

## The Control of Unwanted States and Psychological Health: Consistency Safeguards

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### INTRODUCTION

This contribution is mainly motivated by the question how disruptive life events and their consequences affect peoples' lives and feelings. In the last ten years, the diagnosis of post-traumatic stress disorder has become a main topic among researchers and clinicians. The inclusion of post-traumatic stress disorder in the DSM-III was an important milestone in psychiatric nomenclature. Prior to this, the signs and symptoms of stress response had appeared in descriptions of traumatic neuroses, and combat neuroses. Symptoms of post-traumatic stress disorder include intrusions, avoidance, hypervigilance, and general failure to adapt to changing circumstances. These signs occur not only after unusual events, such as combat experience, hurricanes, and cruel accidents, but also after more common events, such as bereavement. What happens after experiencing a personal loss or an extremely stressful event, is that the old working models of the world no longer apply to the new circumstances. In addition, a person often experiences psychological conflicts involving unresolved issues and contradictory views of themselves and others. Due to such conflicts, feelings of guilt after surviving an accident where a close person died, often lead to complicated and prolonged forms of grief. Blaming others or believing that one's real self is far discrepant from an ideal self are other possible reactions.

Discords between internal beliefs and external reality make it emotionally difficult to integrate the personal meanings of stressor events and to plan new adaptive behaviors (Horowitz, Bonanno, Holen, 1993; Stroebe & Stroebe, 1993). Alarming emotional pangs (Horowitz, Stinson, & Fridhandler, 1991) may be due to the mismatch between new and enduring prior relationship models of the self and others. People who have many persisting contradictions in their schematic organization of working models and beliefs about the self and others will have more emotional trouble in working through the loss.

Recent epidemiological studies (e.g., Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) found a relative high lifetime incidence of PTSD after several types of trauma as shown in table 16.1. The lifetime prevalence after Kessler et

al., (1995) is higher for women (10.4%) than for men (5.0%); these rates exceed the numbers that were reported in earlier studies and are typical for many surveys (Maercker, 1997). Possible explanations for these findings are better instruments and the higher likelihood to report trauma and trauma related crimes. In Europe the reported rates are usually smaller but this could be due to the relative ignorance among many health providers and the unwillingness to report trauma-related psychological problems (Schnyder, Valach, & Hofer, 1996).

TABLE 16.1  
*Frequencies of various traumas and onset of PTSD  
after a representative American sample. (Kessler et al., 1995).*

Type	Occurrence of Trauma (%)	Lifetime Incidence after Trauma (%)
Rape	5.5	55.5
Sexual harassment	7.5	19.3
War	3.2	38.8
Threat with weapons	12.9	17.2
Physical violence	9.0	11.5
Accidents	19.4	7.6
Eye-witness (accidents, violence)	25.0	7.0
Fire, natural disasters	17.1	4.5
Childhood trauma	4.0	35.4
Neglect in childhood	2.7	21.8
Other life threatening situations	11.9	7.4
Other traumas	2.5	23.5
Some trauma	60	14.2

In this chapter we will focus on psychological processes that may lead to pathological reactions. We will focus especially on the coping process following disruptive life-events, how the self protects itself against threats of internal regulation. We will suggest that the discrepancy between expected perceptions and experience of loss of expected perceptions can lead to formation of psychological disorder. Consistency safeguards—the postulated control processes—may help to reduce the immediate threat caused by this discrepancy. Theoretically we draw from various sources, from psychodynamic view to information theory, from coping to defense mechanisms. We postulate observable strategies people use to

regulate unwanted states and will, finally, present first results with a recently developed self-report measure.

### STRIVING FOR CONSISTENCY AND EMOTIONAL REGULATION

Disorders caused by traumatic stress are the result of a breakdown in the adaptability of the individual. In accordance with Epsteins integrative theory of personality (Epstein, 1991) and with Powers theory of control (1973), we regard the striving for consistency between actual perceptions and expectations as one of the most fundamental principles of the human information processing system. In the face of traumatic events, many people fail to assimilate the actual perceptions to their fundamental beliefs and specific perceptual readiness. The consequence is a persisting inconsistency warning signal, accompanied by strong negative emotions which result in the psychological system being constantly preoccupied with the enduring inconsistency. These continual attempts to assimilate what cannot be assimilated find their expression amongst other things in the intrusions into both waking and sleeping states so typical to the post-traumatic stress disorder. In this specific case, the futile struggle for consistency is an inherent part of the disorder. In our opinion, raised levels of inconsistency in psychological functioning play a less obvious but equally important role in the emergence of other psychological disorders. Psychological disorders in general can be seen as a sign that the quest for consistency was not successful.

When a person fails to bring about perceptions which are consistent with their goals and expectations—we could also use the expression motivational schemas—a state of inconsistency comes into being. We can call this type of inconsistency external inconsistency, as it affects the individual's adaptation to external events.

A common reason for a person's inability to bring about perceptions which are congruent with his or her goals is that, opposing the positive motivational (or intentional) schemas, which are aimed at the satisfaction of the individual's needs, are avoidance schemas, which evolved as means of protecting the individual from violations of his or her basic needs. Situations which are relevant to the satisfaction of a basic need simultaneously activate the intentional schemas developed to satisfy that need and the respective avoidance schemas. The need cannot be satisfied and therefore persists. The continual activation of the intentional schemas however, leads to an equally persistent activation of the avoidance schemas. The result is an enduring conflict-tension due to internal inconsistency. Neither the approach-tendency nor the avoidance-tendency can exert a determining influence on psychological functioning. Therefore, psychological activity adopts a not definitely ordered, fluctuating state at a level of high tension. The cause of this psychological situation lies in a persistingly high inconsistency of psychological functioning. Psychological activity is not determined by definite organizational patterns of motivation.

In this situation, new organizational patterns can emerge and be differentially reinforced by the ensuing reduction of inconsistency-tension. These new organizational patterns are not aimed at the reduction of need-related tension, but at the reduction of inconsistency-related tension. We consider psychological disorders to be such qualitatively new patterns in the organization of psychological functioning, which emerge from a situation of persistently raised inconsistency levels. After its formation due to the reduction of existing inconsistency-tension and differential reinforcement, a psychological disorder can develop its own dynamics and detach itself from the original conditions of its development. The disorder then becomes functionally autonomous and persists even after the inconsistency-tension has been dispersed one way or the other.

According to this view (for a more detailed description, see Grawe, 1998), continually raised levels of inconsistency in psychological functioning pose a serious risk to psychological health. They can become the substrate for psychological disorders.

A psychologically healthy person should therefore be equipped with means to prevent the development of persistently high levels of inconsistency-tension. People have such means at their disposal if they have well-developed intentional schemas to satisfy their basic needs and if the opposing avoidance schemas are relatively weak in comparison. However, inconsistency in psychological functioning due to conflicting motivational constellations cannot be completely avoided. As inconsistency jeopardizes the efficiency of interactions with the environment, it makes sense that, in the course of their development, people acquire consistency-safeguards which secure psychological functioning when it is threatened by a rising level of inconsistency. Such consistency-safeguards include e.g., emotion-oriented coping as according to Lazarus and Folkman (Folkman & Lazarus, 1988), or repression, as understood by Freud. Repression ensures the individual's capacity for conscious action by protecting consciousness from too high level of inconsistency. The perceptions, cognitions, and emotions which are not admitted to consciousness then influence psychological functioning implicitly. This involves the danger that the processes pertaining to the implicit and the conscious mode of functioning may be inconsistent and that on a long-term basis, the inconsistency in the system is raised even higher. Consistency-safeguards can therefore play a positive or a negative role in psychological functioning, i.e., there are favorable and less favorable mechanisms for securing consistency. Favorable consistency-safeguards lead to a reduction of inconsistency without impairing the need-related interactions of the individual and his or her environment. Unfavorable consistency-safeguards may lead to a short-term reduction of inconsistency (this allows them to emerge), but on a long-term basis, they hinder effective interactions with the environment and in turn contribute to a further increase in the level of inconsistency.

Inconsistency is accompanied by negative emotions. Mechanisms serving to regulate negative emotions can therefore be also regarded as consistency-safeguards. They are not necessarily part of conscious experience and can proceed

within the implicit mode of functioning. Their positive function is that they prevent the individual from being hindered by unmanageably high levels of inconsistency. To this end, it is sometimes even necessary that they do not become conscious. In the course of his or her socialization, a person can however also develop unfavorable mechanisms of emotion-regulation of which he or she is not conscious.

A person's emotional regulation can therefore play a positive or a negative role with regard to his or her psychological health. It can have a protective effect by preventing the development of high levels of inconsistency without impairing the capacity for action. It can, however, also contribute to a deterioration of psychological health, respectively become a correlate of psychological ill-health.

It is this functional relevance of emotion-regulation mechanisms for psychological health which is the basis of our scientific interest in these mechanisms. In the following, we will first review the most important previous contributions dealing with the functional relevance of emotional control-mechanisms, or consistency-safeguards, for psychological health. Subsequently, we will report on a possible empirical approach developed in our laboratory.

#### COPING AND CONSISTENCY—SOME CONSIDERATIONS

Emotional turbulence may reach such high levels that self protective mechanisms help to forestall incoming information. This is in line with the idea behind the psychoanalytic term *defense mechanisms* (Anna Freud, 1936) and with more recent ideas of coping processes focussing on palliative strategies (Zeidner & Endler, 1996; Parker & Endler, 1996). Such mechanisms—whether we call them defense mechanisms or coping—are part of a general striving for consistency. Psychological theories of balanced structures or motives go back to Lewin's (1935) dynamic theory of personality, Heider's (1946) structuralistic view of personality (see also Allport, 1964), Festinger's (1957) theory of cognitive dissonance, and to approaches trying to graph structural balance (Cartwright & Harary, 1956; Peak, 1958). Recently, Thagard (1989) proposed a neural network approach to simulating explanatory coherence which he sees as a main factor in the justification of action and decision. The common theme of these efforts is the view that human functioning should be balanced between different forces, needs or motives. The more balanced an action or decision is, the more reliable and stable is the output of the system, be the system a person, group, or technical device.

The inhibition of information processing may be a main factor in the development of serious complications and of pathology (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), therefore the psychological aspects of processing information or inhibiting the "normal" way of information processing, are of high clinical relevance, not only for post-traumatic stress disorders, but for all disorders involving the development of inner conflicts. Here, we propose that coherence, a state of minimal conflict, is necessary for psychological health

(Antonovsky, 1990; Moos & Schaefer, 1986). Antonovsky (1990) sees three main components of coherence: A sense of *comprehensibility*, a sense of *manageability*, and a sense of *meaningfulness*. A good sense of coherence, a feeling that life in general follows certain rules, is manageable and meaningful, can be seen partly as the result of personality (Antonovsky, 1993) but also as the effect of good coping strategies for dealing with stressful events. A prerequisite for comprehensibility are consistent experiences, whereas to develop a sense of manageability, strains need to be well-distributed and one needs the possibility of taking part in socially well-recognized decisions. An upbringing which includes both challenges and protection seems to be a necessity in this concept of coherence. Because of the high negative correlations usually reported for coherence and psychological symptoms, it is, however, possible that a good sense of coherence is just the opposite of feeling emotionally distressed (Antonovsky, 1993).

Emotional alarm reactions caused by conflicts must be reduced in order to integrate information which in turn leads to adaptation to new circumstances and to enhanced coherence. Assuming that there is a limited capacity for processing novel and stressful events, codings of discrepant information remain in the active memory (Horowitz, 1986), and information processing is not completed. This leads to experiences of intrusion, e.g., nightmares, or unwanted graphical memories. To avoid entry in such states of mind, controls are activated to modify the cognitive processes (Horowitz, 1991). Following Horowitz (1986), the path from active memory storage to representation and processing can be inhibited, which reduces anxiety. Reduced anxiety reduces the motivation for controls and the tendency of active memory toward representation reasserts itself, leading to a typical cycle between states of avoidance and states of hyperarousal often found in people suffering from reactions of trauma. The progressive modifications of the meaning of recently acquired information, and the progressive modification of preexisting models are ways to enhance coherence that can be both adaptive and maladaptive (for a discussion of adaptive vs. maladaptive see Zeidner & Saklovske, 1996). In making this distinction, we hope to avoid some of the confusion that has plagued earlier scales of emotion focused coping (Stanton, Danoff-Burg, Cameron, & Ellis, 1994).

The distinction of adaptive and maladaptive ways for controlling unwanted psychological states was based on theory and clinical experience. Studies by Pennebaker and others (e.g., Pennebaker, 1993, Pennebaker, Kiecolt-Glaser, & Glaser, 1988) show some evidence that verbal expression of distressing content may indeed enhance psychological functioning and physical health. Adaptive items of content of thought included speaking in depth about emotionally important topics; expressing strong feelings clearly; bringing up stressful topics when talking to a close friend. Maladaptive strategies can provide a short term emotion stifling effect at the expense of long term dysfunction. Examples for maladaptive strategies on the content level are: Putting distressing facts out of attention; making use of distractions to avoid painful memories, making jokes about topics that are hard to handle with, or overreacting emotionally.

In the following, we will explain how emotional regulation is related to information inhibition and distortion in order to protect the individual from overwhelming states.

#### SCHEMAS, OR WHAT HAPPENS WHEN INFORMATION DOES NOT MEET ONE'S EXPECTATIONS

Many of our ideas on emotional regulation are based on the constructivist school of cognitive psychology. We use the term constructivist in the broadest sense here, meaning the way by which people generally construct a mental reality which may not, and usually does not correspond exactly with reality. One of the earliest and most influential contributions in this area came from Bartlett (1932). He carried out the well known "war of the ghosts" experiment where people read an unusual ghost story and were later asked to recall it. By and large what the subjects recalled was not the actual story in detail but a more predictable "usual" version of the story. In other words they recalled what they had expected the story to be. Based on this and other findings, Bartlett put forward the notion of *schemas*. Schemas are types of knowledge structures through which we interact with the environment. They enable us to process information efficiently, but at the same time restrict us by hindering our ability to appraise entirely new and unexpected events. After Bartlett, researchers working within the information processing paradigm looked at memory encoding as a series of sequential processes. In the 1950's a large body of research on the limitations of the perceptual system was done thanks to the development of the tachistoscope. This "New Look" movement established the notion of "perceptual defense," meaning that people will "block out" information they do not want to perceive, because it is self threatening or highly emotionally arousing (Bruner, 1957). In a typical experiment from this era, various nonverbal symbols were shown to Jewish and non-Jewish subjects for very brief periods of time using the tachistoscope. There was no significant difference between subject groups for recognition of items with one major exception: The non-Jewish subjects successfully recognized a swastika amongst other symbols; the Jewish subjects did not. This typical finding supported the idea of *perceptual* defense; the experiment showed how the subjects blocked out the highly arousing stimulus. Although the New Look movement generated a plethora of interesting research findings, its general approach was too simplistic (Erdelyi, 1974) and after the 50s, interest waned.

This is not the place to review all the theoretical approaches to the concept of "control." The concepts of Miller, Galanter & Pribram (1960) or Powers (1973) may however help to clarify the complex task of action and perception control.

### DEFENSIVE REGULATORY ACTIVITY: WHY IT IS NECESSARY AND HOW IT IS DONE

In our terminology, a person may *cope* with stressor events of external origin or *defend* against excessive arousal of internal origin. Thus, *coping manoeuvres* handle external crises imposed by stressful events. *Defensive manoeuvres* handle internal crises. Adaptive defenses can create a useful "time-out" for the restoration of internal equilibrium. Maladaptive defenses lead to a temporary "time-out" which is problematic because of the excessive and prolonged denial of serious personal implications of the stressors.

Control processes regulate preconscious information processing and action planning. We propose that automatic controls can be implemented and altered by either conscious or unconscious intentions or by both. We assume that control processes are implemented by implicit anticipations of possible future outcomes of information processing. Irrational ideas and actions are therefore not viewed as mere breakdown products of impaired brain functions, they are sometimes the result of purposive and restitutive constructive processes. The outcomes of defensive control processes are neither always maladaptive nor always adaptive. Periods of faith and hope, stemming from fantasy compensation for threats and losses can prevent breakdowns due to fatigue and despair. Avoidance can be followed by purposive confrontations, conflict can be reduced in a dose-by-dose manner.

### STRATEGIES THAT PEOPLE USE TO REGAIN THEIR SENSE OF SELF-CONTROL AND EMOTIONAL STABILITY

We propose three main levels of control that influence how representations are processed. The way crucial information is processed has implications for emotional reactions. In a new model of fear extinction, Le Doux (1996) has proposed a theory that the inhibition of the fear response is not an extinction of the learned stimulus but a control process. According to Le Doux, emotional responses are blocked by nuclei of the amygdala, which have strong connections to the prefrontal cortex. Thus, the memory is still in the "brain" and the extinction is achieved by pathway inhibition or interruption. What is important is the notion that activated structures may be used to inhibit emotional responses, which nevertheless remain represented in the system.

Schemas (or cognitive maps), often organize different parallel processes (such as appraisals and revisions of information on the same topic) at the same time. Conscious representation can be regarded as the output of several parallel channels, formed into a composite (Znoj, 1992; Rumelhart & McClelland, 1986). A supraordinate operation combines subordinate sets of information (like nodes forming clusters). The choices involved in this fitting process form a pathway (chreode), which results in a working model organizing a current state of mind. Organizing schemas influence the changing strengths of associational linkages and, at higher levels, these are often schemas of the self and others. These organ-

izing schemas also include scripts (how to do things), roles, and value schemas. Person schemas include transactional sequences that can fulfill wishful and defensive aims and avoid feared consequences.

Our position can be summarized by the statement that consciousness is a possible output of the information processing system; likewise, an emotional response is the product of processed information. Control processes are guided by the anticipation of outcomes varying from desired to dreaded states of mind (compare with positive and negative schemata in the terminology of Grawe and co-workers, e.g., Grawe, Grawe-Gerber, Heiniger, Ambühl, & Caspar, 1996). In this sense, defensive controls are part of a motivational matrix.

Some controls alter the content. Other control processes alter the form. Still other controls can alter person schemas.

In the following classification scheme, we differentiate between processes that control which contents will become conscious, processes that control the form of the conscious representation, and processes that control the organization of schema activation (Horowitz, Znoj, & Stinson, 1996).

The classification scheme consists of various types of control processes, which hinder emotional arousal from reaching a certain level. They are divided into three main categories (control of content, control of form, control of person schemas, and role relationship models) each with its three different types of outcome (adaptive, maladaptive, and dysregulation).

### Controlling Contents

The contents of focal awareness or the plans for communicative expressions can be selected by control processes that shift attention from one topic to another or from one set of concepts to the next. Control processes can change the relevance of concepts to the self and by doing so change the following sequence of concepts. They can also alter the threshold for disengaging attention from a topic.

Adaptively, *shifting the focus of attention from one topic to another* can reduce emotion and prevent a person from entering into a dreaded state of mind. Maladaptively, extended forgetting or denial of a stressful topic can lead to the failure of the coping process.

Concepts are potential ideas about a topic and the sequencing of concepts in cognition can lead to clarity or confusion. *Altering the next concept* can change the emotional valence and direction of a narrative.

A chain of concepts may lead to a solution and can be followed by a second chain of concepts. Weighting the relative importance of such chains to the self may lead to better solutions (see Damasio, 1994). *Altering the importance of a chain of concepts* will affect choices: the significance of a chain of concepts can be exaggerated or minimized, leading either to rational evaluations or irrationally varying meanings.

One can also *declare a topic concluded* before a solution has been reached. Thus, a problematic topic, with its emotional conflicts, is interrupted and personal dilemmas remain unresolved.

### Controlling the Form of Conscious Thought

Emotion can be controlled by altering forms of awareness. Such processes include the alteration of representation, time span, logic level, level of action planning, and arousal level.

A topic of thought might be mainly represented in words, images, or in somatic enactments. Normally, meaning is transferred between the modes. The isolation of meaning in one mode, especially in the lexical mode, can reduce emotion. Often, there is even contradictory meaning between modes, e.g., smiling when telling a sad story. *Switching modes of representation* can help reduce emotional reaction.

Time spans can be set to limit an associational search for information, they may include or exclude the future. The remote or recent past as well as the near or distant future can be specifically focused on in setting an attentional frame. Focusing consciousness on the immediate future can be a help in planning action without being overwhelmed by emotions. *Altering the time span* can therefore be a strategy for emotional control.

People shift the rules of thought from rational problem solving to broad, creative, and even illogical associations. A strategy to decrease emotional reaction is to focus on small, even irrelevant details of a memory, or to switch to very general issues. Preoccupation with cleaning the car or daydreaming of a heroic future can reduce emotion concerning a likely future earthquake. *Altering the logic level* not only influences thought but also emotional reactions.

The focus of attention can change from contemplating art or music to immediate action, for example when climbing a difficult rock or playing football. Control processes can alter a setpoint for the degree of thought and the degree of concomitant motor activity. When used defensively, a person can act too impulsively instead of thinking, or ruminate constantly without taking action (see also Kuhl—latest development). *Changing the level of action planning* is also a strategy for emotional inhibition.

Sometimes, people seek stimuli (so called "sensation seekers"), they may take drugs, try to meditate, and choose calming activities. *Changing the level of activity and arousal* can be deliberately used to avoid serious issues. Both thrills and lethargy can reduce emotional threat.

### Controlling Person and Value Schemas

Emotions can be changed or reduced by altering how the self and others are viewed. Processes that control schema activation can be divided into processes

affecting schemas of the self, schemas of other persons, role-relationship models, value schemas and executive-agency schemas.

Alterations in schemas of the self and others can directly and indirectly alter the emotions that accompany a state of mind. One can reverse the roles for the self and others; for example, instead of experiencing fear, a person can get angry enough to make somebody else anxious. By *altering the roles of the self and others*, one can escape from a *dreaded* state of fear to a stronger position, where one threatens another; in one state, the self is perceived as a victim, the other as an aggressor; in the altered state, the self becomes the aggressor and the other the victim. In the case of a loss, a person may perceive the other in too favourable a way, in order to reduce feelings of guilt.

Role relationship models are internal maps and scripts for social transaction. In any relationship, there are different role relationship models. Some may be desired, some feared, and some may be compromises. For example, the dilemma between the excitement of intimacy and the feared pain of rejection can be reduced by a shift into the compromised view that the relationship is just a game without deeper meaning, as if only playing with possibilities before going on with life.

People always judge actions by value schemas. For example, to make a career at the firm can be of high priority. If one fails, one might change the value system by judging a possible career as morally damaging, thus saving oneself from feelings of remorse. One can even perceive deceit as a good strategy, if it is necessary for a good purpose. *Altering value schemas* often helps to reduce or change emotional reactions that may hinder planned actions.

Executive agency designates the person or persons believed to be in charge of forming plans and prompting action. In everyday life, the "I" as a sense of identity may be the executive agent. The "I" can be changed into a "we" signifying the family or a relevant group. *Shifts in executive agency* may reduce feelings of guilt or enhance feelings of power, as in the case of the "royal we."

The proposed classification of emotion regulation has evolved through efforts in both qualitative research with careful case studies of patients undergoing psychotherapy for stress response syndromes (Horowitz, Znoj, & Stinson, 1996; Horowitz, 1986; Horowitz, Fridhandler, & Stinson, 1991) and quantitative research with studies on instruments registering verbal expression (Horowitz, Stinson, Curtis, Ewert, Redington et al., 1993; Horowitz, Milbrath, Jordan, Stinson, Ewert et al., 1994). For the operationalization of the proposed defensive control theory of emotion regulation, we focussed on reportable strategies and observable outcomes of such mental operations.

The following section summarizes the results obtained with a self-report measure (Znoj, Horowitz, Maercker, & Bonanno, 1998) and with a recently developed observer measure.

### STUDIES WITH THE SENSE OF SELF-CONTROL QUESTIONNAIRE

The Sense of Self-Control Questionnaire was recently developed at the Langley Porter Psychiatric Institute at UCSF. First, studies were conducted with a sample of people who had lost a spouse and with a college student sample. In formulating the items, we followed the theory of defensive control processes. We focused on the outcomes of emotion control and differentiated between adaptive and maladaptive outcomes of regulatory activity within the three postulated levels; content, form, and person schemas and values.

We included the Sense of Self-Control measure in a questionnaire study with undergraduates. The main goal of this study was to establish the reliability of the new measure. At the same time, we also included several coping measures (e.g., Antonovsky's Sense of Coherence, 1987), an anxiety scale and a life-event questionnaire. It turned out that the students had suffered only a few serious life-events and that the main goal of this study—to examine the link between serious life-events and various coping strategies—was not feasible.

At approximately the same time, we also included the Sense of Self-Control measure in a two-year follow-up study within the spousal bereavement project (Horowitz, Siegel, Holen, & Bonanno, 1997) conducted at that time. Two years post-loss, about 50% of the bereaved participants remained in the study. We found no statistical differences between the remaining participants and the ones who dropped out on any of the demographic or other variables.

Internal and external validity of the Sense of Self-Control measure showed good psychometric properties and good stability over time. The distinction between adaptive and maladaptive ways of regulating emotion was empirically validated with adaptive strategies showing high cohesion with adaptive personality traits (Clark, 1993), sense of coherence (Antonovsky, 1993), and general well-being (Horowitz, Sonneborn, Sugahara, & Maercker, 1996), whereas maladaptive strategies were related to experiencing anxiety (Beck, 1988), psychological symptoms (Derogatis, 1977), maladaptive personality traits (Clark, 1993), and neurotic style (Costa & McCrae, 1985). These relations were true for the bereaved as well as for the student group (Znoj, Horowitz, Maercker, & Bonanno, 1998).

On the one side we had a group with almost no serious life-events, consisting of highly educated, well organized, young, and healthy students; on the other a group of middle-aged bereaved persons who had lost their spouses. The fact that these two groups were comparable in terms of economic and educational background set the stage for a comparison between the two samples.

The main quest of the comparison was to test a proposition derived from findings in bereavement literature, namely that the experience of loss can buffer against future losses and stressors (Stroebe & Stroebe, 1993; Vachon, Rogers, Lyall, Lancee, Sheldon, & Freeman, 1982), the opposing view being that disrupt-

tive life-events have an additive and impairing effect (e.g., Holmes & Rahe, 1967).

TABLE 16.2  
Mean (and Standard Deviations) score on SSC-items between the student sample and the 25 months post-loss bereavement group.

SSC Items	<i>M (and SD) for group</i>		<i>F</i>	<i>ETA<sup>2</sup></i>	<i>Post hoc</i>
	<i>Student (1) n=159</i>	<i>Bereaved (2) n=51</i>			
<i>Adaptive items:</i>					
bringing up stressful topic	2.98 (.76)	3.14 (.69)	1.70	.01	
expressing strong feelings clearly	2.97 (.93)	3.31 (.68)	5.81*	.03	B > S
talking in depth about emotions	2.99 (.92)	3.29 (.81)	4.54*	.02	B > S
working hard but also getting rest	2.43 (.94)	3.06 (.90)	17.24***	.08	B > S
let go	2.55 (.93)	3.08 (.82)	12.95***	.06	B > S
having strengths and weaknesses	3.21 (.76)	3.49 (.54)	5.82*	.03	B > S
maintaining equal relationships	3.03 (.87)	3.24 (.76)	2.22	.01	
having good self-esteem					
caring for self and others	3.08 (.87)	3.24 (.84)	1.33	.01	
	3.24 (.77)	3.25 (.74)	.01	.00	
disagreeing without disrupting	3.38 (.70)	3.43 (.57)	.25	.01	

TABLE 16.2 continued

SSC Items	<i>M (and SD) for group</i>		<i>F</i>	<i>ETA</i> <sup>2</sup>	<i>Post hoc</i>
	<i>Student (1)</i> <i>n=159</i>	<i>Bereaved</i> <i>(2) n=51</i>			
<i>Maladaptive items:</i>					
joking about hard to handle topics	2.65 (1.01)	1.94 (.97)	19.36***	.09	S > B
emotionally overreacting	2.48 (1.04)	2.12 (1.05)	4.64*	.02	S > B
getting fed up and leaving using distractions	2.30 (1.00)	1.69 (.86)	15.36***	.07	S > B
becoming confused	2.55 (.97)	2.18 (1.01)	5.55*	.03	S > B
jumbling time	2.20 (.99)	1.63 (.75)	14.15***	.06	S > B
moving restlessly	1.97 (.89)	1.41 (.67)	17.41***	.08	S > B
constantly monitoring	2.30 (.91)	1.84 (.88)	9.68**	.04	S > B
expressing too hastily	2.81 (.90)	2.00 (.92)	30.45***	.13	S > B
misperceiving / misunderstanding	2.48 (.88)	2.10 (.73)	7.72**	.04	S > B
concern with other's feelings	2.16 (.78)	1.78 (.61)	9.98**	.05	S > B
avoiding social situations	2.96 (.94)	2.75 (.82)	2.07	.01	
blaming others	2.91 (.90)	2.41 (1.00)	11.35***	.05	S > B
ending relationship	1.84 (.89)	1.33 (.62)	14.21***	.06	S > B
	1.93 (1.03)	1.59 (.78)	4.79*	.02	S > B

Note: SSC: S = Student Sample, 2 cases missing; B = Bereaved Group, 3 cases missing

\*  $p < .05$  (2-tailed)

\*\*  $p < .01$  (2-tailed)

\*\*\*  $p < .001$  (2-tailed)

When we performed a Principal Component Analysis, we found factor solutions that seemed structurally similar for both groups. We tested the structural equality of a two factor model with a structural equation model with unequal factor correlations (Bentler, 1989). The result indicated that the structure of the questionnaire could be maintained in the two highly different populations. We then compared the levels of the reported strategies for emotional regulation in the two samples. The result of this analysis supported the future losses theory, as the bereaved had higher levels of adaptive strategies and lower levels of maladaptive strategies for dealing with unwanted emotions.

What was really striking was the finding that the students had higher levels on all the items—there was not a single exception—that had been constructed as maladaptive strategies for coping with strong feelings. Students indicated that they would leave a group of people when angered and to avoid painful memories. They used more distractions than the bereaved; they indicated to end relationships to avoid feelings of humiliation; they would monitor themselves and others when overwhelmed with unwanted feelings and—compared to the bereaved—they indicated to express too hastily whatever comes up in those moments. A complete overview is given in Table 16.2.

There are two possible explanations for this result: One explanation follows the idea of a life-long development of defense and coping. This idea, probably most clearly formulated by Vaillant (1993) states that with age a person becomes more adaptive, more gentle, and more wise (see also Brandtstädter & Baltes-Gotz, 1990; Baltes & Smith, 1990). The explanation of a life-long development does not exclude the explanation that we favor: It is not the fact of simply becoming older that makes people wise and more adaptive when coping with stressors but the stressors themselves trigger a learning process that buffers against future stressors. There is only scarce empirical evidence that such learning occurs. Stroebe et al. (1993) quote literature that indicates that previous losses can ease the course of future losses. Kobasa's work on hardiness (Kobasa, 1982) also suggests that life-events might buffer the reaction to future stressors. It is not clear what makes us cope better with distress. Our explanation would be that we learn to use more adaptive regulatory strategies because the maladaptive ones cause symptoms and problems when we use them too much.

Although we favor this interpretation, more work has to be done before we can safely exclude alternative explanations.

Recently, one of the authors (Znoj, 1996), used a translated form of the Sense of Self-Control Questionnaire to study the use of emotion regulation strategies in a group of outpatients in the psychotherapy center of the psychological institute at the University of Bern. The psychometric properties are comparable to the original version used in the two mentioned studies. In this study we were interested in the relation of emotion regulation to reported symptomatic distress levels at pre-treatment. The results indicated that the highest level of experienced emotion (anger and anxiety) and the use of adaptive emotion regulation strategies explain 37% of the total variance of the Derogatis (1977) general symptom index



(Znoj, 1997) in patients who seek psychotherapy. It seems that not only avoidance or inhibition of information (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996) play a major role in the development of symptoms and experience of distress but also the way people deal with their emotions. Although maladaptive regulations have been shown to correlate with distress (the first two studies), here it is the use of *adaptive* strategies in combination with the experienced level of negative emotion (anger and anxiety) which provides the most adequate model of experienced distress.

Hodel (Hodel & Brenner, 1996) has developed a therapeutic approach to dealing directly with such emotion regulation strategies, though the focus lies more in teaching schizophrenics and other seriously disturbed patients how to interpret emotional signals, both from social and body cues.

Dealing directly with emotions may not always be appropriate and there are many findings in the coping literature (e.g., Folkman, Lazarus, Gruen, & DeLongis, 1986) that relate emotion focused coping strategies to problematic states and even serious health complications. The main reason for these statements might be that focusing on emotion and emotional response does not alter the circumstances that lead to the necessity for coping with a situation. Sometimes, however, it is not possible to cope with a situation in a task-oriented manner. At the beginning of this section, we mentioned post-traumatic stress disorder as the main motive to develop a classification of emotion control strategies. In general, situations that cause a prolonged mismatch between expected and experienced reality can lead to a problematic adaptation process, mainly due to emotional pangs and the necessity to avoid, or dampen, these inner stressors.

The focus of existing coping measures is mainly on rational information processing, be that constructive thinking (Epstein & Meier, 1989), task orientation, or problem orientation (Endler & Parker, 1994; Folkman & Lazarus, 1988; Carver, Scheier, & Weintraub, 1989; mindfulness (Langer, 1992), or sense of coherence (Antonovsky, 1987). Only recently has there been a notion that the experience of arousal itself could have adaptive value (Dienstbier, 1989). In our view, not just the arousal itself is important, but how we deal with it. This needs no conscious effort, it seems that inhibitory functions are inherent to the emotion system (Le Doux, 1996; Ekman & Davidson, 1994), and work towards controlling intensity.

### CONCLUSION

Research on the regulation of emotion is a fairly new discipline (Ekman & Davidson, 1994) and our understanding is therefore still limited. Here, we have proposed a classification system that allows the delineation of certain strategies that are reportable and can be accessed by awareness. Emotions certainly have the function of alarming, focusing, and directing attention, decisions, and action (Damasio, 1994). Without variation in emotional experience, our lives would be colorless and empty. Well-being is a balanced state, a sign of a system that can

fully and reliably react to environmental tasks, and in that sense, well-being might also be a coherent state. Emotions and the experience of emotions may be a prime indicator of what is going on, inside and outside of what we call our body.

The control and regulation of potentially disruptive perceptions or unintegrated information is an often neglected perspective both in terms of research and in terms of application in prevention and therapy. In contrast, cognitive strategies such as perceived control over the situation are already established factors in trauma research (e.g., Ehlers, Clark, & Winton, 1997). A sense of autonomy during the traumatic event predicts better outcome in terms of symptomatology, even when the actual situation does not change. A sense that life is meaningful and manageable is inversely related to symptoms (Maercker, 1997). However, social support seems to be more effective in preventing onset of PTSD when the focus is on emotional experience rather than instrumental help (Schützwohl & Maercker, 1997). The research of Pennebaker et al., (1989) showed that talking about the trauma not only enhances subjective well-being but also reduces doctor visits. Regulation of affect is presumably a very important factor to overcome traumatic experience. In our work, we focus on strategies that people report on how they try to control perception and representation of traumatic content. These often automated strategies are shaped by experience and may help to cope better with future threats and losses.

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## Self-Regulation and Rumination: Negative Affect and Impaired Self-Accessibility

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### INTRODUCTION

Since the beginnings of psychology as an experimental science, attempts to investigate phenomena described in terms of *self-regulation*, *volition*, *will-power* or *ego-strength* have been confronted with considerable difficulties. Ach (1910), interested in introspections associated with the *primary act of will*, tried to develop experimental techniques for a *functional analysis* of the accompanying mechanisms. Despite these early attempts, personality approaches to self-regulation have widely relied on global self-report assessments of self-regulatory competence (e.g., Bandura, 1982). In cognitive psychology, experimental approaches to the functional analysis of *controlled versus automatic processing* (Shiffrin & Schneider, 1977) or *executive control* (Baddeley, 1996; Norman & Shallice, 1986) have been developed. Unfortunately, these methods are of limited use for personality research because cognitive approaches do not cover personality processes presumably supported by volitional mechanisms such as resistance to temptation, delay of gratification, self-control of motivational states (Mischel & Mischel, 1983), self-monitoring and self-management (Kanfer & Schefft, 1988) or action control (Kuhl, 1981, 1984). Common to many recent approaches to the study of volition is a shift from global concepts toward attempts to decompose the functional constituents of self-regulation (Allport, Styles & Hsieh, 1994; Kuhl, 1984; Stuss, Shallice, Alexander & Picton, 1995). Validation of a recently developed self-report instrument decomposing self-regulatory competence into 30 functional mechanisms showed a remarkable convergence between subjective and objective indicators of self-regulatory functions (Kuhl & Fuhrmann, in press). Replacing one global index of volitional competence by specific indices of various functional components can help improve practical attempts to develop better procedures for training and psychological intervention (Fuhrmann & Kuhl, in press).

Most scales of the *Volitional Components Inventory* (VCI) developed by Kuhl & Fuhrmann (in press) do not ask for direct judgments of volitional competencies. Instead the instrument addresses many indirect concomitants of self-