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Summary

Background

Personality differences may affect performance in basic training directly or by acting in combination with specific stresses. In either case, personality must be considered to isolate and describe stress effects. A person's beliefs about his ability to control what happens to him (i.e., perceived control) and his style of adjusting to stress (i.e., defense preferences) have been shown to predict attrition from Marine Corps basic training. The effects of these two aspects of personality may not be independent. The present paper explored the hypothesis that perceived personal control is related to effective adaptation to stress while perceived control by external factors is related to ineffective adaptation. The information is to be used to guide subsequent research designs and analysis procedures in studies attempting to isolate the effects of stress in basic training.

Method

Two thousand, six hundred and forty-eight Marine Corps recruits completed a locus of control instrument assessing their perception of control of outcomes by themselves (Internal control), by chance or fate (Chance), or by powerful people in their environment (Powerful Others). The latter two scales respresent different types of "external" control which seemed particularly likely to be important to Marine Corps recruits. These recruits also completed a set of 20 scales measuring different aspects of coping and defense. The primary distinction between the two is that coping involves behaviors and feelings that are based on accurate perceptions of one's self and one's environment. Defenses, in contrast, involve distorted, biased perceptions of the self or environment that may help reduce anxiety or enhance self-esteem. Because of the distortions involved, defenses are generally assumed to be maladaptive and should be associated with greater difficulty in adjusting to the prolonged stress of basic training.

Results

External control perceptions were associated with higher defensiveness and lower coping. The associations were strongest for Chance control, but even then were moderate in absolute magnitude ($r = .30$ to $r = .40$). Internal control was only weakly related to coping and defense, but there was a tendency toward higher coping scores. An important contrast between internal and external control orientations was the apparent use of different defensive styles. Internals tended to use defenses that deny stress or threats or that find something positive about the stressful situations. Externals employ defenses which would be associated with child-like behaviors and a tendency to blame others for their problems when under stress.

Conclusion

The moderate overlap of coping and defense with perceived control means that the two categories of personality variable can potentially contribute independently to adaptation to basic training. Both should be included in research on the effects of stress in training, but analysis procedures must allow for the association between the two when relating these personality measures to training performance and stress reactions.

Introduction

Possible associations between internal-external control orientation and defensive or coping style are implied in both the locus of control literature and psychoanalytic writings. For example, Rotter (1975) made a distinction between "passive" and "defensive" externals. Psychoanalytic writings include reference to internally and externally oriented defenses (Nunberg, 1955, p. 213). Although the general level of discourse represented by such comments makes it difficult to be certain that the terms "internal," "external," and "defensive" have the same referents in different writings, the psychological coping and defense dynamics of internals and externals may differ (Altrocchi, Palmer, Hellmann, & Davis, 1968; Tolor & Reznikoff, 1967). Because relatively little is known about the relationship between locus of control and specific defensive and coping styles, this study examined the relationship between Levenson's (1974) multidimensional locus of control measures and coping and defense scales developed by Joffe and Naditch (1977).

An overall hypothesis relating coping, defense, and locus of control can be readily formulated. Internals generally appear better adjusted than externals (Rotter, 1975; Lefcourt, 1976). Good adjustment is typically assumed to be associated with better coping skills and lower defensiveness (e.g., French, Rodgers & Cobb, 1975; Haan, 1977). While these assumptions may not hold under all conditions (cf., Hamburg & Adams, 1967; Pearlin & Schooler, 1978; Cohen & Lazarus, 1980), a reasonable initial hypothesis would be that internality will be related to higher coping and lower defensiveness. Externality should show the opposite pattern of associations.

The broad formulation considered above has attractive simplicity, but is probably too general to describe the relationship between locus of control and coping and defense. Two possible elaborations are suggested by comments made by Rotter (1975). One comment was that despite the better overall adjustment of internals, extreme internality implies distorted perceptions of causation. Some things a person cannot control. Therefore, excessive belief in personal control implies perceptual distortion which is the hallmark of defenses (French, Rodgers & Cobb, 1974; Haan, 1977). The potential defensiveness of extreme internals could be reconciled with the apparent good adjustment of internals in several ways. Extreme internals may be defensive, but still be less defensive than extreme externals. Also, the defenses employed by internals and externals may differ. For example, internals may make more use of "mature" defenses which are associated with better adjustment (Vaillant, 1977). Finally, internals may possess greater coping skills. If defenses are used only when coping capacities are inadequate for adapting to situational demands (Haan, 1977; Janis & Mann, 1977), externals and internals could be equally capable of using defenses, but internals would have less actual recourse to them. Each possibility represents a plausible hypothesis.

Rotter's (1975) second comment concerned a distinction between "passive" and "defensive" externals. Different elements of externality could have different associations to coping and defense. For example, it has been suggested that Levenson's (Note 1) Powerful Others dimension reflects defensiveness (Prociuk & Breen, 1975; Butler & Burr, 1980). In general, the relationship between ego mechanisms and external control perceptions may vary as a function of the specific control dimension considered.

The issues raised by Rotter's (1975) comments illustrate two important points. First, current knowledge about the relationship between locus of control and coping and defense is imprecise. The hypotheses above provide a general, albeit diffuse, focus for exploring the relationship between control perceptions and adaptive style. More specific hypotheses appear premature at this time. Second, adequate domain sampling is critical to understand both locus of control (Lefcourt, 1980) and coping and defending (Heilbrun, 1978; Heilbrun & Schwartz, 1979). The study therefore employed multiple measures from both domains.

Method

Sample

Study participants were 2648 Marine Corps recruits who voluntarily gave informed consent to participate in the study. The average age was 18.9 years (S.D. = 1.98). Twenty-nine percent of the participants had less than a high school education, 59 percent had a high school degree, and 11 percent had schooling beyond high school. A small proportion were married or divorced (5.9 percent). Sixty-nine percent were Anglo, 16 percent were Black, 7.5 percent were Hispanic, 5.4 percent gave other valid responses (e.g., American Indian), and 1.1 percent gave no response to this question.

The total sample was divided randomly into three subsamples to determine the stability of the relationships between control and ego mechanisms. The subgroups did not differ significantly on any of the demographic attributes listed above.

Measures

Levenson's (Note 1) 24-item locus of control instrument provided 8-item measures of Internal, Chance, and Powerful Others control dimensions. These three theoretically distinct elements of control have been consistently confirmed by factor analyses of the instrument (e.g., Levenson, 1974; Butler & Burr, 1980) including factor analyses in the present sample (Vickers, Conway, Haight & Butler, Note 2). The scales were scored using a 7-point Likert format. Descriptive statistics are given in Table 1.

Coping and defense measures were taken from Joffe and Naditch (1977). These scales were constructed from California Psychological Inventory (CPI) items by selecting those which correlated with clinical ratings of specific coping and defense mechanisms. The clinical ratings were made according to the conceptual schema developed by Haan (1963; 1969; 1977) and Kroeber (1963) using the rating procedure described by Haan (1977). Scales were cross-validated in a subset of the sample employed to construct the measures. A pilot study in the present population demonstrated that the scales had at least minimal overall validity as predictors of defense ratings (Vickers, Ward & Hanley, Note 3) and adjustment to basic training (Hervig & Vickers, Note 4).

Analysis Procedures

Pearson product-moment correlations were the basic analysis procedure. Supplementary analyses included: (a) Use of Fisher's r to z transformation to compute mean correlations. (b) Computation of Steiger's χ^2 (1980, see equation 22) to test the significance of overall associations between coping and defense and each of the control scales. (c) Partial correlations to determine the significance of associations between coping and defense and Powerful Others controlling for Chance. (d) Multivariate analysis of variance (MANOVA) to determine whether different patterns of internal and external control perceptions had unique coping and defense profiles. All analyses were carried out with the Statistical Package for the Social Sciences, Release 9A (see Nie, Bent, Hull, Jenkins & Steinbrenner, 1975, for a description of the general program package).

An extreme significance criterion was used because of the large group sample sizes. A result was considered significant if the correlation between two variables achieved the $p<.001$ significance level in two of the three subgroups. This criterion produces an acceptable experiment-wide error probability for individual correlations (cf., Dunn, 1961). The replication requirements should not lead to excessive "Type II" decision error because the sample size is large in each group (cf., Tversky & Kahneman, 1973). The discussion emphasizes general trends in the findings based on the magnitude of correlations rather than statistical significance.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF LOCUS OF CONTROL, COPING, AND DEFENSE MECHANISM SCALES

	MEAN[a]	STANDARD DEVIATION
LOCUS OF CONTROL		
Internal	**5.50**	**0.76**
Powerful Others	**4.12**	**1.03**
Chance	**3.72**	**1.04**
COPING AND DEFENSE MECHANISMS[b]		
Objectivity	*0.51*[c]	*0 08*
Isolation	**0.49**	**0.08**
Intellectuality	*0 42*	*0 10*
Intellectualization	**0.42**	**0.12**
Logical Analysis	*0.41*	*0 09*
Rationalization	**0.44**	**0.10**
Concentration	*0.60*	*0 11*
Denial	**0.55**	**0.09**
Tolerance of Ambiguity	*0.45*	*0 09*
Doubt	**0.36**	**0.18**
Empathy	*0 50*	*0 08*
Projection	**0.50**	**0.11**
Regression in Service/Ego	*0.41*	*0.11*
Regression	**0.41**	**0.13**
Sublimation	*0.62*	*0 09*
Displacement	**0.48**	**0.13**
Substitution	*0.53*	*0.10*
Reaction Formation	**0.56**	**0.09**
Suppression	*0.50*	*0.11*
Repression	**0.54**	**0.10**

[a] Analysis of variance indicated that none of the scales differed significantly ($p < .10$) when the three subsamples were compared. Descriptive statistics are therefore given for the entire sample (N = 2511-2603). Coefficients of skewness were less than / .67 / for all scales and coefficients of kurtosis less than / .53 / except Internal (kurtosis = 1.36), indicating that the distributions approximated normality.

[b] Italicized entries indicate a coping mechanism. Bold face entries are for defense mechanisms.

[c] Coping and defense mechanism scales were computed by dividing the number of items answered in the direction of the scale key by the number of items in the scale that were answered. This was done provided that no more than three answers were missing from each scale. This procedure provided scores that were not influenced by the number of items answered and avoided omitting a subject from analysis for inadvertently failing to answer a single item.

Results

Internal control was largely independent of both Powerful Others (Sample 1, r = .04; Sample 2, r = -.02; Sample 3, r = .04) and Chance (r = -.14; r = -.15; r = -.10), but the two external control scales were strongly related (r = .49; r = .52; r = .51).

The correlations between the control scales and the coping and defense measures are shown in Table 2. Applying Steiger's (1980) χ^2 test, the overall association for coping and for defense was highly significant for each control scale in each subgroup. This trend was largely due to sample size, because the typical correlation in the table was not large. The strength of the observed associations clearly differed between the three control measures. Of the 60 correlations for Chance, 23 exceeded r = .30 (absolute value); 18 were between r = .20 and r = .30 (absolute value). Comparable figures for Powerful Others were 5 and 20, while those for Internal were 0 and 9.

As predicted, Internal control was positively related to 7 of 10 coping mechanisms (based on the average correlation across groups). No clear prediction was made for defenses, but the results showed 4 positive correlations and 6 negative. External control tended to be negatively correlated to coping scales and positively correlated to defenses. Exceptions to these trends for externality were observed for the defenses of intellectualization, denial, and reaction formation and the coping mechanisms of empathy and regression in service of the ego for the coping measures.

Chance was clearly the primary external control correlate of coping and defense and was strongly related to Powerful Others. It was therefore of interest to determine whether Powerful Others had any independent relationship to coping and defense. Small partial correlations between Powerful Others and the coping and defense scales were observed controlling for Chance. Only the correlations for Doubt (Subgroup 1, r = .05, p<.078; Subgroup 2, r = .13, p<.001; Subgroup 3, r = .13, p<.001) and Suppression (Subgroup 1, r = -.04, p<.128; Subgroup 2, r = -.14, p<.001; Subgroup 3, r = -.12, p<.001) met the basic significance criterion for this study. Relaxing the significance criterion, only two additional scales achieved even the 5 percent significance level in all three groups: Rationalization (Subgroup 1, r = .09, p<.05; Subgroup 2, r = .12, p<.001; Subgroup 3, r = .07, p<.05) and Repression (Subgroup 1, r = -.09, p<.01; Subgroup 2, r = -.14, p<.001; Subgroup 3, r = -.12, p<.001). Clearly there was very little relationship between coping and defense and Powerful Others with Chance controlled.

Another exploratory analysis tested a hypothesis suggested by the relative independence of the internal and external control scales. People who represented different combinations of control perceptions might show patterns of coping and defense scores that could not be predicted from the main effects of internal and external control. This hypothesis was tested by splitting the samples into quartiles for each control dimension. The combinations of the internal quartiles with the two external scale quartiles were then used to define the groups in multivariate analyses of variance which treated the 20 ego mechanism scales as simultaneous dependent variables. Significant main effects corresponding to the findings reported in Table 2 were observed. However, there were no significant interactions, so specific defense and coping profiles were not associated with different internal-external control combinations.

Discussion

Externality was positively correlated to seven defenses and negatively related to intellectualization, denial, and reaction formation. Externals also showed a tendency toward lower coping, particularly with regard to management of affect (i.e., the mechanisms of sublimiation, substitution, and suppression). Internality tended to produce an opposite pattern of correlations, but the associations were weaker in magnitude and therefore less often significant. This opposite pattern of association occurred despite the essential independence of the internal and external control scales.

The findings were generally consistent with Rotter's (1966; 1975) theorizing. Externality was the primary correlate of defenses, but there was evidence that extreme internality was also related to higher intellectualization and denial.

TABLE 2

CORRELATION OF LOCUS OF CONTROL SCALES TO COPING AND DEFENSE MECHANISM SCALES

EGO MECHANISM[a]	GROUP:	LOCUS OF CONTROL SCALE: INTERNAL 1	INTERNAL 2	INTERNAL 3	POWERFUL OTHERS 1	POWERFUL OTHERS 2	POWERFUL OTHERS 3	CHANCE 1	CHANCE 2	CHANCE 3
Objectivity		*.10*	*.11*	*06*	*- 11*	*- 12†*	*- 16†*[b]	*- 16†*	*- 24**	*- 27†*
Isolation		**−.05**	**05**	**.06**	**.02**	**.03**	**01**	**.06**	**.02**	**.05**
Intellectuality		*10*	*07*	*08*	*−.14†*	*− 11*	*− 19†*	*− 10*	*− 18†*	*− 26†*
Intellectualization		**.13†**	**.09**	**.12†**	**−.16†**	**−.19†**	**−.26†**	**−.20†**	**−.27†**	**−.33†**
Logical Analysis		*.05*	*02*	*'00*	*− 08*	*−.06*	*− 13†*	*− 05*	*− 11*	*− 17†*
Rationalization		**−.09**	**−.12†**	**−.12†**	**.22†**	**.26†**	**.22†**	**.29†**	**.32†**	**.33†**
Concentration		*.19†*	*.15†*	*17†*	*−.19†*	*− 25†*	*− 21†*	*− 32†*	*− 39†*	*− 37†*
Denial		**.16†**	**.08**	**.21†**	**−.13†**	**−.11**	**−.05**	**−.20†**	**−.16†**	**−.21†**
Tolerance of Ambiguity		*−.11*	*− 06*	*.10*	*− 05*	*− 03*	*− 18*	*10*	*− 03*	*− 02*
Doubt		**−.26†**	**−.21†**	**−.22†**	**.25†**	**.34†**	**.35†**	**.45†**	**.46†**	**.50†**
Empathy		*− 02*	*− 07*	*− 05*	*03*	*.05*	*11*	*11*	*06*	*16†*
Projection		**.02**	**−.04**	**00**	**.18†**	**.28†**	**.20†**	**.27†**	**.32†**	**.32†**
Regression in Service/Ego		*− 21†*	*− 15†*	*− 18†*	*12†*	*17†*	*10*	*29†*	*21†*	*27†*
Regression		**−.22†**	**−.20†**	**−.21†**	**.18†**	**.27†**	**.23†**	**.39†**	**.41†**	**.41†**
Sublimation		*20†*	*18†*	*15†*	*− 19†*	*− 22†*	*− 23†*	*− 27†*	*− 30†*	*− 32†*
Displacement		**−.15†**	**−.11**	**−.12†**	**.22†**	**.31†**	**.31†**	**.40†**	**.45†**	**.46†**
Substitution		*10*	*09*	*09*	*− 16**	*− 28†*	*− 27†*	*−.30†*	*− 39†*	*− 37†*
Reaction Formation		**.03**	**.06**	**.10**	**−.07**	**−.14†**	**.11**	**− 18†**	**−.15†**	**−.20†**
Suppression		*10*	*.03*	*03*	*−.20†*	*− 32†*	*− 29†*	*−.34†*	*− 39†*	*− 38†*
Repression		**−.11**	**−.08**	**−.05**	**16†**	**.21†**	**.26†**	**.17†**	**.28†**	**.29†**
χ^2 for.	Coping[c]	147.1	92.3	77 2	158 2	304 2	300.5	455.6	620.5	686.5
	Defense[c]	165.3	115.3	166.0	251.5	473 3	438 4	732.2	917 0	1016.0

[a]Italicized entries indicate a coping mechanism. Bold face entries are for defense mechanisms

[b]Underlined correlations meet basic significance criterion ($p < .001$ in two groups).

[c]Given 10 degrees of freedom, each of the values is highly significant ($p < .0001$).

* $p < .001$ two-tailed test

NOTE For each group, $n \geq 815$ for all correlations.

The difference between internal and external control was a matter of degree and of the specific defenses employed. The data extend Rotter's observations by showing lower coping in externals. The fact that externals may be less effective in coping is consistent with a previous report by Pearlin and Schooler (1978) that people in general defend rather than cope when faced with an uncontrollable situation. Individuals with generalized expectancies of external control might therefore show a generalized tendency toward defensiveness. The general tendency to use defenses may account for a reduced level of coping (French, Rodgers & Cobb, 1974; Haan, 1977).

Overall, the results provided mixed support for the hypotheses in the introduction. No individual hypothesis appears capable of explaining the results. Instead, the findings suggest that a "personality style" approach such as that described by Shapiro (1965) may be the best way to summarize the relationship between locus of control and coping and defense. The strongest defensive correlates of the two external control scales included measures of "externalizing" defenses (e.g., displacement, projection). Combining this observation with the fact that the two external control scales are strongly correlated, it is reasonable to interpret the data as representing an "externalized" personality style. This style integrates both types of external control perceptions with compatible defenses. A "style" approach appears more reasonable than a dichotomy singling out one dimension of externality as "defensive" (e.g., Prociuk & Breen, 1975). The two external control scales were highly correlated in this study and in Levenson's work (e.g., Levenson, 1974) and both were clearly related to higher defensiveness and lower coping. Any labelling schema that implied that Powerful Others was independent of Chance or of defense and coping processes would be misleading. Chance may be somewhat more closely linked to coping and defense than Powerful Others because Chance is akin to rationalization. Rationalization, in turn, may be a critical component of an integrated set of mutual supportive defenses that form the defensive element of

the externalizing style (Shapiro, 1965; Laughlin, 1970). The primary coping correlates of the external style were sublimation, substitution, and suppression. In Haan's (1977) schema, each of these coping mechanisms is concerned with the management of affect. It is not clear why the main coping component of the external style was lower coping with regard to management of affect.

A more tentative description of an "internalizing" personality style is appropriate given the weak correlations for Internal control. If such a style exists, Internal control combines with defenses that reverse or minimize stress and with a tendency to cope rather than defend. These stylistic points are coupled with minimal use of externalizing defenses even though Internal control and the two external control scales were largely independent. Although the present data do not strongly support the idea of an integrated internalizing style, the trends contrasting the internal and external styles were consistent with previous findings regarding defenses (Tolor & Reznikoff, 1967; Ulrocci, et al. 1968; Rohsenow, Erickson & O'Leary, 1978) and by the Pearlin and Schooler (1978) data cited above. Furthermore, the hypothesized internal style should short-circuit stress while the external style sets up positive feedback loops that increase stress and its effects (Laughlin, 1970; Vickers, 1979). This stylistic contrast may therefore help to understand and explain the frequently reported differences in overall adaptation for internals and externals (Rotter, 1975; Lefcourt, 1976).

Applications of the present findings should keep several important qualifications in mind. First, the sample was composed of young men who joined the Marine Corps. Generalization should be cautious because this may be a special population. However, the findings at least provide a useful complement to those from other select, but more frequently studied groups (e.g., college students). Second, the control measures did not exhaust the domain of possible internal and external control assessments; the specific measures employed may have influenced the findings (Lefcourt, 1980). Finally, the coping and defense measures were limited on two grounds. The measures have not been extensively validated. Although the initial trends have been encouraging (Joffe & Naditch, 1977; Joffe & Bast, 1978; Kupst & Schulman, 1981; Vickers, Ward & Hanley, Note 3; Hervig & Vickers, Note 4; Vickers, Conway & Haight, Note 5), the information available is not definitive. The availability of some corroborative evidence regarding the general internal and external styles of defense and coping has been noted above. However, associations for specific defense or coping mechanisms must be interpreted cautiously until the J&N scales are validated further or similar specific correlations are demonstrated with other measures of coping and defense. Some confirmatory evidence already exists, as noted above. The second qualification affecting the coping and defense measures is that not all possible defensive or coping behaviors were represented. Other defense or coping mechanisms might produce different results. Subject to these qualifications, the study findings suggest useful lines for investigation of the relationship between locus of control and coping and defense.

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20 ABSTRACT (Continue on reverse side if necessary and identify by block number)

Theoretically, locus of control may be related to coping and defense style. The hypothesis that external control would be related to higher defensiveness and internal control to better coping was tested in a sample of 2648 Marine Corps recruits using Levenson's Chance, Powerful Others, and Internal Control scales and 20 coping and defense measures developed by Joffe and Naditch. The two external scales were generally related to higher defensiveness and lower coping. These associations were particularly pronounced for Chance. Internal

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20. Abstract (continued)

control was positively, but weakly, correlated to several coping scales. Internal control had mixed positive and negative correlations to defenses. The previously observed association of externality and poor adjustment may be based on low coping capacity combined with an externalizing (i.e., displacing, projecting) defensive style. Internals may fare better because of a slight tendency toward higher coping or because of a tendency to use a denying or reversing defensive style. These conclusions must be regarded as tentative, but provide a basis fur forther investigation.