempt at avoiding stigmatisation, other

terms have been adopted, including, adverse (Joseph & Linley, 2006), disruptive (Benyakar, 2003) and extreme. This change in denomination has occurred as the positive elements that form part of the experience of many of those affected start to be taken into consideration. The word 'trauma' refers primarily to the damage or injury that results from a violent attack and, thus, highlights the negative effects of such an event. Some of these negative effects have been identified and grouped in diagnosis manuals and are referred to as posttraumatic stress disorder (PTSD).

It was not until publication of the fourth edition of the DSM-IV (American Psychiatry Association [APA], 1994) that cancer was explicitly regarded as a stressor capable of resulting in PTSD. This has had positive effects in terms of the fostering of research, and in

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terms of providing social validation for those affected by this illness. In addition, the positive changes associated with traumatic experiences have been conceptualised as posttraumatic growth (PTG), albeit not exclusively so. Thus, Vázquez, Hervás and Ho (2007) have written that 'growth' is perhaps the most appropriate word to define the phenomenon, and they stress that an individual undergoes a stage in their personal development that extends beyond their previous functional level. At the same time, the use of the term 'posttraumatic' indicates that this growth occurs after an extreme event, and that it is not caused by other minor stressors, nor does it form part of a natural process of personal development (Zoellner & Maercker, 2006). Optimism, hardiness, resilience and the like aside, PTG refers to the positive changes resulting from the struggle with a traumatic event, and not to the changes caused by the event itself (Tedeschi & Calhoun, 1995). These positive changes do not only include those associated with the emotions or cognitions related to trauma, but also encapsulate everything that can be adaptively "fractured and reset" by the growth processes (Pérez-Sales, 2006); in other words, the subject's basic beliefs or main assumptions regarding the way they view the world, their relationship with others and their identity as individuals (Janoff-Bulman, 1992). PTG has been subdivided into three positive change categories or domains: 1) Perceived changes in self (e.g. feeling stronger, more self-assured, more experienced and more able to face future challenges); 2) Changes in interpersonal relationships (e.g. ties with other people are strengthened and the need to share and express one's feelings increase); 3) Changes in spirituality or the philosophy of life (e.g. a greater appreciation of what one has, it becoming easier for the individual to distinguish what is really important from what is of secondary importance, resulting in a change in their scale of values) (Tedeschi, Park, & Calhoun, 1998). This growing interest in the positive side of adverse situations is closely related to the positive psychology movement. Seligman, Steen, Park and Peterson (2005) claim that happiness depends, to some degree, on our ability to perceive unfortunate circumstances as fortunate. In health/illness processes, key factors include information regarding positive values that can serve as a health-buffering factor (Vázquez et al., 2007); personal strengths to prevent relapse in depression (Seligman, Rashid, & Parks, 2006); and, positive re-appraisal in adversity.

The suffering of chronic events such as acute myocardium heart attack, HIV/AIDS, stroke and, in particular, cancer, may be considered traumatic. Not only examinations of acute traumas such as sexual aggressions or natural disasters, but also studies of falling ill as a traumatic process are of great scientific interest (Smith, Redd, Peyser, & Vogl, 1999; Kangas, Henry, & Bryant, 2002; Tedstone & Tarrier, 2003). In the case of cancer, Kangas et al. (2002) report highly significant data concerning the appearance of PTSD in these patients. They show that 0–6% of subjects suffering from cancer met the criteria of PTSD when assessed using a diagnostic-structured interview, and 5–19% did so when assessed using self-administered questionnaires. Similar findings are to be found in more recent studies, including that conducted Mehnert and Koch (2007) in a sample of 127 breast cancer patients.

The identification of PTG in the accounts of those that have survived cancer is beyond question, but there are many aspects that await clarification. This review, therefore, rather than undertaking an exhaustive, systematic review of PTG in cancer, seeks to examine some of these controversial points. Specifically, here, we are interested in the adaptation of concepts associated with trauma and posttraumatic growth to cancer patients, in explanatory models and in the relationship between PTG and psychological well-being. The controversy associated with the nature of posttraumatic growth centres primarily on the following question: is the fact that some people seem to grow after suffering cancer real or illusory? Such growth could be considered real if apparent positive changes could be proved, such as changes in the way that some survivors perceive themselves, others and the world in general. By contrast, this growth would prove to be merely illusory if PTG was shown to be the use of defensive

mechanisms to reduce the emotional distress associated with the diagnosis of the illness and its treatment so as to keep the subjects' sense of identity intact.

2. Trauma and posttraumatic growth in cancer

Current discussions as to whether cancer should be considered a traumatic experience focus on the extent to which cancer corresponds to a psychosocial or biomedical model of trauma. A similar debate arises in relation to other extreme experiences that do not obviously fit a biomedical model of PTSD which, despite its obvious usefulness in acute traumatic events such as traffic accidents or violent assaults, presents a number of shortcomings when used with chronic and complex phenomena such as cancer.

Various authors (Mehnert & Koch, 2007; Kangas et al., 2002; Smith et al., 1999) have emphasised the differences between cancer diagnosis and treatment, on the one hand, and other acute adverse events, on the other (see Table 1):

- *Difficulty in identifying a single traumatic stressor.* Whereas some traumatic events can be characterized by their simple and discrete nature, during oncological illness, the stressors may be associated with the diagnosis of cancer, its severity and prognosis, the aggressiveness of treatments, alterations in body image, a decrease in the level of functional autonomy or role alterations. Thus, in cancer, it is usually very difficult to identify the exact stressor or group of stressors that precipitate posttraumatic growth.
- *Internal source of the stressor.* While the acute traumatic event is usually external to the subject, cancer has an internal nature and genesis. Hence, the symptoms of avoidance associated with traumatic reactions are changed, since it is often impossible to erase the signs from within the subject or those that form part of the therapeutic process (e.g. hospital visits, follow-up tests and illness control, among others). It is this internal nature that might also play a key role in changing assumptions about the subject's self.
- *Temporal dimensions.* Unlike acute traumas, in which the recurrence of symptoms is associated with a past traumatic event, in oncologic processes, most of the intrusive cognitions advance fears associated with future personal health and those of the subject's closest relatives. In cancer, and especially in processes of genetic counselling that assess the presence of hereditary

Table 1
Differences between acute trauma and cancer as a traumatic event

Topic	Acute trauma	Cancer
Stressor	Simple and discreet nature; the stressor is easily identifiable for the subject	Complex nature; the subject presents difficulties in identifying the stressor or set of stressors that produce the traumatic response
Source	Stressor generated in the external environment of the subject	Stressor with an internal nature and genesis
Temporal dimension	Backward looking nature of the traumatic experience	Forward looking nature of the traumatic experience
Temporal delimitation	Well established onset and termination of the traumatic event	Ongoing threat. Progressive presence of adverse events related to cancer. The subject has difficulties to delimit the onset and termination of the traumatic event.
Perceived control	Scanty perception of control concerning the nature and consequences of the traumatic experience	There exists a major perception of control linked to the treatments, to the clinical follow-up, and to the preventive actions

cancer, the threat to personal safety is not usually immediate and, so, the patient's fears are focused on the future. Thus, while in most acute traumas subjects constantly think about what happened in the past, cancer patients or those suffering genetic alterations think continuously about what might happen. The forward looking nature of the trauma rather than the backward looking nature of most other traumas is quite meaningful in light of PTG. It sets up PTG for a different task that is future and ongoing integration rather than putting together the shattering due to the past. In a recent study conducted by Bower et al. (2005) approximately 40% of the subjects reported a persistent worry about the possible reappearance of the illness five years after diagnosis. In this sense, the avoidance criterion C of the DSM-IV-R, which includes "sense of a foreshortened future", lacks specificity (e.g. losing all hope of finding a partner, having a family, finding a job or leading a 'normal' life). In cancer, the justification of a sense of a foreshortened future might lie in physical reasons related to the illness rather than in the psychological reasons to which the DSM refers. Authors such as Little, Paul, Jordens and Sayers (2002) emphasise the importance of the memory not only in an 'autobiographical' sense based on past events, but also in terms of what they call its 'future' form. This 'future memory' is not exactly what we would understand by our plans or expectations, but rather it comprises those attributes of personal identity that form an image of ourselves in an imaginary or advanced way. They are crucial in what we expect to be and ensure that our lives are coherently focused on the future. Cancer can cause fracturing in these 'future memories', curtailing any sense of continuity in the patient's existence which, for example, makes it impossible for him, in a real or imaginary way, to become a father or a grandfather or to enter a particular profession. Unlike typical traumas where the past can become the present in the shape of a recurrence of the traumatic experience, in a cancer-associated trauma what is present is an ill-fated future, resulting in the inability of the patients to picture themselves over time because of the distress this causes.

– *Temporal delimitation of the stressors.* In the case of cancer it is not easy to establish the onset and termination of the traumatic event. Based on the concept of accumulated adversity, Angelo (2000) has designed a model that links the experience of a chronic illness to posttraumatic stress disorder. In this model, the emotional response to falling ill is affected by the progressive presence of adverse events related to treatment and illness outcomes. In contrast to an acute trauma with a clearly defined onset and conclusion, cancer is more like a long obstacle race in which, according to Angelo (2000), the posttraumatic symptomatology is barely representative of the emotional response of most patients. PTG can also be distinguished in terms of whether the subject has to face a single traumatic event or several stressors over a period of time.

– *Perceived control.* In cases of cancer, those affected experience a certain level of control over their treatment and its outcomes. In contrast with the unexpected and uncontrollable nature of an acute trauma, our knowledge of the mechanisms involved in the natural history of cancer supplies the patient with the means of changing the way in which their illness develops (e.g. diet, exercise, toxic habits, etc.). For instance, Komura and Hegarty (2006) claim that many of the positive changes described by patients diagnosed with cancer can be directly associated with a greater sense of perceived control over their lives and selves. This

perception is a typical characteristic of traumas associated with illness and, logically, the phenomena of posttraumatic growth associated with falling ill can be affected by this distinguishing factor.

Having identified the characteristics that distinguish cancer from traumas of an acute nature, we now proceed to analyse their possible consequences in terms of posttraumatic growth processes. One of our primary focuses is to determine the extent to which these changes are related to the fact that a subject has experienced the illness. Here, posttraumatic growth studies conducted among cancer patients are relatively scarce and have provided contradictory results. Thus, while Cordova, Cunningham, Carlson and Andrykowski (2001) state that, in comparison with women who have not suffered from the illness, those suffering from breast cancer express a greater perceived PTG in areas such as appreciation of life and relating to others, Andrykowski, Brady and Hunt (1993) conclude that, on the contrary, subjects not affected by cancer, in comparison with a cancer patients, refer to a great presence of positive changes in thirteen out of twenty-four fields of growth. Tomich, Helgeson and Nowak Vache (2005) tackle this question by comparing 184 subjects diagnosed as having breast cancer with a control group of non-affected subjects over a period of five years. The authors asked them to identify the most stressful event they had undergone in this period of time and from the results they conclude that, although there are no significant differences between the perception of the magnitude of stress produced by the traumatic event in the oncologic group and the control group, cancer survivors show a greater perceived growth in a larger number of domains. Katz, Flasher, Cacciapaglia and Nelson (2001) conclude that patients suffering from cancer express greater benefits derived from the illness than those affected by lupus. Thus, because of the relatively few studies conducted with control groups, we are unable to state with any certainty that the diagnosis of cancer involves more positive changes in patients than it does in other subjects. Nevertheless, several studies suggest the possibility that positive changes take place in more PTG domains than they do in other illnesses and in a healthy population.

The concept of posttraumatic growth has been interpreted from many perspectives. According to Thornton (2002), in line with Tedeschi and Calhoun (2004), when we speak of posttraumatic growth, we refer to the benefits associated with a change in life perspective, an improvement in interpersonal relationships and in self perceptions. It is believed that in cancer in general, as well as in certain specific forms of cancer, these dimensions of growth can be modified in a way that differs from the changes associated with other adverse events. Drawing on information reported by Andrykowski et al. (1996), Thornton shows that in cancer populations the presence of changes in the *self* are less frequent than those associated with life perspective and relating to others. Moreover, when comparing breast cancer patients with a healthy control group, no significant differences were found in changes in the *self* and, therefore, according to the authors, changes in identity structure cannot be attributed to the experience of the illness, but rather to the process of maturing or simply to time. The few studies conducted to-date, therefore, point to the possible existence of distinctive growth patterns in the population affected by cancer.

All in all, cancer presents certain characteristics as a chronic stressor that differ from those present in the acute trauma model and on which current classifications are based. It is these characteristics that condition what we regard as the traumatic response of growth during illness.

3. Theories of posttraumatic growth: reality or illusion?

It was not until the mid-1980s that the first theoretical developments regarding posttraumatic growth appeared. Joseph and Linley

(2006) reviewed their implications in clinical practice and Zoellner and Maercker (2006) summarised the main models that describe positive personal changes following adverse situations. Zoellner and Maercker (2006) reviewed the various theoretical approaches to PTG, distinguishing those models that emphasise a rapid, unintentional change where growth is the unexpected *result* of the struggle against a traumatic event from those that regard change as a *coping strategy*, which is characterised as voluntary and long-term.

Although we would not deny the usefulness of distinguishing between growth as a result and growth as a coping strategy, we consider the key element in this debate as having more to do with the ontological status of posttraumatic growth as identity transformation. The models linking posttraumatic growth with identity change argue that this positive change occurs at the level of basic beliefs and nuclear assumptions which affect our vision of the world, of ourselves and of others (Janoff-Bulman, 1992; Pérez-Sales, 2006). Brewin (2000) claims that, in some instances, the traumatic event is not only integrated as a part of the subject's identity, but it becomes a central phenomenon of it. By contrast, those models that understand PTG as being an illusory phenomenon see posttraumatic growth as a means of reducing the distress produced by the extreme event. In this way, subjects are therefore able to maintain or defend aspects of their identity such as self-esteem, coherence and perceived control. In short, in these latter models, PTG is seen as a way of keeping the identity nucleus intact following the threat it has come under from the illness. These two ways to understand PTG, illusory and real, appear to be time related. The illusory side may be seen as a cognitive avoidance that can serve as a short-term palliative coping strategy facing the cancer threat. In successful coping with trauma, the constructive component of PTG is assumed to grow over time, and the illusory component to decrease over time (Zoellner & Maercker, 2006; Wagner, Forstmeier, & Maercker, 2007).

3.1. Posttraumatic growth as a reality: positive identity changes

The theoretical models that tend to confirm the 'real' nature of PTG can be linked to ideas which, from a socio-cognitive perspective, understand posttraumatic growth as the unexpected or unintentional result of the struggle against the adverse event and the consequent life changes (Schaefer and Moos, 1998; Tedeschi & Calhoun, 1995). Seen in this light, and in contrast with those models that present PTG as an illusory process or a coping strategy, it is the accommodation processes, rather than the assimilation processes, that stand out as being essential. Thus, in the latter processes the information regarding the trauma is assimilated within the pre-existing schemas built around the world/others/self, while in the former these schemas have to change, and in being transformed they accommodate the new information regarding the traumatic event.

It is these conflicting ideas regarding assimilation and accommodation processes that have given rise to the greatest controversy between those that defend a real positive identity change and those who regard growth as an adaptive illusion. However, that an extreme event can bring about changes in personal schemas in a negative or traumatic way, causing the subject a loss of coherence, perceived control and self-esteem in terms of their identity, seems to be unanimously accepted. Thus, the presence of processes of accommodation or personal change is recognised when the outcome of the traumatic experience is confirmed by damage to the *self*. By contrast, differences emerge in the two approaches when we consider the posttraumatic growth phenomenon. The models proposed by those that defend the real nature of PTG claim that the existence of accommodation processes brings about a positive identity change. However, the models forwarded by those that regard PTG as an illusion claim that a traumatic experience is assimilated by the subject in a positively biased way in order to defend their identity as its coherence, sense and self-esteem come under threat. In short, seen in

this perspective (PTG as an illusion), verbally-expressed positive changes merely acknowledge assimilation processes not those of accommodation and, hence, any identity transformation is called into question.

Similarly, the concept of meaning is key to our understanding of adaptation to threatening events in the case of those models that interpret growth as being a result of the struggle against the illness. Janoff-Bulman and Frantz (1997) distinguish between meaning as *comprehensibility* of the adverse event and the reasons why it has taken place, which is typical of the first stage of the experience, and meaning as the significance of the philosophical and spiritual implications as well as the existential consequences of the traumatic experience, typical of later stages. Although both kinds of meaning are involved in posttraumatic growth, the process specifically requires the second kind (Joseph & Linley, 2006). If the event is experienced by the subject as something important and central (Berntsen & Rubin, 2006), the facts become an essential part of the person's identity, whether resulting in negative psychopathologic or positive changes as growth after the trauma.

In the main, most theoretical approaches that regard PTG in terms of identity change base their proposals on the models developed by Janoff-Bulman (1992) and Tedeschi and Calhoun (1995). According to Janoff-Bulman (1992), a traumatic phenomenon can be defined in terms of the shattering of one's basic beliefs or *world assumptions*, and which would serve as the basis for the identity change. The author claims that these basic beliefs are formed throughout our experience cycle constituting schemas or stable internal representations which, at the pre-consciousness level, allow us to classify, negotiate and predict future events in order to satisfy our needs and aims. Janoff-Bulman (1992) states that, in general, our basic beliefs refer to the goodness of people and the world and to our self-worth as individuals. The presence of a traumatic event, the diagnosis of cancer, for instance, could lead to an alteration in or the destruction of the schemas built around our *self* as valuable or lucky; our certainty that the world is a safe, fair and controllable place depending on our behaviour and merits, causing us to wonder whether the people around us are good and understanding, and constitute a source of support.

With the disappearance of these beliefs in the aftermath of the traumatic event, Tedeschi, Park and Calhoun (1998) claim that the subject starts a ruminative activity of automatic characteristics generating the re-experimentative and intrusive symptomatology, typical of the posttraumatic stress disorder. This rumination informs about a cognitive process that seeks the reconstruction of the basic schemas altered by the trauma. At first, this rumination is unintentional, but over time it is willed and guided, becoming progressively based on the quest for meaning that can make sense of the adverse experience. In this way, if the subject manages to develop new structures of coherent beliefs between his *self* and the traumatic event, he can then perhaps advance through the next levels of adaptation and adopt a positive way of understanding himself, the world and the people around him. By contrast, if the subject fails in his attempts at adapting his life to the new situation following the traumatic experience, it is likely that an affective symptomatology will appear together with new basic beliefs that generate pessimism and despair.

The study of *world assumptions* in posttraumatic conditions, which include stress associated with the need to struggle (Dekel, Solomon, Elklit, & Ginzburg, 2004) and torture (Magwaza, 1999), has linked trauma with processes in which basic beliefs become negative. However, very few studies have examined changes in beliefs among subjects affected by serious illnesses. Ginzburg (2004), after analysing the set of beliefs in a sample of subjects affected by myocardium heart attack, claims that those individuals with a higher presence of posttraumatic symptomatology regarded themselves as less lucky and with a lower feeling of control than those equally affected subjects that did not develop PTSD. Assessing the basic beliefs in a sample of

patients suffering from haematological cancer during and on completion of treatment, Carboon, Anderson, Pollard, Szer and Seymour (2005) showed that, contrary to the theoretical assumptions made by Janoff-Bulman and Tedeschi, the positive shift in basic beliefs does not seem to be a necessary process for the verification of the presence of posttraumatic growth. It has been proposed, at least during the initial stages, that part of the adaptation to cancer involves assimilating the adverse experience within pre-existing schemas rather than changing or accommodating these cognitive schemas to the new situation. Although oncologic patients with significant PTSD symptomatology express basic beliefs that appear to be more negative than those with non-significant PTSD symptomatology, the main differences between both groups centre on highly negative beliefs that refer directly to the benevolence of the world and the perceived self (Ochoa, Sumalla, & Gil, 2006).

In contrast to the functional theories proposed by Tedeschi and the socio-cognitive models developed by Janoff-Bulman that consider posttraumatic growth as an identity change which has a positive effect in the adaptive processes of the subject, in the next section we describe theoretical models in which PTG is seen rather as a process or strategy that, in an illusory way, allows the subject to improve his functional status in relation to the illness, maintaining intact his sense of identity.

3.2. Posttraumatic growth as an illusion: strategies to maintain the identity intact

The models that emphasise the illusory nature of the processes of posttraumatic growth identify assimilation as the main mechanism in operation. They question the presence of positive identity changes, understanding PTG as a coping strategy. It is claimed that this strategy aims at counteracting or defending the subject from the distress caused by the calling into question of the coherence, sense and self-esteem of the subject's identity, as a result of the illness. In contrast with the models described in the section above, from this illusory perspective, authors emphasise an identity that resists change as it experiences such changes as a threat.

Albert's Temporal Comparison Theory and Taylor's Cognitive Adaptation Theory are the main theories supporting the illusory nature of posttraumatic growth.

Albert developed his Temporal Comparison Theory in an attempt at explaining how subjects face periods of crisis or sudden, intense life-changing experiences (Klauer, Ferring, & Filipp, 1998). It is believed that people need to maintain a certain continuity and internal consistency in their feelings despite the presence of intense transformations, primarily as regards those attributes or constructs that are most important for the identity or *self*. In life situations when our *self* is questioned, we initiate processes in order to verify any possible discrepancies between our current identity and our identity prior to the crisis. The recurrent and uncontrollable presence of these discrepancies results in the subject distorting his perception of the past. This past is perceived as being more negative than it actually was in an effort at reducing these discrepancies and producing a more valuable current identity. Hence, the subject seeks to see himself as someone who has improved over time. Various studies have sought to provide these temporal comparison processes with an empirical basis. McFarland and Alvaro (2000) demonstrated that, compared to subjects affected by minor stress events, individuals that had undergone traumatic events claimed to have experienced an improvement in their personal attributes, which they reported as having been previously more negative. In a study with patients that had undergone bone marrow transplants, Widows, Jacobsen, Booth-Jones and Fields (2005) assessed emotional states pre- and post-transplantation. The subjects who showed posttraumatic growth were those who had negatively distorted the memory of their emotional distress before the operation and who, on comparing themselves with their current state,

logically showed a greater sensation of change and improvement. However, as Widows et al. point out, in their sample, they encountered major problems in determining whether this posttraumatic growth showed a positive change as a result of an adverse event or, on the contrary, it was an illusory effect linked to the need to co-exist with the negative emotions aroused by the threat of the illness.

Taylor (1983) argues, in her Cognitive Adaptation Theory, that when a subject experiences a traumatic event which appears to threaten his integrity, the next step in the process of psychological readjustment focuses on three main issues: a quest for meaning in the adverse event, an attempt to keep a minimum perceived control over one's own life and, finally, an effort to increase the sense of value and self-esteem. According to Taylor and Armor (1996), most of the subjects they assessed protected themselves against the psychologically perturbing effects of cancer by comparing the methods they adopted in facing and experiencing their illness with those adopted by less fortunate women who were suffering more negative consequences of cancer. On the basis of the frequent presence of these processes of social comparison, and due to our incomplete knowledge of the mechanisms that enable patients to control the course of their illness, Taylor identifies the illusory nature of these cognitive strategies. Thus, the individual threatened by cancer adopts as a defence distorting processes which, although they have no foundation in an objective understanding of the facts, will have a positive effect provided sense, control and self-esteem are good for the psychological adaptation to the illness. Despite the methodological limitations that typify studies of this nature, there is sufficient empirical evidence to argue that self-esteem, optimism and control are associated with the psychological well-being of individuals suffering from a chronic illness (Tomich & Helgeson, 2006), variables that, according to Taylor, could be regarded as part of a group of illusions which are useful in order to maintain a psychic balance.

In general, both of these theories highlight the illusory nature of growth, as opposed to a personal self-enhancing appraisal, either by temporal comparison with oneself or by social comparison with others, which have as their aim the maintaining of a coherent and consistent sense of internal identity or the consolidation of self-esteem, meaning and self-control.

This debate regarding the ontological nature of posttraumatic growth, whether it be a reality or an illusion, also has implications as far as the functional or dysfunctional nature of the phenomenon is concerned. For instance, as Zoellner and Maercker (2006) claim in those models that understand PTG as being an unintentional outcome resulting in a positive identity change (Tedeschi & Calhoun, 2004; Schaefer & Moos, 1998), it is implicitly assumed that posttraumatic growth is a positive and adaptive phenomenon for the subject who generates it. By contrast, the models that see PTG in terms of its illusory components emphasise the functional nature of the growth. A number of authors, including Zoellner and Maercker, talk extensively about the possible dysfunctional effects of this distorting activity in their 'Janus-Face Model'.

In brief, models that regard PTG as real describe the growth as the unintentional result of the accommodation of previous basic beliefs called into question by the traumatic event, a process that brings about a positive change in the subject's identity, experienced in terms of growth. By contrast, models that regard PTG as illusory describe the growth in terms of the assimilation of the traumatic experience, which does not bring about changes in personal identity, but rather involves a distortion of the self-enhancing appraisal, which serves to compensate or defend the subject from the distress produced by the questioning to which they subject their identity during diagnosis and treatment of the illness (see Table 2).

4. Conceptualisation of posttraumatic growth

In a recent study assessing the presence of posttraumatic growth processes in 150 teenagers that had survived cancer, Barakat, Alderfer,

Table 2
Clinical and theoretical issues in cancer

PTG as illusion		PTG as a reality		Comments in cancer PTG
Arguments	Theoretical perspectives and evidences	Arguments	Theoretical perspectives and evidences	
1. Co-existence of distress and PTG question its adaptive value	Janus-Face Model (Zoellner & Maercker, 2006)	1. Co-existence of distress and PTG is a sign of real growth	Tedeschi and Calhoun (2007)	Different studies in cancer patients have shown conflicting results in the association of PTG and distress/psychological well-being
2. Signs of self-enhancing appraisal by		2. PTG is more than a self-enhancing appraisal		
2.1. Temporal comparison with oneself	Albert's Temporal comparison theory (Klauer et al., 1998) Widows, Jacobsen, Booth-Jones and Fields (2005)	2.1. Greater perceived PTG relationship with others	Bellizzi and Blank (2006) Thornton (2002)	Difficult to define the adaptive role of self-enhancement mechanisms (Tomich & Helgenson, 2006)
2.2. Social comparison with others	Cognitive adaptation theory (Taylor, 1983)	2.2. PTG is transmitted to others	Weiss (2004b)	
3. Time related PTG Short-term palliative coping strategy facing the cancer threat	Janus-Face Model (Zoellner & Maercker, 2006)	3. Time related PTG The constructive component of PTG is assumed to grow over time, and the illusory component to decrease over time	Janus-Face Model (Zoellner & Maercker, 2006)	The ongoing threat in cancer makes difficult to adjust PTG to a time related growth as it has been proposed by the Janus-Face Model (Zoellner & Maercker, 2006)
4. Cognitive PTG without materialized actions remains as an illusory growth	Action-Based Growth (Hobfoll et al., 2007).	4. Health behaviours changes after cancer are an important clue of real PTG	Action-Based Growth (Hobfoll et al., 2007).	These healthy behavioural in cancer changes, are not included among the main measures of PTG, including PTGI (Harper et al., 2007)
5. PTG as strategies to maintain identity intact, mainly:	Klauer, Ferring and Filipp (1998) Taylor (1983)	5. PTG as positive identity changes, mainly:	Tedeschi and Calhoun (1995) Janoff-Bulman (1992) Schaefer and Moos (1998)	So far, it has not been possible to link PTG and positive changes in world assumptions in cancer (Carboon et al., 2005)
5.1. Copying strategies	Zoellner and Maercker (2006)	5.1. Result of the struggle against the traumatic event		
5.2. Assimilation process	Tomich and Helgenson (2006)	5.2. Accommodation process	Zoellner and Maercker (2006)	
5.3. Defensive mechanism	Widows, Jacobsen, Booth-Jones and Fields (2005)	5.3. Transformational mechanisms		

and Kazak (2005) report a positive change in the lives of 85% of the subjects associated with their having overcoming cancer, while 33% were able to identify four or more transformations in terms of benefit. Parallel to this, 90% of their mothers and 80% of their fathers also reported this subjective perception of growth, identifying at least one positive result from their child's experience during the illness. Thus, since initial studies written by Taylor (1983), an increasing body of evidence has been put together suggesting that a high percentage of cancer survivors – in most cases 80% or more – frequently regard themselves as having benefited in some way from the experience. Indeed, and based on the data supplied by the literature, posttraumatic growth processes would appear to constitute the rule among cancer survivors and not the exception.

In recent years, posttraumatic growth has received a variety of names: “stress-related growth”, “thriving” and “transformational coping” are frequent concepts in studies that assess responses to adverse events (Siegel & Schrimshaw, 2000). The use of these different terms highlights the difficulties in defining the processes and in making the responses to these events operative. According to Thornton (2002), two basic concepts need to be distinguished:

Sense making is a process initiated by a traumatic event, such as the diagnosis of cancer, that is incoherent with our beliefs concerning why and when things happen. By reviewing these beliefs or *world assumptions*, we might derive positive explanations for what hap-

pened, which would allow us to make sense of the phenomena of loss and threat associated with the illness and, in this way, contribute to a change in our basic beliefs, which is considered as constituting personal growth. The presence of these new meanings that, in turn, generate a new vision of the self, others and the world, provides the basis for positive changes, which are essential in affirming the ‘reality’ of posttraumatic growth phenomena. The key to these processes of identity reconstruction lies in the traumatic characteristics of the event, since these cause our basic beliefs to collapse.

Benefit-finding is a process in which the subject re-assigns a positive value to the event based on the benefits he identifies. This process helps restore the individual's self-concept, which has come under threat from the traumatic event. This event can now be regarded as an opportunity for self-improvement and personal growth that will uphold our damaged self-esteem. In contrast with sense making, here the main element in the concept is not so much the event and its ability to make the subject question his beliefs, but rather the focus lies in the personal characteristics of the subject who has to confront the illness and it includes aspects such as dispositional optimism.

As Thornton (2002) points out, the two concepts, benefit-finding and sense making, are used almost synonymously to describe the processes in which survivors find positive elements in order to face up to the adverse event, and they do not differentiate between the meaning attributed by the subject to the illness and the benefits that

the individual might associate with cancer. Thus, posttraumatic growth processes are frequently assessed by asking patients to identify and enumerate the benefits associated with their illness, and the studies fail to take into account the fact that benefit-finding and PTG should be considered as different constructs. Two studies have highlighted this distinction. [Davis, Nolen-Hoeksema and Larson \(1998\)](#) assessed the close relatives of patients before death (72% victims of cancer), six months after and one year after, and found sense making and benefit-finding to be different concepts in relation to the focus, antecedents and relationship to adaptation and psychological well-being. Finding some benefit (73% of the sample) correlated six months later with dispositional optimism as a feature of the subject's personality and was associated with the long-term positive effects. By contrast, making sense of the loss (68% of the sample) correlated with the age of the deceased family member, and was associated with minor levels of distress only during the first year after death. The authors found no relationship between making sense and finding benefit in the adjustment process following the loss, demonstrating the independence of the two. [Sears, Stanton and Danoff-Burg \(2003\)](#), in a study carried out with sixty women suffering from breast cancer during a period of one-year post-treatment, assessed benefit-finding, positive re-appraisal coping and posttraumatic growth as differentiated constructs. 83% of the patients reported finding some benefits from falling ill, but the identification of isolated benefits did not correlate with positive re-appraisal, growth or long-term psychological adaptation. The authors suggest that benefit-finding, in a passive or unintentional way associated with optimism, does not provide the subjects with many advantages. By contrast, the positive re-appraisal processes, which require more effort and willingness on the part of the subjects, were found to be linked to hope, posttraumatic growth and a better psychological condition at twelve months. Overall, they concluded that benefit-finding, positive re-appraisal and posttraumatic growth should be understood as three constructs of different origins and consequences.

[Siegel and Schrimshaw \(2000\)](#), in their examination of the presence of growth in association with stress among a population of HIV-infected men, introduced new ideas regarding the conceptualisation of growth that are applicable to all those who suffer a serious illness. The authors reported that a large proportion of the subjects questioned about the transformations originated by infection described changes in health habits (e.g. decrease in toxic consumption, safe sex, better eating-habits, etc.) and valued those changes as the most important and significant. As [Harper et al. \(2007\)](#) indicate, positive behavioural changes, such as eating a healthier diet, tend to be rigidly maintained, becoming the rule following the diagnosis of cancer. These healthy behavioural changes, however, are not included among the main measures of posttraumatic growth, including for example the 'Post-traumatic Growth Inventory' (PTGI), [Tedeschi and Calhoun \(1996\)](#). As a result, many of the changes that the oncologic population associates with the illness remain outside the field of posttraumatic growth. Health behaviours changes after cancer would be an important clue of real PTG. [Hobfoll, Canetti-Nisim, Galea, Johnson, & Palmieri \(2007\)](#) conceptualise true posttraumatic growth not simply as cognitive process, or intellectual exercise in reframing, but salutogenesis through *action growth* whereby an individual materializes their illusions through action. Research conducted in posttraumatic growth is hampered by the lack of consensus in defining the components of the phenomenon of growth in adversity, as well as the confusion derived from the non-differentiated use of concepts such as benefit-finding, sense making and positive re-appraisal.

5. Posttraumatic growth, distress and psychological well-being

In general, posttraumatic growth is accepted as being positive as long as it is related to the functional process of adaptation to adverse events ([Klauer et al., 1998](#)). If the subjects that report having

experienced benefits while ill with cancer also report a better psychosocial functioning some years after treatment has stopped, or claim to have optimized their relationships with their close relatives/friends, and increased their internal resources for facing difficulties, then it would seem logical to conclude that these are all signs of good psychosocial adaptation following an illness. However, we do not as yet have sufficient empirical evidence to confirm the association between posttraumatic growth and the lack of distress and/or psychological well-being. Three recent studies draw conflicting conclusions, indicating the uncertain state of the field:

[Tomich and Helgenson \(2004\)](#) assessed a sample of 364 patients suffering from stage-II breast cancer after one year. They claim that the women who reported finding the greatest benefits in their illness were precisely the ones with most negative affect, the worst level of mental functioning and the most severe pathology. Thus, the perception of benefits seemed to correlate with deterioration in the life quality levels of those patients most intensely affected by cancer and those who had the greatest need to reduce the emotional impact of the illness.

[Carver and Antoni \(2004\)](#), studying a sample of 96 subjects, claim that initial benefit-finding processes predict better life conditions, greater presence of positive emotions and a decrease in depressive symptomatology in patients seven years after diagnosis.

[Helgenson, Snyder and Seltman \(2004\)](#), assessing the physical and mental functioning of a sample of 287 patients with breast cancer over four years of follow-up, identified distinct trajectories in adjusting to the illness. The variable of seeking benefits did not help to differentiate between trajectories, i.e., they did not play an important role in the processes of adaptation to cancer among the survivors.

Among the factors associated with the study of the relationship between posttraumatic growth and psychological well-being in oncology, we would wish to highlight the following:

Socio-demographic variables and subjective experience

Many studies seek to determine which socio-demographic variables play a role in the growth processes derived from adversity in cancer. While there seems to be some consensus regarding the fact that being married, belonging to an ethnic minority group, having a low educational level and being young correlate positively to posttraumatic growth, the results show that these socio-demographic variables account for little variety in the samples studied ([Bellizzi & Blank, 2006](#)). In other words, the response to cancer is determined not so much by the objective characteristics of the situation and the individual as by the subjective responses to the experience (e.g. helplessness, controllability, threat to life, etc.) and the interpersonal context in which the subject confronts his illness ([Harper et al., 2007](#); [Brieve & Elliot, 2000](#)).

Perception of threat, ambiguity and uncertainty

Although objective rates of the severity of the illness do not show a clear correlation with posttraumatic growth, the high subjective perception of threat, together with an intense emotional response to the seriousness of the event, are closely associated with personal growth in cancer patients ([Cordova et al., 2001](#)). [Lechner et al. \(2003\)](#) reported that, from a sample of 83 cancer patients in different stages of the illness, those in intermediary stages (E2 and E3) showed clearer growth patterns than those who were in the first or later stages (E1 or E4). According to the authors, the ambiguity of the situation and the subjects' uncertainty about the future, which typify the central stages of the illness, endowed the subjects with greater drive to produce sense making and benefit-finding processes. By contrast, the impossibility of denying the negative consequences of the illness during later stages and the reduced sensation of threat in the initial stages acted as brakes on personal growth. [Lechner, Carver, Antoni, Weaver and Phillips \(2006\)](#) found that a group of cancer patients did not experience their illness in terms of a serious threat, that they showed few relevant signs of distress signs and they did not show any benefit-finding processes.

Heterogeneity of the samples

A further element that hinders our determination of the association between benefit and meaning with the decrease in psychological

distress is the heterogeneous nature of the samples. Schwarzer, Luszczynska, Boehmer, Tauber and Knoll (2006) did not find any relationship between initial benefit-finding and subsequent emotional well-being in a sample of 117 cancer patients assessed before surgery and twelve months later. However, changes in benefit-finding over time appeared to be associated with the decrease in distress. Therefore, the subjects who found few benefits associated with their illness initially, but who over time recorded a significant increase in these benefits, presented a parallel improvement in their psychological comfort. In the study carried out by Davis et al. (1998), the patients who reported a significant increase in benefits after a relative's death also recorded an improvement in their well-being rates in the assessment at six to twelve months. In most of the samples studied, however, what is not taken into account is the fact that it might be the increase or the decrease in the ability to perceive benefit-meaning over time that is actually relevant in the relationship between growth and well-being.

Dimensions of growth and well-being

As Thornton points out (2002), few studies have examined whether changes in different fields of growth might have different effects in terms of emotional well-being after the adverse event. In terms of psychological well-being, would an improvement in relations with one's closest relatives have similar or different consequences to feeling greater personal strength to face future difficulties? Bellizzi and Blank (2006) report that patients suffering invasive breast cancer expressed a greater perceived posttraumatic growth relationship with others and a stronger purpose in life than those suffering local and regional breast cancers, but that these differences disappeared when assessing life appreciation. This suggests that a certain level of severity is needed to make the growth easier as regards relationships and purpose in life, but the mere fact of receiving a cancer diagnosis, whatever the characteristics of the illness, makes it easier for patients to appreciate the small things that every day life can offer. It is still to be determined whether a subject can obtain emotional well-being from valuing his life more, which is quantitatively and qualitatively different from improving his relationships with significant people or changing his life priorities. According to some studies, if the deep desire for interpersonal relationships shown by human beings is one of the foundations of our psychological life, then we should regard personal growth as being necessarily linked to the optimisation of our interpersonal relationships (Fernández-Liria & Rodríguez Vega, 2006). The authors who defend that PTG is not just an illusion (Tedeschi & Calhoun, 2007) use the argument that self-reported growth tends to be corroborated by others (Park, Cohen, & Murch, 1996), and moreover PTG in breast cancer patients predicts PTG in her husbands (Weiss, 2004b). In another study carried out by Weiss (2004a) in the environment of couples affected by breast cancer indicate that the support received from the husband, the positive qualities in the couple's relationship, the presence of a positive cancer survival model and social support in general – all of which are relational variables – are associated with high posttraumatic growth. Despite these findings, the different impact in terms of emotional well-being that growth can produce in each of these domains requires more research.

Research design and measuring PTG

In the assessment of posttraumatic growth, quantitative and qualitative approaches co-exist. The 'Posttraumatic Growth Inventory' (PTGI) designed by Tedeschi and Calhoun (1996) and the 'Stress-Related Growth Scale' (SRGS) proposed by Park et al. (1996) are both standard, validated questionnaires that are widely used in the field of growth in adversity. The 'Changes in Outlook Questionnaire' (CiOQ) devised by Joseph et al. (2005) and the 'Perceived Benefit Scales' (PBS) developed by McMillen and Fisher (1998) are also suitable instruments for measuring the changes associated with the diagnosis of an illness such as cancer. Interviews using 'open-ended' questions such as: 'Have there been any benefits associated with...?' 'Please, describe your experience', and the subsequent categorization of the answers within the different fields of growth is a highly frequent assessment strategy in this field of

study. The instrument adopted is clearly crucial, as a review of those studies that seek to establish a relationship between posttraumatic growth and PTSD symptomatology (Zoellner & Maercker, 2006) shows that standardized quantitative measures point to a lack of a relationship or positive relationship between these variables, while a negative relationship is principally confirmed by the qualitative studies undertaken in interviews. If we focus on research design, longitudinal studies appear to inform us that high PTG in the first measurement is a forecast of lower PTSD symptomatology in the second measurement; in cross-sectional studies, the association between PTG and PTSD disappears. Thus, to-date we are unable to determine the extent to which possible relationships between posttraumatic growth and psychological well-being are influenced by the devices produced in the measurement and design of the research.

Co-existence of emotional well-being/distress and PTG

Bower et al. (2005) reported that 40% of their sample of patients suffering from breast cancer showed persistent worry about recurrence, and that this was associated with poor psychosocial adjustment and the presence of negative feelings. 75% of their subjects also reported the presence of benefits derived from the illness, with a sensation of emotional well-being. As the authors conclude, the relationship between benefit-finding and negative emotionality is perhaps best measured by the sensation of vulnerability to recurrence. Antoni et al. (2001), in a group of breast cancer patients who had been treated with cognitive-behavioural therapy for the management of stress in group format, showed an increase in the benefits associated with the illness without these benefits actually correlating to the distress levels of the subjects, and thus personal growth was found to co-exist with negative feelings. Thornton (2002) claims that the nature of some of the benefits reported by cancer survivors does not perhaps correlate to emotional adjustment levels, because the benefits have been obtained at the expense of having to face very stressful events. In patients who have survived cancer, as in any other subject, positive feelings co-exist with negative ones in complex ways; psychological well-being does not imply the absence of distress and, therefore, the excessively simple approaches that link growth in adversity to low scores in rates of anxiety-depression or high scores in life quality cannot be easily validated in an empirical studies. In summary, reporting positive changes in the context of a minimisation or denial of negative impacts may be a defensive manoeuvre, and the schematic complexity implied by holding negative and positive experiences together in consciousness may represent evidence of true growth (Butler, 2007).

In this section, we have analysed the relationship between posttraumatic growth and psychological discomfort/well-being. In general, the data show that the anxiety associated with the uncertainty of outcomes in intermediate stages of the illness, the perception of a sizeable subjective threat and feeling vulnerable to the recurrence of the illness are variables that foster growth. However, reported findings remain largely inconclusive if we attempt to associate posttraumatic growth with a decrease in distress generated by the illness. This counter-intuitive proposition is one of the arguments of those that defend the illusory nature of the verbal expressions of positive changes shown by some patients who survive cancer. Further, the impact on reported results of research design and their associated measurement instruments suggest that part of the problem lies in the presence of distorting devices generated in the research process itself. To conclude, our review indicates that in the case of cancer and, in all probability, in that of other extreme adverse situations, an essential element associated with posttraumatic growth is provided by the positive change in the patterns of the patient's interpersonal relationships.

6. Conclusions

Having reviewed the most controversial points regarding posttraumatic growth in cancer – best summed up in the question as to whether the phenomenon itself is real or illusory, we now highlight

some of the most significant arguments in the discussion. First of all, the very nature of cancer places it as a chronic extreme event in clinical and conceptual terms. It should not be regarded as acute trauma, but rather it is more typical of the disorder caused by a posttraumatic stress classified as DSM-IV-R. The characteristics of cancer, such as the difficulty in identifying a sole stressor, the internal nature of the illness, the temporal orientation with the subject's fears focused on the future as well as obvious traumatic memories, the practical impossibility of establishing the onset and termination of the traumatic event, together with differences in perceived control, all justify the differential clinical setting of cancer as a chronic extreme stressor.

In our discussion of the theoretical models of growth in cancer patients, we refer to the controversy regarding the real or illusory nature of growth as a positive identity change. The approach adopted to this issue of the reality or illusion of identity change, understood in terms of transformations in the vision of the self, others and the world, could have significant clinical and psychotherapeutic implications. Despite the relative paucity of data, in those models that understand PTG to be illusory, the signs of personal self-enhancing appraisal prevail, whether by perceiving improvement over time, by making past memories negative or negative by comparison with others. And all of these processes can have a defensive or compensatory basis, where the aim is to keep your own identity intact and free from any significant changes. By contrast, real growth, it is argued, takes place through suffering. This implies a life learning process in which relational aspects play a key role. Thus, growing involves seeing yourself in a different way, because you also see others and the world in a different way too. All of the following can lead to important identity changes: signs of closeness to significant people, improvement in communication and empathy, commitment to activities of solidarity and support for others that suffer.

In the growth literature, various terms have been used to indicate different aspects of positive change. Growth as a positive identity change has been essentially linked to the processes of making sense and the accommodation of previous beliefs to a new way of understanding reality following illness. This has occurred, however, despite the very small number of studies that have been able to demonstrate a clear relationship between growth and change in key beliefs. The concept of growth has also been associated with positive re-appraisal as a coping strategy, and both have been differentiated from the search for benefits and dispositional optimism, not only conceptually but also in terms of the consequences they have on emotional well-being. In conceptual and clinical terms, PTG and positive re-appraisal require the making of an active effort to find the positive in the negative, which suggests they are intentional and continuous over time. By contrast, benefit-finding and dispositional optimism are devoid of any proactive connotation oriented towards improvement.

In the final section, we assessed the extent to which PTG is associated with psychological well-being or reduction of distress in cancer. The perception of threat, ambiguity and the uncertainty associated with the diagnosis, treatment and forecast of cancer are the variables that have been related most consistently with PTG. The models that regard PTG as illusory and those that understand it as real defend the presence of a subjective perception of intense threat, and see it as a necessary condition prior to PTG. These variables, associated with sensations of vulnerability and distress, are the ones that tend to confuse the relationship between PTG and emotional well-being. In order to grow, if the individual must first feel threatened and vulnerable, it is quite improbable that there is a linear correlation between PTG and well-being. Thus, it is hardly surprising that longitudinal and qualitative studies, in order to give these variables a more diachronic and ideographic perspective, find an association between PTG and well-being, while cross-sectional and quantitative studies appear to be more strongly influenced by these confusing variables.

In clinical practice, we find patients that have survived cancer and who claim to have improved their personal relationships, to value

much more highly the small things in life, to have a greater capacity and strength to face new difficulties, to have optimised their system of values and to feel more spiritually mature. As Thornton (2002) claims, finding benefits in adversity is perhaps further proof of the 'positive illusions' that seem to characterise human behaviour. In a worst case scenario, posttraumatic growth in cancer patients could interfere doing something about problem, falsely raise expectations, encourage dissociation as people are feeling negative emotions in your cancer process and, finally, pressure people to expect that they not only need survive, the need to grow and change your identity. Cancer may be different than other traumas.

Nevertheless, in the current moments, we do not know still great part of the effects that these differences could have in the processes of posttraumatic growth demonstrated by some patients after overcoming the disease. But given the impossibility of examining positive identity changes and assumed adaptive functions in those that have survived cancer objectively, we need to ask ourselves whether our psychotherapeutic task should involve destroying illusions or whether it should be concerned with making it easier for the patient to generate alternative meanings for the experience of his illness so that emotional discomfort can be reduced.

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