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Repressive coping style and positive self-presentation

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Objective. This paper reviews 59 studies looking at cognitive, individual differences and physiological correlates of the repressive coping style, as defined by Weinberger, Schwartz, and Davidson (1979). A central aim is to evaluate the relative importance of the anxiety and social desirability components of repression. Thus, the empirical study investigates the relationships between repression and a number of relevant, but hitherto unexamined, constructs, including trait emotional intelligence (trait EI), self-estimated intelligence, functional and dysfunctional impulsivity, and stoicism. It was hypothesized that repressors would score higher than the other three groups on trait EI, self-estimated IQ and functional impulsivity, but lower on dysfunctional impulsivity.

Method. In total, 259 (174 females) participants from three British universities completed questionnaires measuring the dependent and independent variables. Participants were divided into four groups (truly low anxious, non-defensive/high anxious, defensive/high anxious and repressors) based on their scores on anxiety and social desirability. Analyses (moderated multiple regressions and ANOVAs) were conducted both on the total sample as well as on 'extreme-scoring' individuals.

Results. Where there were significant differences, the hypotheses were supported, particularly with respect to trait EI, self-estimated IQ and impulsivity. Using 'extreme-scoring' groups did not effectively change the results. The regressions revealed an absence of significant interactions between anxiety and social desirability.

Conclusion. Results are discussed in terms of the now replicated effect that repressors present a highly positive and optimistic self-image, despite cognitive and behavioural data suggesting that their coping style is psychologically unhealthy. In addition, it is argued that many findings in the repressive coping style literature can be parsimoniously explained through main effects of anxiety or social desirability alone (i.e., without invoking a construct that combines the two).

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Freud introduced the term 'repression' in the late 19th century (Freud, 1915/1966) and argued that it occurs as a means of protecting the ego. He summed up his concept of repression as 'turning something away and keeping it at a distance from the conscious' and argued that the motive and purpose of repression is the avoidance of anxiety (Freud, 1915/1966, p. 147). Recently, there has been renewed interest in Freudian ideas about defence mechanisms, as well as several attempts to reinterpret them through the current concepts and terminology of social and clinical psychology (Baumeister, Dale, & Sommer, 1998; Cramer, 1998; Loftus, 1993).

Early studies tended to focus on identifying a cognitive mechanism underlying repression. The results of these investigations, which usually involved the measurement of recall for material associated with anxiety-inducing situations, proved to be inconclusive and equivocal (Gilmore, 1954; Kleinsmith & Kaplan, 1963; Levinger & Clark, 1961; Smock, 1957). Many early studies (e.g., Byrne, 1961) concentrated on a conceptualization of the repressive personality that was based on assessing repression by means of the repression-sensitization scale. This scale is less popular now, as it has been found that it correlates highly with several different measures of anxiety (Furnham & Osborne, 1986; Golin, Herron, Lakota, & Reineck 1967; Sullivan & Roberts, 1969; Tudor & Holmes, 1973).

One approach to the measurement and understanding of the repressive coping style that has attracted a great deal of attention is that suggested by Weinberger, Schwartz, and Davidson (1979). They proposed a four-fold typology based on classifying people as high or low on the Taylor Manifest Anxiety Scale (Taylor, 1953) and the Marlowe–Crowne Social Desirability Scale (Crowne & Marlowe, 1964):

A. Truly low anxious: Low on defensiveness and anxiety.
B. Non-defensive/high anxious: Low on defensiveness and high on anxiety.
C. Defensive/high anxious: High on defensiveness and anxiety.
D. Repressors: High on defensiveness and low on anxiety.

Weinberger (1990, p. 338) suggested that 'repressors are people who fail to recognise their own affective responses . . . repressors as a group seem actively engaged in keeping themselves, rather than just other people, convinced that they are not prone to negative affect'. Repressors downplay their state of anxiety and other emotions so that they may appear more socially desirable. Over the last 20 years, more than 60 studies using this categorization scheme have been published. Many of these divided participants into the four groups based on the 2×2 classification and used ANOVAs to test whether the responses of repressors are significantly different from those of the other groups.

The research summarized in the Appendix shows a fairly coherent and consistent pattern. Those studies that have examined cognitive variables (mainly attention and memory) indicate that repressors indeed repress negative cognitions and have attentional and encoding strategies that are highly sensitive to negative or threatening feedback. Individual differences studies using self-report measures nearly all showed repressors to emerge as more psychologically healthy and adjusted than the other groups. However, physiological studies have highlighted the fact that repressors show a discrepancy between self-reported and physiologically measured levels of anxiety. The majority of studies have supported the fundamental hypothesis that while repressors report healthy adaptation and coping, objective cognitive or physiological measures indicate that they are hypersensitive to anxiety-provoking information, particularly when such information is of a personal nature.

Originally, Weinberger *et al.*'s (1979) classificatory system was designed to examine responses to acute anxiety in laboratory settings and focused on individuals who did not report experiencing anxiety. However, its popularity grew rapidly and the system is now used in a variety of settings and circumstances, as can be seen in the Appendix. There have been questions, however, about the choice of the anxiety and social desirability measures used to classify participants, sparked by conceptual distinctions that researchers have proposed (Furnham & Traynar, 1999; Paulhus, 1984). Also, disentangling main effects and interactions by performing two-way, rather than one-way, ANOVAs has shown that anxiety is much more salient than social desirability in defining repressors (Furnham, Petrides, & Spencer-Bowdage, 2002; Furnham & Traynar, 1999; Schimmack & Hartmann, 1997).

The present study extends the dependent variables used in this area of research to four new domains: emotional intelligence, self-estimated intelligence, impulsivity and stoicism. In addition, the study investigates the relative importance of anxiety and social desirability in the concept of repression by conducting both one-way ANOVAs and moderated multiple regressions that allow examination of the main effects as well as the interactions between the two component variables. Moderated regression (see Cohen & Cohen, 1983) is a statistical method for testing the hypothesis that the effect of one variable depends on the level of another. In the present study, we created an interaction term by multiplying anxiety and social desirability scores. The hypothesis that anxiety and social desirability interact is then tested by adding this interaction term to a model that already contains simple linear effects for each variable separately. If the interaction term is statistically significant, it supports the hypothesis that the effect of anxiety depends on the level of social desirability and vice versa. If it is not, there is no evidence that the effects of one predictor depend on the level of the other.

The first aim of this paper was to examine how sensitive are repressors to the socially desirable aspects of constructs measured via self-report. This led to the choice of two questionnaires measuring functional and dysfunctional impulsivity. It also led to the choice of trait emotional intelligence (trait EI), which concerns one's *self-perceived* ability to process and utilize emotion-laden information (Petrides & Furnham, 2000a, 2000b, 2001). It was predicted that repressors would have higher scores on the desirable variables (e.g., functional impulsivity, trait EI) and lower scores on the undesirable variables (dysfunctional impulsivity). With respect to stoicism, it was predicted that few clear-cut differences would be observed because, unlike the other dependent variables in the study, its social desirability is largely unclear.

The second aim of the study was to revisit the concept of repression by means of a different analysis of the data. The early work by Byrne (1961) was criticized for confounding repression and anxiety, but it remains unclear whether the work of Weinberger (Weinberger, 1990; Weinberger *et al.*, 1979) does likewise. Thus, the data in this study are analysed both through the traditional one-way ANOVAs and through moderated multiple regressions, which examine main effects of anxiety and social desirability as well as their interactions.

Several previous studies used two-way ANOVAs in an attempt to examine main effects and, more importantly, interactions between anxiety and social desirability (Furnham *et al.*, 2002; Furnham & Traynar, 1999; Schimmack & Hartmann, 1997). These studies have consistently revealed a lack of significant interaction effects. However, examining interactions through ANOVAs discards potentially useful information because the procedure requires that the anxiety and social desirability variables be dichotomized. The present study aims to examine interaction effects at the interval level

by means of moderated multiple regressions. It should be noted that a lack of significant interaction terms in these analyses would cast doubt on the practice of defining repressors through combining their scores on anxiety and social desirability.

Rather than focusing exclusively on the issue of whether repressors try to convince themselves that they are not prone to negative affect, the present study aims to examine whether this group also provides exaggeratedly positive responses on socially appealing variables. If this turns out to be the case, a new approach to the study of repression may be possible, whereby discrepancies between repressors' objective and self-reported scores on socially desirable variables can be explored, established and explained.

A. Emotional intelligence

Emotional intelligence (EI) was originally defined as 'a type of social intelligence that involves the ability to monitor one's own and others' emotions, to discriminate among them, and to use this information to guide one's thinking and actions' (Salovey & Mayer, 1990, p. 189). Petrides and Furnham (2000a, 2000b, 2001) differentiated between two types of EI, based on whether the construct is assessed through self-report (trait EI) or maximum performance measures (ability EI). Because EI is always portrayed as a highly desirable faculty (e.g., Goleman, 1995, 1998), it was predicted that repressors would provide exaggeratedly positive self-reports in an attempt to present a more attractive self-image. Various self-report measures have now been devised to measure trait EI. The present study uses a measure devised by Schutte *et al.* (1998). The present study hypothesized (H1) that despite the evidence from cognitive studies indicating that repressors are not particularly self-aware (see the Appendix), they will emerge with significantly higher trait EI scores than the other three groups.

B. Self-estimated IQ

The relationship between psychometrically measured IQ and self-estimated IQ shows a rather weak correlation around the $r = .20$ level (Furnham & Rawles, 1999; Paulhus, Lysy, & Yik, 1998). Explicit self-estimates of ability, competency and trait scores following a normal distribution curve are easy to understand. It is also easy to understand the positive and socially desirable end of the measurement scales. Hence, it was thought that on such measures repressors would be clearly differentiated from the other three groups as they typically present themselves in the 'best possible light'. In this study, participants were required to estimate their IQ scores on 12 facets derived from a study of laypeople's conceptions of intelligence (Sternberg, Conway, Ketron, & Bernstein, 1981). The present study predicted (H2) that repressors would give higher IQ self-estimates than the other three groups.

C. Impulsivity

Impulsivity has been defined as 'the tendency to deliberate less than most people of equal ability before taking action' (Dickman, 1990, p. 95). It has generally been thought of as a negative characteristic, but Dickman distinguished between functional and dysfunctional impulsivity. He defined the former as the tendency to act with relatively little forethought when such a style is optimal and the latter as the tendency to act with less forethought than most people of equal ability when this tendency is a source of difficulty. On the basis of this differentiation, Dickman constructed two reliable scales that are only modestly correlated ($r = .23$). He found that functional impulsivity was

more closely associated with enthusiasm, adventurousness and activity, while dysfunctional impulsivity was more closely associated with disorderliness and a tendency to ignore hard facts in decision making. Dickman also found that functional impulsives were more likely to report benefiting from their impulsivity than dysfunctional impulsives. Brunas-Wagstaff, Tilley, Verity, Ford, and Thompson (1997) concluded that this distinction could also be made in children and that functional impulsivity, more so than dysfunctional impulsivity, was associated with sensation-seeking or venturesomeness, as defined by Zuckerman (1994).

The difference between these two types of impulsivity is subtle, but important. The question addressed here is whether repressors are sensitive to the differences between the items that make up the two scales. Thus, the third hypothesis (H3) in the present study was that, compared to the other three groups, repressors would have the highest functional, but lowest dysfunctional, impulsivity scores.

D. Stoicism

The denial and suppression of emotion is at the heart of the modern concept of stoicism and fortitude (Furnham, 1992). The stoics believed that being indifferent to pain and pleasure and exercising firm self-control were the best routes to happiness. Wagstaff and Rowledge (1995) devised a 20-item scale based on their definition of stoicism in terms of three specific characteristics: '(a) lacking in emotional involvement, (b) lacking in emotional expression, and (c) exercising emotional control or endurance' (p. 181). As validity data, they showed that males are more stoic than females and that stoic attitudes are related to lack of sympathy for the poor.

The concept of stoicism is not dissimilar to that of repression, although the former seems overall more functional and the latter more dysfunctional as a coping strategy. More importantly, stoicism involves the suppression of both pleasure and suffering, whereas repressors seem more concerned with the repression of negative emotions. Nevertheless, since it remains unclear whether stoicism as a coping strategy is psychologically adaptive or maladaptive in the long-term, it was hypothesized (H4) in the present study that repressors would not differ significantly from the other three groups.

Method

Participants

In total, there were 259 participants, 174 females and 85 males, with ages ranging from 18 to 50 years ($M = 22.21$, $SD = 5.90$). The majority were undergraduate students, while others were drawn from a variety of backgrounds. Most were single (88.5%) and the rest either married (7.3%) or separated/divorced (2.6%). All were native English speakers who had completed secondary education.

Measures

Repression was assessed with the Marlowe–Crowne Social Desirability Scale (MCSD; Crowne & Marlowe, 1964) and the Taylor Manifest Anxiety Scale (TMAS; Taylor, 1953). Following Weinberger *et al.* (1979), participants were divided into four groups according to whether they scored above or below the mean on the MCSD ($M = 11.39$) and the TMAS ($M = 13.55$). Classification of the groups was as follows: Group 1: 'truly low

anxious' (27 males and 32 females); Group 2: 'non-defensive, high anxious' (12 males and 57 females); Group 3: 'defensive, high anxious' (17 males and 38 females); and Group 4: 'repressors' (28 males, 48 females). It was possible to analyse the data from 'extreme-scoring' individuals (based on the semi-interquartile range) so as to identify the four said groups more clearly. This reduced the sample size to 132 participants.

Trait EI was measured with the 33-item emotional intelligence questionnaire devised by Schutte *et al.* (1998). This comprises four factors (Ciarrochi, Chan, & Bajgar, 2001; Petrides & Furnham, 2000a) that were used in this study, in addition to an overall score. The four factors were labelled 'optimism', 'appraisal of emotion', 'social skills' and 'utilization of emotion'.

Self-estimated intelligence was assessed with a 12-item scale devised by Furnham (1999), based on Sternberg *et al.*'s (1981) study on lay theories of intelligence, which showed that laypeople have well-formed intelligence prototypes corresponding to verbal, practical and social intelligence. Four examples were taken from each grouping, such as 'speaks clearly and articulates', 'makes good decisions' and 'is sensitive to other people's needs and desires'. Participants were shown a normal distribution with labelled standard deviations and were asked to estimate their IQ on each of the 12 items. Previous research in the area of self-estimated intelligence suggests that self-estimates of IQ have relatively clear factor structures (Furnham, 1999).

Impulsivity (functional and dysfunctional) was measured with the Dickman Impulsivity Inventory (Dickman, 1990). This comprises 23 items, 11 of which load primarily on functional impulsivity and the remaining 12 on dysfunctional impulsivity. The reported alpha for functional impulsivity was .74, whereas that for dysfunctional impulsivity was .85 (Dickman, 1990).

Stoicism was measured with Wagstaff and Rowledge's (1994) stoicism scale. This scale consists of 20 statements, which tap popular views of stoicism like lack of emotional involvement ('I do not get emotionally involved when I see suffering on television'), dislike of free emotional expression ('I tend to keep my feelings to myself'), and ability to endure hardship ('one should keep a stiff upper lip'). Wagstaff and Rowledge presented the split-half reliability of this measure as well as evidence of concurrent validity, but they did not investigate its factor structure. In the present dataset, a factor analysis with VARIMAX rotation yielded four factors that together accounted for 47% of the overall variance. The first factor involved items about being dispassionate (e.g., 'expressing emotion is a sign of weakness'), the second about problem sharing (e.g., 'a problem shared is a problem halved'), the third about emotional concealment (e.g., 'I tend to keep my feelings to myself') and the fourth about sentimentality (e.g., 'I sometimes cry in public').

Results

Pearson product-moment correlations were computed for the total scores on the six dependent variables. Table 1 shows that these correlations were generally low, with none of the values exceeding ± .35 either on the total or on the 'extreme-scores' sample. Functional and dysfunctional impulsivity were only modestly correlated at $r = .18$.

The data were analysed in two ways. First, a series of moderated multiple regressions was performed, with social desirability, anxiety and their interaction treated as continuous rather than as dichotomous variables in order to make full use of the available information. This analysis was then repeated on 'extreme-scoring' groups,

Table 1. Correlations between the dependent measures for the total sample (below the diagonal: $N = 259$) and for the 'extreme scores' sample (above the diagonal: $N = 132$)

	1	2	3	4	5
1. Assessed EI	—	.33**	.31**	−.18*	.22**
2. Self-estimated IQ	.25**	—	.25**	−.25**	.21*
3. Functional impulsivity	.27**	.21**	—	.10	−.06
4. Dysfunctional impulsivity	−.10	−.25**	.18**	—	−.04
5. Stoicism	.27**	.11	−.04	−.01	—

*$p < .05$; **$p < .01$.

following Myers and Vetere (1997) who argued that patterns that are more distinct appear to result when the groups are defined based on extreme scores. Second, a MANOVA, followed by univariate ANOVAs with *post hoc* tests, were conducted to compare the four groups on the dependent variables. The four groups were created through mean splits on the two independent variables. This analysis was also repeated on 'extreme-scoring' groups.

Moderated multiple regressions: total sample and extreme-scoring groups

Total scores on each of the five dependent variables were regressed on anxiety, social desirability and their interaction. As can be seen in Table 2, there were main effects of anxiety on total estimated IQ and functional impulsivity as well as of social desirability on dysfunctional impulsivity. However, in none of these analyses did the interaction terms approach significance. This was also the case for the analyses based on extreme-scoring groups, which are not reported in detail.[1]

MANOVA and one-way ANOVAs

The results of the MANOVA revealed the presence of significant differences between the four groups, Wilks's $\lambda(15, 693) = 4.17$, $p < .01$. The follow-up ANOVAs showed that there were significant differences in all dependent variables, with the exception of stoicism (see Table 3). More specifically:

(1) *Trait EI.* There were significant differences on the overall score as well as on one of the factors (optimism). As hypothesized (H1), the repressor group had the highest overall score, although it was significantly different only from the non-defensive/high anxious group. On the 'optimism' factor, the repressor group scored significantly higher than the non-defensive/high anxious and the defensive/high anxious groups.

(2) *Self-estimated IQ.* All four ANOVAs were significant and the *post hoc* tests indicated that repressors scored significantly higher than the non-defensive/high anxious group on the first and third factors as well as on the overall score. The repressor group also scored significantly higher than the defensive/high anxious

[1] *For purposes of completeness, a series of two-way ANOVAs was carried out on both the total scores and the factor scores of each dependent measure. The results were quite clear: on two thirds of the analyses, there was a main effect of anxiety. Less than a quarter of the analyses revealed a main effect of social desirability. There were fewer significant interactions than would be expected by chance.*

Table 2. Regressions of the five dependent variables on anxiety (A), social desirability (SD) and their interaction (A×SD)

	Trait EI		Self-estimated IQ		Functional impulsivity		Dysfunctional impulsivity		Stoicism	
	$F(3,255) = 7.28^{**}$ $R^2_{adj} = .07$		$F(3,255) = 9.05^{**}$ $R^2_{adj} = .09$		$F(3,255) = 15.89^{**}$ $R^2_{adj} = .15$		$F(3,255) = 8.67^{**}$ $R^2_{adj} = .08$		$F(3,255) = .13$ $R^2_{adj} = .00$	
	β	t	β	t	β	t	β	t	β	t
A	−.30	1.72	−.51	2.94**	−.54	3.25**	.11	.63	.05	.25
SD	.09	.66	−.15	1.14	−.15	1.17	−.26	2.03*	.00	.01
(A×SD)	.12	.64	.23	1.27	.16	.88	.04	.19	−.01	.04

*$p < .05$; **$p < .01$.

Tables 3a–3e. Descriptives and results from the one-way ANOVAs

Table 3a. Trait EI (4 factors)

Variable	α	Truly low anxious (a)	Non-defensive high anxious (b)	Defensive high anxious (c)	Repressors (d)	*F*	Dunnett's *t* tests
Optimism (1st factor)	.80	47 (6.6)	42 (7.1)	44 (7.1)	49 (6.7)	14.42**	*d* > b, c
Appraisal of emotion (2nd factor)	.75	40 (6.4)	40 (6.3)	40 (7.5)	40 (6.5)	.07	—
Social skills (3rd factor)	.71	41 (5.8)	41 (6.1)	42 (5.6)	43 (5.6)	1.61	—
Utilization of emotion (4th factor)	.87	21 (3.4)	22 (3.6)	21 (3.7)	21 (3.6)	1.01	—
Total score	.88	169 (18.7)	166 (19.6)	167 (19.2)	175 (18.6)	3.07*	*d* > b

Table 3b. Self-estimated IQ (3 factors)

Variable	α	Truly low anxious (a)	Non-defensive high anxious (b)	Defensive high anxious (c)	Repressors (d)	F	Dunnett's *t* tests
1st factor	.87	329 (35.8)	302 (43.5)	315 (36.6)	329 (45.2)	6.53**	*d* > b
2nd factor	.82	220 (26.5)	211 (31.7)	207 (29.2)	220 (29.8)	2.99*	*d* > c
3rd factor	.81	235 (26.0)	221 (30.6)	238 (25.4)	234 (25.4)	4.66**	*d* > b
Total score	.90	1351 (105.8)	1225 (140.0)	1293 (106.3)	1343 (137.6)	8.49**	*d*> b

Table 3c. Functional impulsivity

Variable	α	Truly low anxious (a)	Non-defensive high anxious (b)	Defensive high anxious (c)	Repressors (d)	*F*	Dunnett's *t* tests
Functional impulsivity	.79	6.8 (2.84)	4.9 (2.98)	5.2 (2.87)	6.5 (2.85)	6.37**	*d* > b

Table 3d. Dysfunctional impulsivity

Variable	α	Truly low anxious (a)	Non-defensive high anxious (b)	Defensive high anxious (c)	Repressors (d)	*F*	Dunnett's *t* tests
Dysfunctional impulsivity	.82	3.9 (3.24)	4.8 (3.56)	3.4 (3.29)	2.5 (2.75)	6.29**	a, b > *d*

Table 3e. Stoicism (4 factors)

Variable	α	Truly low anxious (a)	Non-defensive high anxious (b)	Defensive high anxious (c)	Repressors (d)	*F*	Dunnett's *t* tests
1st factor	.71	24 (4.4)	24 (4.4)	22 (5.6)	24 (3.8)	3.19*	*d* > c
2nd factor	.69	19 (4.0)	19 (5.4)	18 (4.2)	19 (4.2)	.84	—
3rd factor	.67	18 (4.9)	18 (4.5)	17 (5.4)	19 (4.7)	.88	—
4th factor	.64	16 (5.5)	19 (4.5)	18 (5.6)	17 (5.4)	2.69*	—
Total score	.84	99 (17.7)	101 (15)	95 (19.6)	100 (17.0)	1.00	—

* $p < 0.05$; ** $p < 0.01$.

group on the second factor of self-estimated IQ. These results provide support for H2.

(3) *Impulsivity.* The results of the analyses on functional and dysfunctional impulsivity were significant and supported H3. Although repressors were not significantly different from the defensive/high anxious group, they did score significantly *lower* than the truly low anxious and the non-defensive/high anxious groups on dysfunctional impulsivity, and *higher* than the non-defensive/high anxious group on functional impulsivity.

(4) *Stoicism.* Three of the five ANOVAs did not reach significance levels. There was a marginal effect on the first factor, with repressors scoring significantly higher than the defensive/high anxious group.

MANOVA and one-way ANOVAs on extreme-scoring groups

The above analyses were repeated on extreme-scoring participants. The pattern of findings remained largely the same, thus indicating that the accentuation of differences due to the use of extreme-scoring groups was largely counterbalanced by the loss of power. These results are not reported in detail, but are available from the second author.

Discussion

The findings of this study supported most of the hypotheses in the sense that repressors came out looking most healthy and adapted. The results also indicated that repressors tend to score similarly to the truly low anxious group, but often differently from the two high anxious groups. Repressors had the highest or second highest score on total trait EI, total self-estimated IQ and functional impulsivity. In contrast, they had the lowest score on dysfunctional impulsivity. Concerning stoicism, the results were in line with the hypothesis in as much as most comparisons did not reach significance levels. Moreover, the two differences that reached significance were in the opposite direction, with repressors scoring lower than the non-defensive/high anxious group in the extreme-scoring sample, but higher than the defensive/high anxious group in the total sample. As has been found in previous studies (e.g., Furnham *et al.*, 2002; Furnham & Traynar, 1999), the one-way ANOVAs showed that the most frequent significant differences were between the repressor and the non-defensive/high anxious groups.

Repressors generally 'presented' themselves as intellectually and emotionally brighter than the other groups. While there is little evidence that repression is linked to cognitive ability, it does seem that the repressive coping style is almost antithetical to the conception of the emotionally intelligent person. Thus, while repression is about the denial and suppression of (negative) emotions, EI involves coming to terms with, and where appropriate displaying, such emotions. In spite of this, the repressor group had the highest total trait EI scores.

The results on impulsivity show that repressors can easily distinguish between functional and dysfunctional impulsivity and imply that they would be able to differentiate between any set of 'desirable' and 'undesirable' variables. Indeed, repressors appear to be hypervigilant for signs of healthy versus unhealthy adaptations.

As regards stoicism, it may be argued that it is a form of repression itself, since it entails indifference to suffering and pleasure, which in turn requires some degree of emotional repression. However, the terms are certainly not synonymous, as repressors show positive emotions while hiding negative ones, whereas stoic individuals hide both.

As hypothesized (H4), a reason why most comparisons did not reach significance levels is that stoicism items could have been baffling for repressors, since they pertained to the suppression of both negative *and* positive emotions. From a repressor's perspective, items like 'I tend not to express my emotions' or 'I believe that it is healthy to express one's emotions' are not straightforward because they cannot be answered in a socially desirable manner.

The results from the one-way ANOVAs showed that the most persistent differences were between repressors and the two high anxious groups (particularly the non-defensive/high anxious). As has been found in previous studies (e.g., Furnham *et al.*, 2002; Furnham & Traynar, 1999), anxiety seemed to be a better discriminator than social desirability, a finding corroborated by the two-way ANOVAs (see footnote 1 above). Moreover, the moderated multiple regressions also revealed a clear lack of significant interactions. Based on these results, it could be argued that the Weinberger *et al.* (1979) classificatory scheme is driven chiefly by its anxiety component and, in that sense, it parallels the early repressor-sensitisation scale of Byrne (1961) that was strongly confounded with anxiety. This finding appears to be robust, as it emerges irrespective of the scales that are used to classify individuals into the 2×2 typology (Furnham *et al.*, 2002; Furnham & Traynar, 1999). It therefore seems that at least some of the findings based on Weinberger *et al.*'s classification system can be more parsimoniously understood within a simpler framework of general anxiety or neuroticism.

The crucial issue is whether anxiety alone is sufficient to account for these results or whether anxiety in combination with social desirability provide a more useful conceptual framework. The results from the regressions and the two-way ANOVAs suggest that anxiety is more salient than social desirability. More importantly, the repressor and the truly low anxious groups, which differ only on the dimension of social desirability, were significantly different in only one of 16 comparisons (dysfunctional impulsivity; see Table 3). What makes this finding even more prominent is that the dependent variables chosen for this study are generally susceptible to faking good. This seems to lead to the conclusion that the importance of defensiveness in the definition of the repressive coping style is rather limited.

The above conclusion needs to be qualified in two ways. First, most of the dependent variables in this study were socially appealing and therefore addressed the question of whether repressors provide exaggeratedly positive responses and not whether they tend to conceal their proneness to dysfunctional behaviours and negative affect, which are the most characteristic features of repression. It may be that social desirability plays a more important role in the latter than in the former case. Within this context, it is interesting to point out that the only case where the repressor group scored differently from the non-defensive/high anxious group was on a variable that assessed a dysfunctional behaviour (dysfunctional impulsivity). Second, it is not possible with the present dataset to relate the four groups' self-reports to objective measures of the dependent variables. Consequently, the possibility that social desirability is a more effective discriminator with objectively measured variables cannot be ruled out. Indeed, it should be noted that several experimental studies in the literature have revealed main effects of social desirability, but no effects of anxiety or interactions between the two (Kline, Bell, Schwartz, Hau, & Davis, 1998; Kline, Knapp-Kline, Schwartz, & Russek, 2001; Kline, Schwartz, Allen, & Dickman, 1998). It is therefore essential to acknowledge that the salience of social desirability effects may vary across different contexts and experimental procedures.

It is also important to remember, however, that Weinberger *et al.*'s (1979)

classification scheme posits interaction effects between anxiety and social desirability. In other words, although it is possible that a different selection of dependent variables might have led to a greater number of significant social desirability main effects, it is unlikely given the findings of studies that have examined this issue before (Furnham *et al.*, 2002) that there would be many interactions between the two components. It therefore seems crucial that future research systematically evaluate the processes through which each of the two components of the repressive coping style operates and, more importantly, whether these processes function independently or in tandem.

It should also be noted that Weinberger *et al.*'s (1979) classification, at least as applied to self-report measures, fails to take into account the presence of common dissimulators. It is very likely that within the group identified as repressors there is a sizable subgroup of liars (i.e., individuals who consciously and wilfully distort their responses in order that they may appear better than they really are). Of course, in theory these individuals bear little resemblance to repressors whose response profile is very similar to that of dissimulators, but has different antecedents.

The findings of this study indicate that repressors, in addition to their efforts to appear impervious to negative affect, tend to exaggerate their positive attributes. Furthermore, when such attributes are measured through self-report, the anxiety facet of the repressive coping style appears to be more salient than the social desirability facet. Clearly, for these findings to be corroborated it is important that dependent measures, such as behavioural performances, maximum performance tests, physiological and perhaps neuroimaging data, be collected. Such research could establish whether repressors' self-reports on socially appealing variables present the same discrepancies when compared to objective measures as their responses to anxiety variables. Most important, it can shed light on the validity and theoretical utility of the conceptualization of the repressive coping style as a compound of anxiety and social desirability.

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Appendix: Studies based on Weinberger *et al.*'s (1979) classificatory system

Cognitive variables

Authors	Sample size	Focus of study—measures	Core findings*
Tolkmitt & Scherer (1986)	60 (27 females)	Effects of stress on vocal parameters (phonatory and articulatory).	Female repressors articulated better than their high and low anxiety counterparts under low emotional and high cognitive stress conditions.
Davis (1987)	Study 1 = 80 Study 2 = 80 Study 3 = 40 (All female samples)	Accessibility of affective memories.	Repressors exhibited a limited accessibility to personal, real-life affective memories, particularly for fear and self-consciousness experiences.
Davis & Schwartz (1987)	30 females	Recall of personal childhood experiences under different emotional conditions, and ratings of affective intensity of the memories as well as current mood.	Repressors recalled fewer negative memories and were older at the time of the earliest negative memory recalled than the high anxious and truly low anxious groups.
Hansen & Hansen (1988)	433	Recall of emotional memories.	Repressors associative network of negative emotional memories is more discrete and less complex than that of non-repressors.
Dawkins & Furnham (1989)	62	Stroop test with emotional words.	Repressors showed greater interference with emotional words than non-repressors.
Bonanno, Davis, Singer, & Schwartz (1991)	136	Dichotic listening task with neutral and negative affective words.	Repressors only recognize memories for negative words at chance level, therefore use avoidant information processing mechanism.
Baumeister & Cairns (1992)	Study 1 = 104 Study 2 = 60	Time spent reading, and memory for feedback in public and private situations.	Repressors spent less time in private, but more in public reading threatening feedback. Repressors showed superior recall for some threatening feedback.

Authors	Sample size	Focus of study—measures	Core findings*
Hansen, Hansen, & Shantz (1992)	Study 1 = 147 Study 2 = 81 Study 3 = 77	Appraisal of individual emotional expressions, 'crowds' of emotional expressions, and 'crowds' of geometric shapes.	Repressors appraisals of non-dominant emotions consistently fell below those of non-repressors.
Fox (1993)	332	Attentional functioning using emotionally threatening words.	Repressors shifted visual attention away from emotional threatening words, a phenomenon not observed in non-repressors.
Myers & Brewin (1994)	149 females	Autobiographical memories.	Repressors' accounts of childhood are characterized by paternal antipathy and indifference. They are also less likely to report having close relationships with their fathers.
Myers & Brewin (1995)	58	Recall of emotional material.	Repressors recalled significantly fewer negative phrases than non-repressors, but there were no differences with respect to positive phrases.
Holtgraves & Hall (1995)	201	Recall of experiences of positive and negative emotions. Recall of emotional word test.	Repressors recalled more positive experiences than non-repressors. Repressors recalled less negative words.
Cutler, Larsen, & Bunce (1996)	60	Recall of affect.	Repressors report low levels of average daily unpleasant affect and levels fall lower after delayed recall.
Mendolia, Moore, & Tesser (1996)	Study 1 = 337 Study 2 = 396 Study 3 = 53	Attention to emotional stimuli after receiving positive and negative feedback.	Repressors are hypersensitive in their cognitive attention to both negative and positive emotional events. Repressors fail to encode all negative information.
Myers & McKenna (1996)	78	Stroop tasks involving colour naming of socially threatening words.	In contrast to repressors, non-repressors showed an emotional Stroop effect (retarded colour naming of emotional words compared to neutral words).

Authors	Sample size	Focus of study—measures	Core findings*
Derakshan & Eysenck (1997a, b)	Study 1 = 88 Study 2 = 149	Self- and other-rated anxiety.	High anxious people overestimate while repressors underestimate their self-reported anxiety, compared to observer ratings.
Schimmack & Hartmann (1997)	Study 1 = 61 Study 2 = 156	Judgment of presence and intensity of emotions in scenarios.	Repressors indicated unpleasant emotions presence less frequently.
Derakshan & Eysenck (1998)	79	Verbal reasoning under high and low memory conditions.	Both low anxious and repressor groups had low levels of worrying and other anxiety-related task-irrelevant thoughts.
Myers, Brewin, & Power (1998)	Study 1 = 58 Study 2 = 46	Directed forgetting of emotional material.	Repressors forgot more negatively valenced words than non-repressors in a set of to-be-forgotten material.
Brosschot, de Ruiter, & Kindt (1999)	69	Stroop test with emotional words.	High state anxiety was related to greater Stroop interference of physical threat words as well as social words, both threat and positive.
Newman & Hedberg (1999)	Study 1 = 73 Study 2 = 38	Self-report autobiographical memories associated with words representing different emotions.	Repressors report fewer descriptions of negative events. Biases encoding mechanisms explain why fewer negative events are available for recall by repressors.
Derakshan & Eysenck (1999)	79	Groups completed questionnaires under standard conditions, but also under the 'bogus pipeline'.	Anxiety scores did not change, but defensive scores were lowest in the repressor group suggesting that they have cognitive biases or avoidant processes operating below conscious level.
Krahe (1999)	143	Read realistic vignette of rape and check later recall.	Repressors showed poorer recall for the described rape than sensitizers or the non-anxious group.

Individual differences variables

Authors	Sample size	Focus of study—measures	Core findings*
Fox, O'Boyle, Lennon, & Keeling (1989)	54	Self-reported pre-operative (colonoscopy) anxiety.	Repressors had higher scores than truly low anxious patients on pre-operative state anxiety.
Kreitler & Kreitler (1991)	227	Questionnaires measuring mental and physical health, emotions, fantasy, self-concept and personality.	Repressors score low on neuroticism, negative emotions, negative daydreaming, negative self-references and somatic complaints. They score high in positive emotions and self-references.
Denollet (1991)	178 male CHD patients	Questionnaire measures of subjective distress, Type A behaviour pattern, and self-reported hostility.	Neurotic participants scored higher than repressors on subjective distress. Repressors scored lower than both neurotic and non-neurotic participants both on Type A as well as on hostility.
Canning, Canning, & Boyce (1992)	31 adolescent patients with cancer and 83 controls	Questionnaire measuring depressive symptomatology.	Cancer patients reported lower levels of depression than controls; however, a significantly higher proportion of the former were classified as repressors.
Sincoff (1992)	205	Questionnaires measuring ambivalence over emotions (mixed feelings).	Repressors reported lower levels both of mixed feelings and of uncertainty about their feelings than non-repressors.
Egloff & Krohne (1996)	100 females	Emotional responses after failure in an anagram test.	Repressors showed less self-rated fear, sadness and hostility.
Myers (1995)	80	Self-reported alexithymia.	Repressors had significantly lower scores than non-repressors on alexithymia.
Myers (1996)	231	Attributional style.	Repressors show an optimistic attributional style for negative events.

Authors	Sample size	Focus of study—measures	Core findings*
Myers & Brewin (1996)	391 females	Comparative rating of self versus others.	Repressors show greater optimism than non-repressors and report they are less likely to experience negative events. This suggests repressors have an illusory bias.
Myers & Vetere (1997)	296	Health questionnaire.	Repressors score high on Coping Resources Inventory, but low behavioural health questionnaires and limbic languidness.
Egloff & Hock (1997)	281	Compared anxiety and defensiveness definition of repression to dispositional vigilance and cognitive avoidance.	Repression can be predicted by using dispositional vigilance to substitute anxiety and cognitive avoidance to substitute defensiveness.
Phipps & Srivastava (1997)	107 pediatric oncology patients and 442 controls	Questionnaire measuring depressive symptomatology.	Oncology patients had lower scores on depression than controls; however, there was an excess of repressors in the former group.
Furnham & Traynar (1999)	148	Measures of coping style, assertiveness personality, self-motivating and locus of control.	Repressors reported healthier coping styles, more assertiveness and self-monitoring than non-repressors.
Myers, Brewin, & Winter (1999)	231	Parental Bonding Instrument and Repertory Grid.	Repressors rate their interactions with their fathers more positively than non-repressors. They also rated themselves closer to their father, a woman they like and their ideal partner than non-repressors.
Myers & Steed (1999)	143	Life Orientation Test measuring optimism and pessimism.	Repressors reported significantly less pessimism. There were significantly more low anxious participants in the high optimism group than repressors.
Myers & Derakshan (2000)	52	Questionnaires assessing monitoring, blunting, and coping styles.	Repressors scored lower than non-repressors in monitoring. They also scored higher in some (but not all) of the coping style subscales.

Authors	Sample size	Focus of study—measures	Core findings*
Myers & Reynolds (2000)	154	Questionnaires assessing controllability, self-esteem, and comparative optimism.	Repressors were more optimistic than non-repressors for health-related events even after self-esteem was partialed out.

Physiological variables

Authors	Sample size	Focus of study—measures	Core findings*
Gudjonsson (1981)	36	Electrodermal response to emotionally loaded questions and self-report.	Repressors showed greatest discordance between electrodermal response and self-reported anxiety.
Asendorpf & Scherer (1983)	206 males	Autonomic and facial anxiety after anxiety arousing free association test.	Repressors exhibited discrepancies between low self-reported anxiety and heart rate and facial anxiety.
Kneier & Temoshok (1984)	60	Cancer and coronary prone individuals.	Repressors more likely to have melanoma, but less likely to suffer from coronary disease. This suggests that repression affects immune function, therefore influencing the course of cancer development.
Shaw, Cohen, Doyle, & Palesky (1985)	30	Information gained by myocardial infarction patients during hospitalization.	Repressors gained less information on heart disease risk factors.
Jamner & Schwartz (1986)	534	Cardiovascular responsivity during verbal and maths test.	Repressors showed greater cardiovascular responsivity than low anxious, but reported low anxiety levels.

Authors	Sample size	Focus of study—measures	Core findings*
Jamner, Tursky, & Leigh (1986)	?	Skin conductance during electrical stimulation.	Repressors needed twice as much electrical stimulation than non-repressors to elicit judgments of discomfort and pain. Repressors showed high skin conductivity, therefore were experiencing stress, but would not admit it.
Shaw *et al*. (1986)	97 patients undergoing angioplasty	Psychosocial and medical outcomes in angioplasty patients.	Repressors without prior history of heart attack and with a high level of knowledge about their condition and operation experienced more complications over a 6-month post-operative period.
Jensen (1987)	34	Onset of breast cancer.	Repressors experienced the worst cancer outcomes, whereas low and high anxious had favourable outcomes. Repressive coping style has a negative effect on physiological response to cancer.
Altemus, Wexler, & Boulis (1989)	39 females	Change in perceptual asymmetry with the menstrual cycle.	Repressors are less likely to show change in right ear advantage through menstrual cycle. This is thought to illustrate greater autonomic reactivity in repressors.
Fox, O'Boyle, Barry, & McCreary (1989)	39	Dentists' rating of patients intra-operative state on 100 mm visual angle scale.	Repressors showed greatest discordance between self-reported anxiety and dentists' report of anxiety.
King, Taylor, Albright, & Haskall (1990)	120	Systolic blood pressure reactivity in a mentally challenging task.	Repressors show greater systolic blood pressure, but reported low anxiety.
Wallbott & Scherer (1991)	60 (27 females)	Measures of autonomic arousal, facial expression, and subjective feeling.	Female repressors reacted more strongly than their non-repressor counterparts when confronted with high cognitive stress. Male repressors reacted more strongly than their non-repressor counterparts when confronted with high emotional stress.

Authors	Sample size	Focus of study—measures	Core findings*
Newton & Contrada (1992)	599	Heart-rate change scores in public and private conditions.	Repressors showed heart rate elevations greater in magnitude to their self-report but only in public situations.
Niaura, Herbert, McMahon, & Sommerville (1992)	114 (75 females)	Blood lipids (cholesterol levels) in males and females.	Male repressors had the highest cholesterol levels while male truly anxious participants had the lowest levels. However, the opposite pattern of results was obtained on the female sample.
Newton & Contrada (1994)	86	Alexithymia questionnaire and blood pressure.	High anxious participants scored higher than repressors on alexithymia. Low alexithymics had greater heart rate elevations than self-reported negative affect, a pattern that is typical of repressors.
Benjamins, Schuurs, & Hoogstraten (1994)	42 males	Dental anxiety measured by skin-conductance indices.	Repressors showed higher skin-conductance levels and frequency of non-specific fluctuations in skin-conductance than truly low anxious participants.
Brown, Tomarken, Orth, Loosen, Kalin, & Davidson (1996)	179	Basal salivary cortisol levels.	Repressors showed higher basal cortisol levels than the truly low anxious group.
Barger, Marsland, Bachen, & Manuck (2000)	83	Various blood measures of disease risk.	At baseline, repressors had higher levels of T-helper cells, greater numbers of natural killer (NK) cells, lower high-density lipoprotein (HDL), a higher total/HDL cholesterol ratio, and higher fasting insulin levels. Following an acute external stressor, repressors showed an attenuated increase in the number of circulating NK cells than non-repressors.

Authors	Sample size	Focus of study—measures	Core findings*
Nassau, Fritz, & McQuaid (2000)	95	Young asthma patients had their physiological reactivity measured under a stressful task.	Repressors did not consistently differ from low anxious children with respect to physiological reactivity under stress.

*Entries in this column are necessarily succinct and present only specific findings of interest. They are not intended as a summary of the original research articles, which interested readers are urged to consult.