
REVIEW

ADJUSTMENT TO CANCER—COPING OR PERSONAL TRANSITION?

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SUMMARY

The term 'adjustment' is widely used within the psycho-oncology literature and, although it is a topic of central importance to the lived experience of people with cancer, the psychological mechanisms of adjustment have rarely been described. Rather than regarding it as the absence of psychopathology or the end-point of coping with the global threat of cancer, adjustment refers to the psychological processes that occur over time as the individual, and those in their social world, manage, learn from and adapt to the multitude of changes which have been precipitated by the illness and its treatment. However, these changes are not always for the worse: sometimes they precipitate 'healthy personal growth' in a number of areas. It is only from explicit theories of adjustment that progress can be made in understanding how and why psychological disorders so frequently develop in cancer and what steps may be taken to prevent them. This paper combines the complementary assets of coping theory and social-cognitive theory and proposes the Social-Cognitive Transition (SCT) model of adjustment, a clinical model which also accounts for the frequent reports of healthy personal growth associated with cancer. Copyright © 2001 John Wiley & Sons, Ltd.

INTRODUCTION

The term 'adjustment' is often used in the cancer and general health psychology literatures to denote the absence of psychological morbidity, and a return to premorbid functioning. In view of the high incidence of psychological distress among people with cancer, it is not surprising that psychosocial adjustment is an important concept in clinical research within psychosocial oncology, as it is in the study of chronic illness more generally (Hatchett *et al.*, 1997). Understanding adjustment is also a central concern of clinicians working with people with cancer.

As a result of an appropriate concern with psychological morbidity, there has been a preoccupation within psycho-oncology with the prediction and early detection of affective disorders (through screening measures and improved com-

munication skills of health professionals), as well as with the efficacy of therapeutic interventions (Maguire, 1995). However, this is only one approach to prevention. Another is to develop an understanding of the psychological and social processes involved in adjusting to the many implications of cancer (Kornblith, 1998), and then to test ways of mitigating their impact so as to prevent the psychological disorders with which cancer is so commonly associated (Derogatis *et al.*, 1983). Yet clinically useful theoretical models of adjustment to cancer have rarely been articulated.

Moreover, without adequate definition and theoretical underpinning, use of the term adjustment can be vague and misleading. The term 'adjustment' suggests the completion of change from one state to another, yet research has often focused on adjustment as if it were merely the end-point of coping with the global threat of cancer, rather than the processes of change occurring within the individual. 'Poor adjustment' is sometimes used to denote psychological morbidity, but without reference to its cause. The patient's medical

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condition, especially the presence or absence of unpleasant symptoms like pain and the side-effects of treatment, such as fatigue, nausea and vomiting (Rodrigue *et al.*, 1994), as well as more advanced illness (Bukberg *et al.*, 1984), are highly associated with poor psychological functioning but it is questionable whether morbidity caused in this way should be equated with 'poor adjustment'. Confusion is further compounded by use of the psychiatric diagnosis 'Adjustment Disorder' which is described as 'significant emotional or behavioral symptoms in response to an identifiable psychosocial stressor or stressors' (the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV); American Psychiatric Association, 1994). It seems highly arguable whether psychological turmoil provoked by a severe life event should be regarded as morbid or part of an adaptive process. Perhaps understanding how a normal adaptive process can go wrong is the more important question.

Rather than viewing adjustment as an end-state, it may be more fruitful to ask: what are the components of a normal 'adjustment' to cancer, what is it that is being 'adjusted' and what processes are involved? It is the purpose of this paper, therefore, to review the concept of adjustment as a psychosocial/developmental process, and to propose an integration and expansion of existing models. The new model is intended to further our understanding of the key clinical issues within adjustment, and to offer hypotheses for how psychological disorders in cancer develop and may be prevented. The paper is structured according to Table 1.

Table 1

<i>Problems in defining adjustment</i>
<i>Existing models of adjustment</i>
Coping theory
Social-cognitive theories
Mourning
Posttraumatic stress
Physical illness
<i>The Social-Cognitive Transition model of adjustment</i>
Assumptions
Stress and arousal
Denial-avoidance
Worry and cognitive adaptation
Some core assumptions and their clinical manifestations
<i>Conclusions</i>

PROBLEMS IN DEFINING ADJUSTMENT

The concept of adjustment originates from the Darwinian notion of 'adaptation' which posits that those species most fitted to adapt to the dangers of the physical world are most likely to survive (Moos, 1986). Watson and colleagues (Watson *et al.*, 1988, p. 203) have defined adjustment to cancer as 'the cognitive and behavioural responses the patient makes to the diagnosis of cancer'. This neutral but featureless definition of the term fails to include other important aspects, including the social and spiritual dimensions of adaptation, responses to stressful events following diagnosis such as treatment and discharge, and any indication of what constitutes a healthy or successful adjustment. However, an earlier more encompassing and satisfactory definition suggests that 'adjustment consists of the psychological processes by means of which the individual manages or copes with various demands or pressures' (Lazarus, 1969, p. 18) though again this fails to locate these processes within a social context.

The diagnosis of cancer and its aftermath undoubtedly lead to major life changes in a significant proportion of people (e.g. Fobair *et al.*, 1986), though these changes are not always negative and it is not clear that they are detected by the more commonly used outcome measures within psychosocial oncology (e.g. Hospital Anxiety and Depression Scale (HADS); Zigmond and Snaith, 1983, Profile of Mood States (POMS); Lorr and McNair, 1984, etc.). In one survey of 200 cancer survivors, 30% had changed jobs and 23% had changed their living arrangements in the 2 years since their treatment (Stalker *et al.*, 1990). While levels of anxiety and depression may return to premorbid levels, rarely does a cancer patient describe a sense of continuity with their lives before cancer—there is invariably a shift in the individual's sense of themselves and the world (Taylor, 1983; Janoff-Bulman, 1992). In order to measure psychosocial adaptation of this type, quality of life instruments are likely to be more sensitive to change.

Rather than viewing adjustment as the attainment of a normatively-derived emotional state (e.g. a particular threshold on the HADS), it would be clearer to reserve the term to describe the *processes* of adaptation that occur over time as the individual manages, learns from and accommodates the multitude of changes which have

been precipitated by changed circumstances in their lives. This definition emphasizes a more psychosocial and developmental approach and suggests processes which are broader than merely 'coping' with the demands brought about by the change. An adequate theory of adjustment to cancer must account for the paradox of apparently divergent outcomes: both the high degree of stress and psychopathology associated with this illness, as well as the experience of healthy personal development which patients also report (Taylor, 1983; Goodare, 1996; Schaefer and Moos, 1998). The crisis of a life event can be an opportunity for positive personal growth as well as distress (Parkes, 1971; Aldwin and Sutton, 1998). The model should account for common clinical phenomena such as worry, intrusive thoughts and denial, as well as how the patient's social context may be disrupted by the disease. It should be consistent with established clinical research and other theoretical constructs, and should offer hypotheses concerning prevention and intervention. Finally, clinicians require an intuitively plausible model which can guide their work and which, ideally, they can easily convey to their patients.

Adjustment has been conceptualized in a number of ways. Social-cognitive theorists have examined the nature of the adaptation from one state to another and the psychological issues facing the individual. They have focused on adjustment as an intrapsychic and interpersonal journey that individuals strive to negotiate and which results in a 'personal transition' or shift in the individual's core assumptions. Coping theorists, by contrast, have focused largely on the behavioural strategies that people employ both to negotiate the demands posed by the life event and to mitigate the negative emotions generated by the change or threat. It will be argued that both these inter-related approaches offer the field of psychosocial oncology useful models with which to understand the processes of adjustment and to prevent later psychological and social problems.

COPING

According to coping theory (Lazarus and Folkman, 1984), coping is the process of managing internal and external demands which are appraised as taxing or exceeding the resources of the

individual. It is an interaction between the individual and the environment in which each affects the other.

Coping research in cancer has largely examined relationships between coping responses and psychological outcomes (Parle *et al.*, 1996) though these studies have mostly used cross-sectional designs and employed self-report measures of coping responses to recent stresses. Lazarus (1993, p. 236) has pointed out that, because of the diverse threats that people with cancer may be dealing with at any moment, research on the coping process must specify 'the particular threats of immediate concern to the patient and to treat them separately rather than broadening the focus of attention to the overall illness'. He has also made a distinction between research focusing on a person's coping style (a general propensity to deal with stress in a particular way) and that focusing on the utility of particular coping responses. Both approaches are evident in the psycho-oncology literature.

The diagnosis, treatment and aftermath of cancer involves a long process of adaptation to multiple threats and novel experiences. How an individual characteristically appraises and responds to these threats and experiences is known as their coping style. The implicit assumption of the coping style approach is that coping will reflect a relatively enduring attitudinal/behavioural style, similar to a personality trait.

Watson has used the term 'mental adjustment' to denote the coping style of individuals in the face of a diagnosis of cancer (Watson *et al.*, 1988). Watson *et al.* (1988) developed the Mental Adjustment to Cancer (MAC) scale which identifies five behavioural styles of coping: denial/avoidance, fighting spirit, fatalism, helplessness/hopelessness, and anxious preoccupation. They found that the last three coping styles were significantly associated with depression as measured by the HAD scale which was simultaneously administered. They also reported that the response of 'fighting spirit' was significantly associated with less psychological distress (Watson *et al.*, 1991) and found a similar positive association with the response of denial (Watson *et al.*, 1984), though this was not replicated in their later studies.

In a prospective study (Carver *et al.*, 1993) of 59 early stage breast cancer patients, optimism was measured initially and coping (COPE; Carver *et al.*, 1989) and distress (POMS) were assessed repeatedly, around the time of surgery and again

up to 12 months post-surgery. The results indicated that optimism was inversely related to distress at each assessment point, but positively related to active coping efforts and acceptance of the reality of the disease. This suggests that optimism may be a personality trait which is associated with the use of certain coping behaviours and is likely to be highly related to fighting spirit (Nelson *et al.*, 1989). It should be noted that this study reported that denial correlated with higher distress, opposite to the early findings reported by Watson *et al.* (1984). The authors speculated that acceptance of the situation is important for adjusting to it when the situation, like cancer, has to be endured. This view is consistent with bereavement literature which indicates that denial is a 'temporary solution' or defence which, if it persists, can lead to later maladaptive adjustment (Parkes, 1988).

The coping style approach has led to some fruitful clinical research (e.g. Mooney *et al.*, 1994) in which patients' underlying schemata have been altered (leading to the reduction of helplessness and an increase in fighting spirit) through the use of Adjuvant Psychological Therapy (APT) (Mooney and Greer, 1989), a form of cognitive-behavioural therapy adapted for use with cancer patients. While this treatment approach has considerable empirical support, a recent study with testicular cancer patients has failed to confirm the efficacy of APT for this particular group (Moynihan *et al.*, 1998).

The coping style approach is limited by the concept of coping leading to consistent behavioural responses by the individual, rather than as a situation-specific variable which may change over time in the light of different stresses. In cancer, the appraisal of threat is likely to vary according to the stage of the disease and its treatment. For example, anxious preoccupation may not characterize an individual while undergoing their treatment, though it may be a significant feature of their behaviour prior to a subsequent hospital follow-up appointment.

Lazarus (1993) has emphasized the importance of appraisal variables though these have been rarely examined in the field of cancer. One exception to this was a study by Parle *et al.* (1996) which sought to assess the role that coping in the first few weeks after diagnosis had in the later development of affective disorders. They prospectively studied 673 newly diagnosed cancer patients to assess the effects of their appraisals, coping

responses and resolution of 14 specific concerns to do with their cancer (as measured using a semi-structured interview) on subsequent mental health (as measured by the Psychiatric Assessment Schedule). They found that neither the nature of the patients' concerns, nor any specific coping response, predicted the development of an affective disorder. However, they did find that those who had high levels of generalized worry and multiple concerns were subsequently more likely to feel helpless and do nothing in response to these concerns.

The finding that helplessness, which may be regarded as a negative secondary appraisal (i.e. a belief that one does not have the resources to cope with a particular threat), was predictive of affective disorders is consistent with Watson *et al.* (1991) data though, because of the cross-sectional design of this earlier study, it was not apparent whether helplessness was a result of dysphoria or whether the reverse was true. The Parle *et al.*, (1996, p. 743) data suggest that 'adaptive copers hold outcome expectancies and self-efficacy beliefs that are likely to facilitate their performance of coping responses'.

A number of studies of cancer patients have reported cross-sectional data to support the idea that coping strategies characterized by avoidance or acceptance/resignation are associated with poor psychological adjustment (Dunkel-Schetter *et al.*, 1992) while active coping responses are associated with good outcome (Rodrigue *et al.*, 1994). In one prospective study, Manuel *et al.* (1987) found that patients using high-approach strategies (e.g. spending a lot of time thinking about the implications of the illness) and those using high-avoidance strategies (e.g. distracting themselves by minimizing the importance of the illness and getting on with other activities) reported less distress than those who were passive and made few attempts to actively cope with their disease. The beneficial effects of active coping is further reinforced by Dodds *et al.* (1994) who studied 469 blind clients still adjusting to the loss of their sight. Using structural modelling techniques, the authors found that acceptance and adjustment were strongly related to 'self as agent' (self-efficacy) but only weakly to 'self-worth'.

If one regards a 'full and enthusiastic return to the normal activities of life' as being the hallmark of successful adaptation (Spencer *et al.*, 1998), then coping theory and research has consistently demonstrated much of what is required of the

individual and their carers. It strongly indicates that promoting increased self-efficacy through enabling people with cancer to take control of, and participate in their lives again, is likely to restore their confidence and self-esteem. Indeed, part of the popularity of complementary therapies may be due to their tendency to be patient-centred and stress the individual's ability to act positively, while also addressing questions of meaning, purpose and direction in life (Brennan and Sheard, 1994).

In short, apart from its endorsement of personal control and self-efficacy, coping theory and research has so far been of limited practical use to the clinician. It has failed to bridge the gap between research and clinical practice (Somerfield, 1997) and it has 'failed to adequately take into account the existential reality of individuals in life-threatening situations' (Spiegel, 1997, p. 170). It offers few insights as to why some people attribute personal growth to their cancer experience, how relationships within couples and families are disrupted, or how such emotional problems as anxious intrusive ruminations develop. One reason for its lack of clinical utility may be because the various taxonomies of appraisals, coping responses and consequent emotions (e.g. Smith and Lazarus, 1990) engender models of unwieldy complexity; moreover, some authors appear to regard coping as merely a descriptive term rather than a formal theory (Salandier and Windahl, 1999). Interestingly, coping theory and research has been criticized for having focused on issues that are too broad (Somerfield *et al.*, 1999). Psychological clinicians, however, are guided as much by 'meta-theories' as they are by the empirical 'micro-evidence' which supports them, for it is by contextualizing particular problems that clinicians and their patients can understand them.

SOCIAL-COGNITIVE THEORIES

Confusingly, coping theorists often subsume 'cognitive adjustment' under the rubric 'emotion-focused coping' (e.g. Broadstock and Borland, 1998). Social-cognitive theorists, however, regard cognitive and social transitions as being the more critical issues. Unlike coping theorists, who focus on how people respond to a crisis, social-cognitive theorists are more interested in the broader social

and cognitive changes required of an individual and their social network in such circumstances. Patients, and their social attachments, are not only responding to and coping with a crisis in their lives, they are also *drawing conclusions* from that crisis. Some of these 'conclusions' may be the source of psychological distress and subsequent disorder, but also the source of what has been termed 'posttraumatic growth' (Tedeschi *et al.*, 1998). Two broadly similar approaches, drawn from different fields within health psychology, will be briefly described, followed by examples of social-cognitive theory applied to physical illness.

Mourning

Parkes (1971) used the term 'psychosocial transition' to describe the necessary changes in a person's 'assumptive world' when confronted by a critical life event, such as bereavement (Parkes, 1988). The concept of the 'assumption' is similar to that of cognitive schema (Neisser, 1967) and can easily be reformulated in cognitive theory terms. Life events may have emotional, material, psychological or existential implications for a person's *life space* (Lewin, 1935), or that part of the environment with which the individual interacts. The *assumptive world* is the result of the total accumulation of an individual's life experience. It allows people to classify and predict the world around them in order to safely negotiate it and satisfy their needs. Since a person's life space is continuously changing from moment to moment, so too is their assumptive world being confirmed or disconfirmed, reinforced or altered in a continuous process of elaboration, refinement and adjustment.

Small unexpected changes in life space require only small modifications in the assumptive world while larger changes (e.g. the death of a partner) involve a more protracted period of adaptation (mourning). Inherent in this model, which has been elaborated by others (Janoff-Bulman, 1985; Moos, 1986; Janoff-Bulman, 1992), is the notion that every new experience, whether appraised as positive or negative, pleasant or unpleasant, involves the certainty that people will either adaptively 'assimilate' (i.e. merge new information into existing assumptions) or 'accommodate' the change (i.e. modify existing assumptions about the world in order to incorporate the new information) (Piaget, 1952). In most situations both

processes are operating. According to this view, denial is a normal temporary defence against information which is too painful or incompatible with existing assumptions to be easily integrated.

Posttraumatic stress

According to the (theoretically similar) social-cognitive view of posttraumatic stress, avoidance and denial are normal temporary defences in response to an overwhelming and distressing event (the trauma) while the individual attempts to integrate the event into their existing cognitive world view or schemata (Horowitz, 1986). According to Horowitz (1986), the psychological need to integrate the new information with existing schemata, termed the 'completion tendency' (manifested as re-experiencing the event or having intrusive memories of it), is thwarted by a competing need to defend the mind from the full impact of the information (i.e. avoidance or denial). Intrusion and avoidance thus work at opposite ends of a control system that regulates the absorption of information: avoidance has the effect of impeding emotional processing while intrusive re-experiencing serves the process of integration (Ehlers and Steil, 1995).

Psychological trauma is caused by events which are sudden and unexpected, and in which the individual perceives a dramatic loss of personal control and personal safety (Ehlers and Steil, 1995). This description has obvious resonance with the experience of cancer and, indeed, being confronted with the implications of a life-threatening illness is now included as a possible traumatic stressor (and the cause of posttraumatic stress symptoms), within the DSM-IV (American Psychiatric Association, 1994). There is growing evidence that the diagnosis and treatment of cancer may lead to a persistence of such symptoms, without necessarily leading to the full syndrome of posttraumatic stress disorder (PTSD; e.g. Cella *et al.*, 1990; Cordova *et al.*, 1995; Alter *et al.*, 1996; Tjemsland *et al.*, 1996; Smith *et al.*, 1999). In view of the recent theoretical advances in the field of PTSD (Brewin *et al.*, 1996), and the co-morbidity of PTSD and anxiety and depression in other disease settings (Davidson and Foa, 1991), this development raises potentially useful questions regarding the common psychological disorders associated with cancer. However, the threat of cancer is distinct from other threats

associated with PTSD (Smith *et al.*, 1999). Unlike conventional studies of trauma, the significance of intrusive memories for many cancer patients may be more to do with a threat that is located in the future rather than the past.

The concept of future threat in cancer has not been widely examined yet sophisticated cognitive models of worry have been proposed (e.g. Barlow, 1988). This is surprising, in view of its importance in cancer; for example, 'somatic distress' (preoccupation with physical symptoms and fear of recurrence) is almost universal (Somerfield *et al.*, 1999) and thus part of a normal response, and a paradoxical rise in anxiety has been noted at the end of treatment as the individual faces an uncertain future without frequent contact with medical services (Holland *et al.*, 1979). One survey of over 600 cancer patients in remission found that the most commonly identified cancer-related problem they faced was fear or uncertainty about the future (Dunkel-Schetter *et al.*, 1992). Since the cancer diagnosis poses a future threat that is likely to be shaped by the individual's idiosyncratic belief system about the course of cancer generally (Cella and Tross, 1987), the individual's perception of their prognosis may be a more accurate measure of the traumatic impact of disease threat, rather than the more 'objective' prognoses made by doctors based on clinical staging. No study has yet specifically examined this issue.

The symptoms of PTSD, such as intrusive images and thoughts, denial-avoidance and heightened arousal, may be common because they are part of a normal adaptive process or continuum (Brewin *et al.*, 1996) (*see below*), while the full syndrome is only rarely evident. In fact, some authors have questioned the utility of relating the trauma of illness to a psychiatric diagnosis at all, arguing that understanding how aspects of illness and treatment remain the source of stress years later is the more interesting question (Kazak *et al.*, 1996)

Physical illness

A number of authors have attempted to describe the task of adjustment to illness in terms of the resolution of threats or incongruences with existing assumptions about the world. There is some degree of consensus among their conclusions. Cohn and Lazarus (1979) have postulated that illness entails threats to (a) life; (b) bodily

integrity and comfort; (c) self-concept and future plans; (d) emotional equilibrium as a result of the other threats; (e) social roles and activities; and (f) threats involving the need to adjust to new social or physical environments. Very similar constructs are described by Moos and Schaefer (1984).

Moorey and Greer (1989) conceptualized the stress of cancer along two dimensions: threat to survival ('our sense of immortality is shattered') and threat to the self-image (mental and physical abilities, personal and social roles, and physical appearance). Janoff-Bulman (1992) takes a similar view when she writes that, at the core of the assumptive world, are abstract beliefs about self, the external world and the relationship between the two. 'Extreme life events', such as having cancer, shatter the assumptions that (a) the world is benevolent; (b) the world is meaningful; and (c) the self is worthy.

Taylor (1983) proposes a theory of cognitive adaptation which is essentially a similar conceptualization of adjustment to the authors above. However, Taylor's theory proposes certain emotion-focused coping strategies which function to restore schema which she postulates are illusions that are characteristic of positive mental health. She maintains that normal human thought involves overly positive self-evaluations, exaggerated perceptions of control or mastery, and unrealistic optimism (Taylor and Brown, 1988). The theory was derived on the basis of extensive interviews with 78 breast cancer patients who appeared to (a) search for a meaning for their predicament (finding a causal explanation for their cancer and restructuring the priorities of their lives as a result of their cancer); (b) gain a sense of mastery (believing that they could exert control over the course of their cancer; for example, believing that they had changed from the way they lived their lives before their diagnosis); and (c) enhance the self (through construing personal benefit from the illness or comparing themselves with others worse off).

In summary, while sound and plausible from a clinical and intuitive perspective, social-cognitive models largely fail to account for why some people, negotiating the dramatic changes associated with cancer, appear to be vulnerable to the development of psychological disorders and other forms of distress while others respond to the crisis by adaptively re-examining and restructuring the core constructs by which they have lived their lives (Tedeschi *et al.*, 1998). Like coping theories,

these models also tend to focus on changes within the individual while often overlooking how the social context both modulates adjustment and is subjected to it.

THE SOCIAL-COGNITIVE TRANSITION MODEL OF ADJUSTMENT

The Social-Cognitive Transition (SCT) model of adjustment is an attempt to account for both positive and negative 'adjustments' using the complementary assets of social-cognitive theory and coping theory. Importantly, it is a psychosocial model which emphasizes the social context of an individual's experience.

Theoretically, the SCT model builds on concepts from the coping, social-cognitive and traumatic stress literatures mentioned above, and also draws on recent cognitive theories of emotion (Brewin *et al.*, 1996; Power and Dalgleish, 1997). The entire model rests on the biological premise that, as a product of evolution, human beings occupy the 'cognitive niche' (Tooby and DeVore, 1987) within the ecosystem:

'Humans achieve their goals by complex chains of behavior, assembled on the spot and tailored to the situation. They plan the behavior using cognitive models of the causal structure of the world. They learn these models in their lifetimes and communicate them through language, which allows the knowledge to accumulate within a group and over generations' (Pinker, 1997, p. 186).

More than any other organism, human beings are self-regulating systems which have excelled at learning from experience. However, learning from experience is more than simply the acquisition of discrete responses to discrete stimuli. It is also the development of more abstract, 'schematic' or 'associative' levels of representation of the causal structure of the world (i.e. assumptions).

This human capacity not only to learn from experience but also to plan and anticipate has given the species an enormous survival advantage over other animals (though, as the SCT model will show, the emotions which humans have evolved, also form the basis of psychopathology [Gilbert, 1998]). Throughout the course of their lives people develop ever more conceptually sophisticated representations of the physical and social world; this 'assumptive world' also includes

representations of themselves within it. The assumptive world can be thought of as a cognitive map, similar to Bowlby's notion of 'internal working models' (Bowlby, 1979).

The assumptive world of an adult human being contains knowledge and assumptions which have been derived from the information-rich cultural and social environment experienced during their development. Indeed, developmental psychologists' models of conceptual development are gradually converging (cf. Case, 1999), towards models which are congruent with SCT's basic premise concerning cognition. In particular, it is believed that children construct meaning through cognitive structures that are constantly undergoing elaboration and restructuring, and which reflect the child's socio-cultural context (as well as their developing brains).

To summarize, as a result of their social development, people acquire an enormously complex matrix of assumptions about how the world functions, a cognitive map which is being continuously revised.

Assumptions

The assumptions which make up these cognitive maps of the world, have five key features:

1. They are biologically adaptive in that they allow people to classify and predict the social and material world around them in order to negotiate the world safely. This enables people to satisfy their needs and achieve their goals;
2. They reflect the accumulation of an individual's life experience (i.e. biographically and socio-culturally derived);
3. They can be represented at different levels of abstraction (see Power and Dalgleish (1997) for an explication of analogical, propositional, associative and schematic representations);
4. Within the assumptive world, there is a hierarchical structure of goals which provides the motivational framework of someone's life;
5. Many core assumptions (at least those represented at the propositional level (Power and Dalgleish, 1997) are *preconscious* (i.e. available for scrutiny and discourse, but rarely consciously examined) (Figure 1).

A mental model of the world is only useful if it is able to predict, appraise and interpret experi-

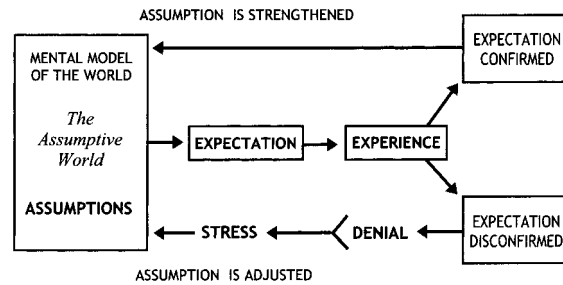


Figure 1. The Social-Cognitive Transition Model of Adjustment.

ence with reasonable accuracy; it enables the individual to maintain a coherent and relatively stable experience of the world. Novel or unexpected events demand an elaboration or expansion of the assumptive world (the completion tendency) while predicted experiences (e.g. night following day) lead to a strengthening of the assumption which gave rise to the prediction. Psychologically shocking events (such as a life-threatening diagnosis) may temporarily overwhelm the capacity of the assumptive world to predict or react adaptively to prevailing circumstances. Such 'disorientation' can be seen in the period immediately following a life-threatening diagnosis: information is hard to process and for hours, often days, the individual struggles to accept what he or she has been told.

In the case of overwhelming life events, like receiving a cancer diagnosis, it is often the individual's most fundamental assumptions that are at stake and require change (Janoff-Bulman, 1992) (see below). The huge range of individual differences in the way people respond to such events in their lives is a reflection of three primary factors: (a) different cognitive models of the self, world and other people. As already indicated, the assumptive world is socially constructed and life-stage dependent; (b) different social contexts through which events are experienced (e.g. the social class, race, and gender of the individual, poverty, the ways in which health care is delivered, etc.); and (c) the diversity of people's characteristic styles of responding to information which is incompatible with their assumptions (cf. Power and Dalgleish, 1997). For most people the assumptive world is a reasonably flexible and permeable structure which gradually permits the integration of novel information. Some people, however, may hold more rigid or overvalued models (e.g. 'the world is completely safe') or have a history of repressing incompatible infor-

mation. These individuals are thought to be more vulnerable to prolonged posttraumatic symptoms (regardless of whether they constitute a diagnosis of PTSD).

Heightened arousal, denial-avoidance, and intrusive thoughts and images are the primary symptoms associated with traumatic stress but, as has been shown above, may also reflect normal processes of adaptation (indeed, negative emotions may well have biological utility [Nesse, 1998]). These symptoms are all clearly evident in the lived experience of people with cancer. However, as described below, both the life event itself and the subsequent intra-psychic changes in the individual also have consequences for members of the individual's social network. These processes of intra-personal and inter-personal change produce emotions associated with stress, such as anxiety and dysphoria, interpersonal strain, and concomitant resistance to changes in beliefs, attitudes, roles and relationships (Parkes, 1971; Janoff-Bulman, 1992).

Stress and arousal

Even for those with flexible mental models, 'adjusting' core assumptions involves huge amounts of cognitive processing and emotional distress, largely because human information processing is biased towards cognitive conservatism and a tendency to maintain existing schema or deeply-held assumptions (Janoff-Bulman, 1992). It is for this reason that 'life events', organizational restructuring and other changes are all associated with elevated stress. Accordingly, people with cancer experience high levels of stress and arousal because their preconscious core assumptions about the world have been fractured and they are forced to modify them.

'Since my diagnosis, everything has changed. Everything feels upside down—I'm no longer the same person, I seem to have no control over my life, and I just don't know what to expect anymore. I want to go back to the person I used to be but I can't.'

(a client of the author's who was being treated for breast cancer).

Denial-avoidance

In the SCT model, like other cognitive models, cognitive avoidance and denial serve to titrate the absorption of 'traumatic' information. In order to

distinguish denial from its traditional implications Salander and Windahl (1999) have proposed the term 'disavowal' to connote the tendency of people with cancer to create a 'cover story' in place of the traumatic information. Like any other defence mechanism, denial within the SCT model is seen as an adaptive, usually temporary strategy which serves to maintain and preserve a coherent mental model of the world. However, it may be maladaptive in the long-term if it prevents the absorption of new information into the assumptive world. In fact, a similar view is taken by coping theorists: 'In the early stages of a trauma, avoidance can reduce stress and anxiety while allowing for a gradual recognition of the threat; later, only approach [*sic*] will allow for the assimilation and resolution of threat and trauma into an integrated self-structure' (Manuel *et al.*, 1987, p. 150).

Worry and cognitive adaptation

Behaviour which entails confronting change (i.e. active coping) may facilitate the completion tendency but it is not the only medium. Reflective rumination is a little studied but common behaviour that enables people to integrate novel experiences into their cognitive models. It is sometimes characterized by a sense of intrusion (Calhoun and Tedeschi, 1998) and can be enacted either privately (e.g. thinking, writing) or by talking to others (social support). However, 'worry' is a similar and also common experience of people with cancer and has many parallels with trauma-induced intrusive thinking though, unlike PTSD in which intrusive thoughts and images are largely about threats which have occurred in the past, worry is almost always about future threat (e.g. recurrence of the disease, 'the fate of my children if I die', etc.).

Worry fittingly demonstrates the adaptive nature of the assumptive world since worry is a cognitive attempt to anticipate and prepare for future threat (Eysenck, 1992), preparing the assumptive world for different contingencies. Worry is productive and adaptive if the 'worst case scenario' can be confronted in imagination and worked through to its logical conclusion (i.e. the cognitive technique of decatastrophization). In this way, the individual can appraise more realistically the nature of the future threat and the

resources which are available and required to meet it. Worry is maladaptive, however, when it fails to resolve the uncertainty posed by the catastrophic thought or image. The particular worry leads to emotional distress which can be temporarily mitigated by distraction (i.e. avoidance). A short while later, however, the worry re-intrudes on consciousness and the cycle starts again.

In this regard, it is worth recalling Parle *et al.*'s finding that those with high levels of generalized worry and multiple concerns were subsequently more likely to feel helpless and do nothing in response to their concerns (Parle *et al.*, 1996). This suggests that, as a result of a widespread failure to prepare the assumptive world for different contingencies, some people develop the 'coping style' of anxious preoccupation or, in clinical terms, the psychological problems associated with generalized anxiety disorder, a condition which is often successfully treated with cognitive-behavioural therapy (Durham and Allan, 1993).

SOME CORE ASSUMPTIONS AND THEIR CLINICAL MANIFESTATIONS

As will be seen, changes to the assumptive world may involve positive changes to a person's priorities and values (e.g. Taylor, 1983; Cella and Tross, 1986; Cole and Pargament, 1999), a personal transition which may be experienced and described as 'healthy personal development' or posttraumatic growth (Tedeschi *et al.*, 1998). On the other hand, events can lead to maladaptive and unhelpful adjustments to the assumptive world (e.g. loss of meaning, helplessness and despair), or the confirmation of existing maladaptive assumptions (e.g. a belief that one may be worthless), and this may lead to further distress and formal 'disorders'. There follows a description of a number of core assumptions which are commonly fractured by the experience of cancer, together with their positive and negative resolutions and some implications for prevention. Although this material may seem intuitively obvious to the clinician, much of it is clinically-derived, hypothetical and requires empirical validation. As has already been stated, active coping can be an important mechanism in the rebuilding of certain core assumptions, but it is not the only vehicle for adjustment.

LIFE TRAJECTORY

Core assumption

Much of a person's sense of themselves, or their identity, is derived from a personal 'trajectory' which offers goals and rewards in the future (Tenen and Affleck, 1998). Goals are often age-dependent and range from being short-term and clear-cut (e.g. looking forward to meeting friends for lunch) to being long-term and more abstract (one day writing a novel). In all aspects of life, goals and rewards provide structure and motivation and are a core component of the assumptive world. Nerenz and Leventhal (1983) have described the contrast between individuals whose lives are entirely dominated by their disease and those who are able to 'encapsulate' it, try otherwise to function normally, and regard it as only one component of the self. In other words, the motivational structure of the latter group remains largely intact. Above all, the threat of cancer leads people to re-examine their implicit life priorities and assumptions (Aldwin and Sutton, 1998), perhaps as a result of the perceived 'amputation of the future' (Frank-Stromberg *et al.*, 1984).

Positive transition

A life-threatening diagnosis, by definition, confronts the individual with his or her mortality. Almost regardless of the actual prognosis that has been given, many people begin to prepare for the possibility of their death (Weisman and Worden, 1976). Implicit long-standing life goals may suddenly become clear and distinct yet, at the same time, their eventual attainment may seem less likely and even unrealistic. Other goals may be dismissed as trivial and no longer important, while a number of people report that their illness helped them develop entirely new motivational priorities (Taylor, 1983; Schaefer and Moos, 1998). The revision of this part of the assumptive world is what is often associated with a 'healthy' or 'positive' personal transition.

Negative transition

Clinical manifestations: Apathy, loss of direction and motivation, despair, loss of confidence and self-esteem, worry, hopelessness and depression.

Serious illness threatens the individual's

motivational framework which becomes in danger of breaking down. In cancer, the knowledge of a shortened life-expectancy leads naturally to a pre-occupation with the loss of (often preconscious) goals and aspirations that have shaped one's life. Without sufficient motivational structure in their lives people are in danger of feeling that life is pointless; apathy and a sense of hopelessness can set in, and they are at risk of depression (Beck, 1967). As Kenneth Nunn has observed, having a 'wished for' future is one component of hope (Nunn, 1996). A similar process may occur, for example, in the context of long-term unemployment (Dew *et al.*, 1992).

The side-effects of treatment (nausea, fatigue etc.) also preclude the hope that one might fully enjoy an experience or achieve something useful. Life instead becomes dominated by treatment-related rituals (e.g. daily visits to the radiotherapy unit).

Such events may lead to maladaptive assumptions about the world (e.g. 'I have nothing to look forward to... what is the point in going on?'). Some people with cancer appear to engage in what has been termed 'defensive pessimism' (Norem and Cantor, 1986) by failing to make plans for the future lest they be disappointed (e.g. by a recurrence of their illness). Others fail to make plans in the 'admittedly superstitious' belief that by doing so they would be 'tempting fate'. As will be seen, there are other maladaptive but understandable 'conclusions' that cancer patients may be drawing from the implications of their cancer and its treatment.

In summary, people with cancer are at high risk of losing motivational structure in their lives, an experience which is considered to be a major process in the development of hopelessness and depression (Beck, 1967).

Treatment and prevention

Interventions which encourage patients to maintain, enhance or restore the motivational structure of their lives, and be future-oriented (i.e. developing plans and goals around 'pleasure and mastery'; Beck, 1967) are likely to prevent the development of depression and encourage the encapsulation of the disease. This constitutes an active coping strategy which prevents the development of maladaptive assumptions (e.g. 'What's the point in planning anything?') by strengthening

beliefs in personal efficacy through re-engaging the individual with their life goals. At the same time, pre-existing assumptions about life goals must gradually accommodate limitations imposed by the disease (e.g. shortened life expectancy, disability etc.).

BELIEFS ABOUT THE SELF: CONTROL AND SELF-WORTH

Core assumptions

The diagnosis of cancer rapidly leads to fundamental changes in the relationship between the individual and their environment, changes which may radically alter their assumptions about personal control and self-worth. A belief in personal control is integral to an adult's sense of safety, self-concept and self-esteem and, indeed, the maintenance of non-depressed mood (Taylor and Brown, 1988). The demands of treatment can also lead to changes in social roles which may challenge established assumptions about self-worth and self-efficacy (e.g. the work role providing feedback about one's value and competence in the world). Finally, assumptions about the importance of the integrity of the body to one's self-worth (e.g. body image) are also examined.

Positive transition

Over the course of their illness, many people choose to collaborate more closely with their doctors and become better informed about their illness and treatment and, as Taylor (1983) has observed, many people prefer to contribute actively to their treatment (e.g. 49% of her sample had changed their diet, believing that this would prevent recurrence). Some individuals discover a new sense of personal control and an affirmation of the self through the re-examination of their identity, even when this involves accommodating changes to their body.

Negative transition

Clinical manifestations: problems related to self-image and self-worth, relationship and sexual problems, depression, anxiety and worry.

Perceived loss of personal control and self-

worth can develop from many sources: (a) high levels of uncertainty concerning prognosis; (b) changes to the body (the presence of the cancer and having to accommodate changes to the body's appearance, capabilities and sensation); (c) the often intimidatingly novel and complex medical environment; (d) social discrimination (e.g. employment) towards cancer and disability.

Attachment theory (Bowlby, 1979) predicts that in situations of novelty, ambiguity and fear people are likely to regress to more infantile ways of behaving. In particular, they are likely to welcome any benign figure of authority (such as a doctor) who provides safety by appearing to be in control of the situation. Crisis theory (Moos, 1986) also endorses the idea that people are especially receptive to outside influences at times of change and uncertainty. However, the cost of greater dependency on others (e.g. doctors, partners) is the risk of perceiving a further loss of personal control.

The burden of many months of taxing treatment often reduces opportunities for people to engage in work and many other social roles which formerly provided feedback about their competence and value in the world. Indeed, social discrimination from a number of sources (e.g. employment, insurance, etc.) may reinforce this perception. This easily leads to a loss of confidence in these social roles and a reduction in self-esteem. The loss of such fulfilling and distracting roles is also a fertile ground for the development of anxious preoccupation about future threat (i.e. worry).

All these changes can lead to maladaptive assumptions that one has lost personal control and value in the world, assumptions from which loss of confidence, anxiety and dysphoria can develop.

Treatment and prevention

Fighting spirit (Watson *et al.*, 1991); approach/non-avoidance (Rodrigue *et al.*, 1994); optimism (Carver *et al.*, 1993); and self-as-agent (Dodds *et al.*, 1994)—all these constructs are associated with reduced distress and point to the value of active coping in restoring a sense of personal control, self-efficacy and self-worth. Measures which enable cancer patients to resume as much control as they wish, over all aspects of their lives (including their treatment), are likely to have a beneficial effect on mood and may serve to prevent depression.

For example, patients who feel well-informed about their diagnosis and treatment have been shown to experience less anxiety and depression than those who felt inadequately informed (Fallowfield *et al.*, 1986). Although studies have reported that not all patients want to be active collaborators in their treatment (Degner and Sloan, 1992), many will. It also appears that most patients wish to create a discontinuity with their pre-cancer lifestyles by actively changing some aspect of it (Taylor, 1983). Such active coping among cancer patients has been positively associated with optimism and acceptance of the disease (Carver *et al.*, 1993) and the time following diagnosis should therefore be used as an opportunity to offer patients an active role in 'fighting' their cancer and/or enhancing overall health (e.g. advice on healthy eating, stress management, exercise etc.) in as far as there is evidence to support it.

While people with cancer should be encouraged to assimilate or reappraise their perceived loss of control and self-worth through the promotion of active coping, their assumptions about control may gradually need to accommodate the fact that they may die sooner than they expected, an event over which they may, indeed, have limited control.

NATURE OF ATTACHMENTS

Core assumption

Social attachment is biologically adaptive in that it provides safety (Bowlby, 1979) and is an essential aspect of the effective transaction of human beings with their environment (Moos, 1986). Whatever the objective prognosis, cancer confronts patients and those in their social world with the threat of permanent separation from loved ones (Weisman and Worden, 1976), an event of literally biological significance for all concerned. The examination of this stark reality is profoundly distressing, not only because of the fear of leaving the world alone, but also because people anticipate the grief reaction of their survivors. Assumptions about autonomy and dependency within relationships become more apparent. Parents, in particular, often experience intense and intrusive worries about the fate of their children in the event of their death. In short, the

nature of these attachments, and the reciprocal roles within them, become manifest and are re-examined. Thus, the assumptive worlds of *both* the patient and those attached to them require modification.

Positive transition

The re-examination and alteration of attachments and interpersonal roles can foster more creative, valued and engaged relationships (Moorey and Greer, 1989; Aldwin and Sutton, 1998) and some restoration of emotional honesty (including sometimes the formal ending of relationships.) The elicitation of intense social support in response to the illness may also facilitate positive personal and social changes (Schaefer and Moos, 1998).

Negative transition

Clinical manifestations: relationship and sexual difficulties, anxious ruminations and worry, distress among relatives and other attachments.

The primary threat that cancer poses to relationships is separation. This threat may shatter illusions about autonomy and (in)dependency within the relationship, and the fear of examining these preconscious, unspoken but established dependency needs can lead the couple or family to engage in unhelpful defences such as withdrawal and criticism (Pistrang and Barker, 1995; Manne *et al.*, 1997). This is particularly likely where the patient is the primary care-giver and where the dependant other fears the loss of their 'secure base' (Bowlby, 1979).

Assumptions about relationships, therefore, require considerable assimilation and accommodation over the course of a cancer illness as both the patient and his or her significant others adjust to role changes brought about by the illness and its treatment (Dunkel-Schetter, 1984).

Treatment and prevention

Although the social network can be a source of additional stress (Bolger *et al.*, 1996), social support remains an effective buffer against the effects of stress (Cohen and Wills, 1985). It is positively correlated with mental health and negatively asso-

ciated with physical illness and mortality (Janoff-Bulman, 1992). Social support is also widely held to be an essential resource in coping with cancer (Dunkel-Schetter, 1984; Wortman, 1984; Neuling and Winefield, 1988).

However, Cohen and Wills (1985) have pointed out that in order for social support to be effective, there should be a reasonable match between the type of support provided and the coping requirements of the stressor. Cutrona and Russell (1990) have categorized the threat of medical illness as primarily a negative, uncontrollable event which optimally requires social support of an emotional, empathic nature. Social support of this kind assists the rebuilding of the shattered assumptive world by providing a safe context in which individuals can reassess the world, their position and condition within it, and their self-worth (Parkes, 1988; Janoff-Bulman, 1992). It is likely that for many people, therefore, empathic social support is a key context in which they integrate recent events into their assumptive world (i.e. by repeatedly talking about their experiences and feelings). Much of the (non-specific) power of 'talking therapies' and other forms of social support may be the result of helping clients to represent their experiences in language; putting experiences into words has the effect of containing or shaping an otherwise diffuse experience within more familiar (and thus often more benign) conceptual parameters. Therefore, interventions which enhance the provision of *empathic* social support are likely to prevent the affective disorders which are so common in cancer.

SPIRITUAL/EXISTENTIAL

Clinical manifestations: Apathy, loss of spiritual meaning in life, existential isolation.

Spiritual/existential questions are a vitally important and already somewhat developed area within the field of psychosocial oncology, as witnessed by the recent special edition of *Psycho-Oncology* (8(5), 1999). These articles testify to the profound relevance of these issues to the 'lived experience' of people with cancer.

There are numerous variations of spiritual experience but many of them appear to be about the challenge or confirmation of existing assumptions about the moral or rational nature of existence (e.g. 'Why me?') A sense of injustice and spiritual

doubt is sometimes felt by people who have attempted to adhere to a doctrine of religious principles; but, similarly, those with more atheistic beliefs may feel a sudden need to re-examine previously held assumptions about the nature of existence, even though this may lead them to question their implicit and explicit beliefs (e.g. in a rational or fair universe). In either case, loss of spiritual meaning and a sense of existential isolation can result.

One could argue that all the assumptions above fall within a higher-ordinate structure such as spiritual/existential beliefs, because all represent core assumptions about the nature of living. However, psychology has always addressed human experience at different levels of abstraction and the examination of core assumptions and beliefs about life seems apposite given the life-threatening nature of cancer.

CONCLUSIONS

The SCT model offers a broader conceptualization of adjustment than existing models. It is an attempt to account for the huge diversity of experiences that people with cancer report, both positive personal growth as well as psychological 'disorders'. Above all, it is a model of *normal* adaptation in which the individual and their social world struggle to make sense of changes imposed by the disease and its treatment. It is also a general model which has implications for adjustment to other serious diseases and major life events.

The model acknowledges the well-established finding that active behavioural coping facilitates the rebuilding of some of the core assumptions by which people live their lives (e.g. control, self-worth and self-efficacy). At the same time, it encompasses the more intra-psychic changes brought about by the need to reflect on life goals, existential meaning and the nature of one's roles and attachments. These changes, in turn, have consequences for the patient's social network because the individuals of which it is comprised must undergo *their own* processes of psychosocial adaptation (giving rise to systemic change within these various relationships). Finally, these transitions occur within a number of social contexts which also modulate the experience of unfolding events (e.g. the health care system, the social class of the individual etc.).

The SCT model is an intuitively plausible heuristic for clinicians with which to understand clinical material and formulate interventions. Its conceptual simplicity also enables clinicians to convey the notion of personal transition to their clients, thus giving them a reassuringly normal and developmental model by which to understand their experience. As an integration of existing models drawn from other fields (coping, bereavement and trauma), it enables the model to be empirically tested and for hypotheses to be supported or refuted. But there are, as yet, many gaps in the model. No psychometric tools currently exist which explicitly measure how a person's core assumptions have been affected by their illness. Measures of self-efficacy, locus of control and coping style may reflect facets of the assumptive world, though it is quality of life measures, particularly person-centred ones (e.g. SEIQoL; Hickey *et al.*, 1996) that are more likely to tap into the broader dimensions of the assumptive world; indeed, some definitions of quality of life (e.g. Calman, 1984), are highly congruent conceptually with the SCT model.

A number of hypotheses have been made concerning the treatment and prevention implications of changes to particular core assumptions. However, further hypotheses concerning the model itself can also be made. For example, the trauma literature predicts that assumptions which are held with extreme confidence, and have not been challenged, are more likely to be 'shattered' resulting in posttraumatic symptoms for the victim (Janoff-Bulman, 1985). An example of this was the finding that among patients with recurrent cancer, psychological distress was related to the extent to which patients were surprised by the recurrence; those who 'knew it could happen' appeared to do best (Cella *et al.*, 1990). In addition, one may hypothesize that changes in the assumptive world are made ever harder as the disease develops into the terminal phase because of diminishing periods of time in which to effect a revision of one's assumptive world. This may be one of a number of reasons why depression is more common in the terminally ill (Breitbart *et al.*, 1998).

It has been argued that adjustment is not simply the end-point of an individual's cancer journey but, rather, an active psychosocial process which may include both positive and negative consequences for the individual and which may contain the seeds for the later development of

psychological disorders and interpersonal problems. It is as yet unclear what relationship exists between psychological distress and posttraumatic growth or even whether these constructs are independent of one another (Calhoun and Tedeschi, 1998).

In conclusion, what hypotheses can be made concerning the facilitation of the adjustment process? Apart from active coping, which has accrued substantial evidence, the SCT model predicts a number of other vehicles for successful adaptation, all of which can already be observed in clinical practice. Private reflection is an invisible but prevalent human activity which is likely to be an important part of the assimilation and accommodation of new information. However, as has been stated, worry can be a maladaptive expression of cognitive reflection. Talking to others who are able to provide empathic social support is likely to facilitate the social-cognitive transition by providing a safe context in which to articulate, understand and reintegrate recent events and feelings (Janoff-Bulman, 1992). Some existing psychological therapies (e.g. APT—Moorey and Greer, 1989) make it their business to elicit and modify core assumptions; in this regard, the professional has the added advantage of being able to normalize experiences that may otherwise feel overwhelming and abnormal to the client. Moreover, Pennebaker (1993) has shown that even simply writing about traumatic experiences may help people assimilate them into new more elaborate schemata. Finally, the resumption and transformation of former social roles and relationships may be both a product and a medium for the recalibration of core assumptions.

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