New Zealand Journal of Psychology, 1992, 21, 62-66

Pre-Operative Anxiety and Repressive Coping Style : a Commentary

Elaine Fox

Department of Psychology
Victoria University of Wellington

Psychological and pharmacological techniques are commonly used to prepare patients for medical procedures. Individual differences in coping style may substantially affect the outcome of these techniques. A distinction is proposed between truly low-anxious patients, and those using a repressive coping style (i.e., individuals who may express anxiety behaviourally, but deny it on self-report measures). Evidence is reviewed which suggests that these subgroups may respond differentially in terms of their: (i) response to stressful situations, (ii) response to psychological preparation, and (iii) response to benzodiazepine premedication. Such findings have important clinical implications, given that these two groups have generally been considered as a single low-anxious group. While both psychological and pharmacological preparation is of benefit to many patients, it is concluded that patients using a 'repressive coping style' may be better left alone

Repression - Sensitisation

In the 1960s experimental studies indicated that individuals fall along a continuum with respect to the characteristic way in which they respond to threatening stimuli such as stressful movies (e.g., Lazarus & Alfert, 1964). At one extreme were behaviour mechanisms of a predominantly avoiding type (denying, repressing), while at the other extreme were predominantly approaching behaviours. Byrne (1961) developed a self-report questionnaire to measure these dimensions which he termed "repression" and "sensitisation". Sensitisation referred to the propensity to deal with stressful situations with vigilance, using mechanisms such as intellectualisation, rumination, or obsessiveness. Repression referred to the tendency to use avoidance strategies, including repression, denial and rationalisation (Chabot, 1973).

However, it has been shown that Bryne's (1961) Repression-Sensitisation (R-S) scale is highly correlated with standard measures of trait-anxiety (Watson and Clark, 1984), and therefore does not provide an adequate assessment of repression as distinct from anxiety. The R-S scale and trait-anxiety scales correctly identify high-anxious people (sensitisers) but fail to discriminate between truly low-anxious people and people who do not report anxiety because of a repressive coping style. Weinberger, Schwartz and Davidson (1979) have argued that the Marlowe-Crowne Scale of Social Desirability (MC: Crowne & Marlowe, 1960) can be used to make this discrimination between the truly low anxious and repressors. The MC is now generally understood as a measure of the "defensive avoidance of negative affect" (see Crowne and Marlowe, 1964). Weinberger et al. (1979) divided people into three groups on the basis of their trait-anxiety and MC scores. Individuals scoring high on trait-anxiety and low on the MC were considered to be high-anxious (HA), low trait-anxiety and low MC scores indicated low-anxiety (LA), while low trait-anxiety and high MC scores defined those with a repressive coping style (REP). It was found that REPs as a group reacted more strongly than the LA subjects in three physiological measures (heart rate, spontaneous skin resistance responses, and forehead muscle tension) and in three behavioural measures (reaction time, content avoidance, and verbal interference) of stress, in spite of low trait-anxiety scores.

Weinberger (1990) has reviewed subsequent evidence which suggests that the REP group seem to be actively engaged in convincing themselves that they

Address correspondence to Dr Elaine Fox, Department of Psychology, Victoria University of Wellington, P.O. Box 600, Wellington, New Zealand or by email: FOXE@MATAI.VUW.AC.NZ.

I would like to thank Richard Siegert and two anonymous reviewers for their helpful comments on an earlier version of this paper.

are not prone to negative affect. However, these beliefs are frequently contradicted by objective assessments of behaviour and physiology. The initial findings have been replicated and extended by Asendorpf and Scherer (1983) who found that REPs heart-rate changes were significantly greater than those of the LA group, and were equivalent to those of the HA group in a range of stressful laboratory tasks. Likewise, Fox, O'Boyle, Barry and McCreary (1989) investigated HA, LA and REP groups undergoing oral surgery. It was found that on a behavioural rating, two surgeons independently rated the REPs as exhibiting similar levels of distress during oral surgery as the HA group, which was significantly greater than that of the LA group.

These discrepancies between self-report and psychophysiological responding in repressors have been demonstrated for both laboratory and naturalistic settings. The concept of a repressive coping style is now well established, and the wide-ranging literature has recently been reviewed in a volume edited by Jerome L Singer (1990). Of particular relevance in the present context is the compelling evidence that dividing people into high- and low- anxious groups on the basis of a trait-anxiety scale is insufficient, as the "low-anxious" group actually comprises two distinct subgroups: truly low-anxious and repressors. This distinction is of considerable clinical significance as these sub-groups are likely to respond differentially to intervention techniques aimed at controlling pre-operative anxiety.

The Control of Pre-operative Anxiety

Interventions designed to attenuate anxiety in patients undergoing noxious medical procedures have been a major concern of health psychology. The success of these techniques is important given the well documented relationship between high-pre-operative anxiety and poorer post-operative recovery (Mathews & Ridgeway, 1981). However, many interventions have been introduced into clinical practice without a comprehensive evaluation of their efficacy, and serious methodological inconsistencies are relatively common in this literature (Ludwick-Rosenthal & Neufeld, 1988). One of the most consistent findings in the evaluation of intervention techniques is the variability of patient response. The present paper argues that at least some of this variability may be explained by the categorisation of patients' using a repressive coping style as "low-anxious" in most studies. The more common techniques are discussed, and repressive coping style as a possible modifier of their efficacy is considered.

A difficulty in evaluating this literature is the inconsistency of both terminology and measurement procedures. High-anxious individuals have been variously termed sensitisers, confronters or copers. Repressive coping style has been referred to as blunting, avoiding, or denying. The present paper uses the terminology introduced by Weinberger et al (1979) to refer to three coping style groups: high-anxious or sensitiser (HA), truly low-anxious (LA) and repressor or avoider (REP).

Psychological Methods

Commonly used preparatory approaches include informative, psychotherapeutic, modelling, behavioural, cognitive-behavioural and hypnotic techniques (Anderson & Masur, 1983). The efficacy of these procedures have recently been reviewed (Ludwick - Rosenthall & Neufeld, 1988) and therefore will not be discussed in detail here.

The most common and extensively researched technique involves providing the patient with accurate information about the forthcoming procedure. Sensory information is more effective than procedural information, with the combination of the two being the most effective (Anderson & Masur, 1983). However, individual differences in coping styles does modify patient response to information. For example, "REPs" tend not to want information about their forthcoming medical procedure (Miller & Mangan, 1983), and this coping style is significantly related to (1) less desire for information, (2) less factual knowledge, and (3) less vigilant health behaviour in women admitted for gynaecological surgery (Steptoe & O'Sullivan, 1986). It seems likely that individuals who cope with stress by repression or denial would receive little benefit from interventions aimed at heightening their awareness of the impending event. In support of this, REPs respond to preparatory information with increased use of pain medication, increased frequency of complaints, and increased cardiovascular reactivity (Andrews, 1970; Shipley, Butt, Horowitz & Farbry, 1978; Shipley, Butt & Horowitz, 1979). It should be noted however, that while a single presentation of information by video makes REPs more anxious, repeated presentations of the same video does reduce anxiety in this group of patients (Shipley et al., 1979).

Other psychological interventions include the provision of a 'coping strategy' to patients before they undergo surgery. Preoperative relaxation training, for instance, reduces pain and the need for analgesic medication (Wilson, 1981). It is often difficult to determine whether patients actually use the presented strategies since many studies fail to take account of the individual's coping techniques. An

exception is a report by Cohen and Lazarus (1973), where both trait and process measures of coping were examined. Patients were divided into "copers" and "avoiders" on the basis of the extent of their knowledge about their surgery and illness, and their general alertness to the emotional aspects of surgery. A low but significant correlation was observed between Byrne's R-S scale and the process measure of coping. However, only the process measure was related to recovery indices, with vigilant copers experiencing the most complicated post-operative recovery. A limitation of these findings is that the R-S scale alone does not provide an accurate assessment of coping style, as previously discussed.

Pharmacological Methods

While psychological intervention techniques have been extensively researched, they are still relatively uncommon in clinical practice. The more usual method of managing pre-operative anxiety is the use of benzodiazepine pre-medication. The advantages of benzodiazepine sedation are: cardiovascular and respiratory stability, easy maintenance of verbal contact, prominent anterograde amnesia and adequate sedation (Kanto & Klatz, 1982). As with psychological interventions, wide inter-individual differences have been reported in response to these drugs.

An individuals reaction to a drug is the result of a variety of factors, including the drug itself, the social context, expectancy, emotional state and personality factors. Of the latter, trait-anxiety is an important modifier of response to benzodiazepines (see, Janke, Debus & Lange, 1979). HA subjects generally respond to this class of drug with reduced state-anxiety, and performance is sometimes improved. In contrast, LA subjects sometimes respond to the same drugs with paradoxical increases in anxiety, and performance is sometimes impaired (e.g., Parrott & Kentridge, 1982). Explanations of these differential effects have often been based on activation-arousal theory (e.g., Clyde, 1981). However, it has been pointed out, that such explanations are inadequate, since in many cases LA subjects demonstrate reduced alertness after ingesting a benzodiazepine, but simultaneously show paradoxical increases in anxiety (Parrott, 1984).

The anxiety model most commonly used to explain the diverse effects of benzodiazepines is Gray's neuropsychological theory (Gray, 1982). This theory postulates a Behavioural Inhibition System (BIS) located in the septo-hippocampal area of the brain. The main inputs to the BIS are stimuli which warn of punishment, novel stimuli, and innate fear stimuli. Processing of such stimuli result in increased arousal and attention, inhibition of ongoing behaviour, and autonomic activation.

According to this theory, benzodiazepines act by reducing the activity of the BIS, possibly via GABA-mediated inhibition of ascending monominergic fibres to the septum and hippocampus. HA subjects demonstrate greater BIS reactivity than LA subjects, and therefore show the greatest subjective response to a stressor. Under the influence of a benzodiazepine, HA subjects experience reduced BIS reactivity and a greater therapeutic response. In contrast, for LA subjects the BIS is operating efficiently. In this case, administration of a benzodiazepine impairs the BIS, so that, LA subjects experience a loss of control over stimulus events, and this produces the paradoxical increase in anxiety. A pattern of response consistent with Gray's theory has been reported by O'Boyle, Harris and Barry (1986). They found that HA dental patients showed a significant anxiolytic response to oral temazepam in comparison with placebo, while reliable anxiolytic activity was not apparent following either temazepam or placebo for the LA group.

However, recent advances in the understanding of repressive coping style (see Singer, 1990) may offer an alternative explanation for paradoxical increases in anxiety following a benzodiazepine in "low-anxious" subjects. It is well known that benzodiazepines can disinhibit behaviours that have been suppressed by conditioning procedures (e.g., Carlton, Siegel, Murphree & Cook, 1981). These compounds in low doses frequently induce a state of disinhibition. It may therefore be the case that repressors, as a group, strongly inhibit feelings of anxiety. Benzodiazepines in low doses may disinhibit this behavioural suppression, thus leading to an increase in anxiety. In other words, the paradoxical increases in anxiety observed in "low-anxious" subjects following a benzodiazepine, may be characteristic only of the repressors in that group. Unfortunately, to the authors knowledge there has not been a direct test of this hypothesis.

However, a study reported by Jeavons-Wilkinson (1985) is particularly interesting in this regard. She had subjects compete in a reaction time task under the influence of diazepam (10 mg orally) or placebo. Subjects were divided into high- moderate- and low-anxious groups on the basis of the Speilberger trait-anxiety scale. Level of shock-intensity that the subject set for an "opponent" (actually the computer) was the dependent measure of aggression. Under conditions of high provocation, diazepam induced increased aggression for every group. However, under conditions of low provocation, only the low-anxious group showed an aggression-enhancing ef-

fect. This group also showed a sharp increase in self-reported depression, (but not anxiety) following diazepam. Since it has been found that repressors often report less anxiety than low-anxious subjects (Fox, O'Boyle, Lennon & Keeling, 1989), it can be surmised that a large proportion of Jeavons-Wilkinson's (1985) low-anxious group may have been repressors. If this was the case then the disinhibitory effects of diazepam in this group, would support the argument that repressors inhibit emotion, and that benzodiazepines induce a release of this inhibition. However, since repression was not measured in this study, this remains a matter of speculation.

Only one study has been found in which repression-sensitisation was explicitly examined as a factor in anxiolytic drug response. Ullsamer, Doenicke, Ott and Suttman (1983) reported that a benzodiazepine (lormetazepam) altered the anxiety level of repressors to only a slight extent, while the anxiety of sensitisers and patients with normal levels of trait-anxiety, was reduced quite distinctly. Unfortunately, the use of Byrne's R-S scale in this study does not allow for a clear distinction between LA and REP groups.

There is clearly a need for an empirical investigation of the hypothesis that repressors may respond negatively to low doses of benzodiazepines. Such a study should be prospective, and include drug, placebo and no-drug conditions.

Summary and Discussion

In summary, it is apparent that patients differ widely in their response to psychological and pharmacological interventions, with some patients being sensitised (Melamed, 1984). These findings indicate that some patients may be best left alone, while others do benefit from intervention. Clearly, it is important for research to identify which patients require intervention and which don't, prior to presentation for medical or surgical procedures.

It is argued here that categorizing patients with a repressive coping style as low-anxious may mask important clinical differences between REP and LA patients. There is abundant evidence from both laboratory (e.g., Asendorpf & Scherer, 1983; Cook, 1985; Weinberger, et al, 1979) and surgical (e.g., Fox et al, 1989a; 1989b) settings that these groups exhibit differential responses to stress. Whether the groups respond differentially to intervention techniques requires further empirical investigation. However, there are some indications that a repressive coping style (or closely related construct) may modify the effectiveness of interventions (Cohen & Lazarus, 1973; Miller & Mangan, 1983; Shipley et al, 1978; 1979; Steptoe & O'Sullivan, 1986; Ullsamer et al, 1983). An interesting study with myocardial infarc-tion patients supports the view that repressors may not benefit from the provision of information about their illness. Shaw, Cohen, Doyle and Palesky (1985) reported that REPs retained less information about life-style risk factors that did LA patients. More importantly, the sub-group of REPs who did achieve high information levels actually had lower rehabilitation scores and poorer general recovery at a six-month follow up compared to the other groups. In other words, providing information which broke down the repressors defences against threatening information led to less successful rather than to more successful coping.

In conclusion, there is a paucity of empirical data on the interaction between patient coping style and the effectiveness of stress-management techniques in medical settings. The available evidence does suggest, however, that anxiety-reduction techniques may be inappropriate for some patients. There is a need for a more refined methodology to determine which patients benefit from stress management techniques, and which patients are better left to their own devices.

References

Anderson, K.O., & Masur, F.T. (1983). Psychological preparation for invasive medical and dental procedures. *Journal of Behavioural Medicine, 6,* 1-41.

Andrews, J.M. (1970). Recovery from surgery, with and without preparatory instruction, for three coping styles. *Journal of Personality and Social Psychology, 15,* 223-226.

Asendorpf, J.B., & Scherer, K.R. (1983). The discrepant repressor: Differentiation between low anxiety, high anxiety and repression of anxiety by autonomic-facial-verbal patterns of behaviour. *Journal of Personality and Social Psychology, 45,* 1334-1346.

Byrne, D. (1961). The repression-sensitization scale: rationale, reliability and validity. *Journal of Personality, 29,* 334-349.

Carlton, P.L., Siegel, J.L., Murphree, H.B., & Cook, L. (1981). Effects of diazepam on operant behaviour in man. *Psychopharmacology, 73,* 314-317.

Chabot, J.A. (1973). Repression-sensitization: A critique of some neglected variables in the literature. *Psychological Bulletin, 80,* 122-129.

Clyde, C.A. (1981). The influence of personality on response to low doses of benzodiazepines. *Royal Society of Medicine International Symposium, 43,* 75-86.

Cohen, F., & Lazarus, R.S. (1973). Active coping

processes, coping dispositions and recovery from surgery. *Psychosomatic Medicine, 35,* 375-389.

Cook, J.R. (1985). Repression-sensitization and approach-avoidance as predictors of response to a laboratory stressor. *Journal of Personality and Social Psychology, 49,* 759-773.

Crowne, D.P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24,* 349-354.

Crowne, D.P., & Marlowe, D. (1964). *The Approval Motive: Studies in Evaluative Dependence.* New York: Wiley.

Fox, E., O'Boyle, C.A., Barry, H., & McCreary, C. (1989a). Repressive coping style and anxiety in stressful dental surgery. *British Journal of Medical Psychology. 62,* 371-380.

Fox, E., O'Boyle, C.A., Lennon, J., & Keeling, P.W.N. (1989b). Trait anxiety and coping style as predictors of pre-operative state-anxiety. *British Journal of Clinical Psychology, 28,* 88-90.

Gray, J.A. (1982), *The Neuropsychology of Anxiety: An Enquiry into the Functions of the Septo-hippocampic System.* Oxford: Oxford University Press.

Janke, W., De Bus, G., & Lange, N. (1979). Differential psychopharmacology of tranquilizing and sedating drugs. *Medical Problems in Pharmacopsychiatry, 14,* 13-98.

Jeavons-Wilkinson, C. (1985). Effects of diazepam (valium) and trait-anxiety on human physical aggression and emotional state. *Journal of Behavioural Medicine, 8,* 101-114.

Kanto, J., & Klatz, M. (1982). Intravenous benzodiazepines as anaesthetic agents: Pharmacokinetics and clinical consequences. *Acta Anaesthesia Scandinavica, 26,* 554-569.

Lazarus, R.S., & Alfert, E. (1964). The short-circuiting of threat. *Journal of Abnormal Social Psychology, 69,* 195-205.

Ludwick-Rosenthal, R., & Neufeld, R.W.J. (1988). Stress management during noxious medical procedures: An evaluative review of outcome studies. *Psychological Bulletin, 104,* 326-342.

Mathews, A., & Ridgeway, V. (1981). Personality and surgical recovery: A review. *British Journal of Clinical Psychology, 20,* 243-260.

Melamed, B.G. (1984). Health Intervention: Collaboration for health and science. In B.L. Hammonds & C.J. Scheirer (Eds.). *Psychology and Health.* The Master Lecture Series, Vol.3. Washington: American Psychological Society, Inc.

Miller, S.M., & Mangan, C.E. (1983). Interacting effects of information and coping style in adapting to gynaecological stress: Should the doctor tell all? *Journal of Personality and Social Psychology, 45,* 223-236.

O'Boyle, C.A., Harris, D., & Barry, H. (1986). Sedation in outpatient oral surgery: Comparison of temazepam by mouth and diazepam I.V. *British Journal of Anaesthesia, 58,* 378-383.

Parrott, A.C. (1984). Clobazam, personality, stress and performance. *Royal Society of Medicine Inernational Symposium, 77,* 16-33.

Parrott, A.C., & Kentridge, R. (1982). Personal constructs of anxiety under the 1, 5-benzodiazepine derivative Clobazam related to trait-anxiety levels of the personality. *Psychopharmacology, 78,* 353-357.

Shaw, R.E., Cohen, F., Doyle, B., Palesky, J. (1985). The impact of denial and repressive style on information gain and rehabilitation outcomes in myocardial infarction patients. *Psychosomatic Medicine, 47,* 262-273.

Shipley, R.H., Butt, J.H., Horowitz, B., & Farbry, J.E. (1978). Preparation for a stressful medical procedure: Effect of amount of stimulus preexposure and coping style. *Journal of Consulting and Clinical Psychology, 46,* 499-507.

Shipley, R.H., Butt, J.M, & Horowitz, B. (1979). Preparation to reexperience a stressful medical examination: effect of repetitious videotape exposure and coping style. *Journal of Consulting and Clinical Psychology, 47,* 485-492.

Singer, J.L. (1990). *Repression and Dissociation. Implications for Personality Theory, Psychopathology, and Health.* Chicago: The University of Chicago Press.

Steptoe, A., & O'Sullivan, J. (1986). Monitoring and blunting coping styles in women prior to surgery. *British Journal of Clinical Psychology, 24,* 143-144.

Ullsamer, B., Doenicke, A., Ott, H., & Suttmann, H. (1983). Pre-operative anxiolysis with lormetazepam. *Anaesthetist, 32,* 304-312.

Watson, D., & Clark, L.A. (1984). Negative Affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin, 96,* 465-490.

Weinberger, D.A. (1990). The construct validity of the repressive coping style. In J.L. Singer (Ed.). *Repression and Dissociation: Implications for Personalty Theory, Psychopathology and Health.* Chicago: The University of Chicago Press.

Weinberger, D.A., Schwartz, G.E., & Davidson, R.J. (1979). Low-anxious, high-anxious and repressive coping styles: Psychometric patterns and behavioural and physiological responses to stress. *Journal of Abnormal Psychology, 88,* 369-380.

Wilson, J.F. (1981). Behavioural preparation for surgery: Benefit or harm? *Journal of Behavioural Medicine, 4,* 77-103.