

Lecture

Resilience in the Face of Adversity Protective Factors and Resistance to Psychiatric Disorder*

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Almost since the beginnings of psychiatric practice, there has been a recognition that negative life experiences and stressful happenings may serve to precipitate mental disorders (Garmezy & Rutter, 1985). Nearly 200 years ago, Pinel wrote about the psychiatric risks associated with unexpected reverses or adverse circumstances, and it is reported that his initial question to newly admitted psychiatric patients was: "Have you suffered vexation, grief or reverse of fortune?" Nevertheless, although an appreciation that a variety of stressors may play a role in the genesis of psychiatric disorder has a long history, the systematic study of such effects is much more recent.

During the last few decades, relevant concepts and approaches appear to have gone through several rather different phases. At first, the main emphasis was on the demonstration that 'bad' experiences did indeed serve to produce or precipitate psychiatric disturbances. The era ushered in by Bowlby's (1951) WHO monograph exemplifies that phase in the history of child psychiatry. Of course, the notion that life experiences were influential was not new; indeed, it was central in the Mental Hygiene movement that gave rise to the birth of child psychiatry earlier in this century.

However, Bowlby's focus on the infancy period and on the affectional components of mothering constituted a shift of emphasis; it is clear that his claims went beyond the evidence available at the time, and evident that he overestimated both the universality and irreversibility of the damage to later mental health. Nevertheless, later research has also shown that he was right to highlight the important role of family experiences and parent-child relationships in influences on children's psychological development (Rutter, 1981a).

During the next phase, investigators sought to provide a better conceptualisation of the different

types of life experiences. In adult psychiatry, this was apparent in the demonstration of the importance of 'expressed emotion' as a factor shaping the course of schizophrenia (Leff & Vaughn, 1981; Vaughn & Leff, 1976), and in the progress in the study of life events from a general concept of life changes to a focus on those involving a personal loss or contextual threat (Brown & Harris, 1978).

In child psychiatry, the phase was characterised by studies distinguishing the different effects of different types of separation experiences (Rutter, 1971); by Patterson's (1982) important molecular studies of coercive processes in family interaction; by Hetherington (Hetherington *et al*, 1982) and Wallerstein's (Wallerstein & Kelly, 1980) dissection of the mechanisms involved in the adverse sequelae that may stem from parental divorce; and by the variety of investigations into the particular environmental circumstances association with an increased risk of delinquency (Rutter & Giller, 1983). The net result of a considerable body of research was the acceptance that life experiences varied considerably in their risk potential and, moreover, that the experiences most important in fostering optimal cognitive development (Rutter, 1985b) differ markedly from those with the greatest impact on socio-emotional or behavioural development (Rutter, 1985a).

The most recent third phase stems from the universal observation that even with the most severe stressors and the most glaring adversities, it is unusual for more than half of children to succumb (Rutter, 1979a). The same recognition has applied in adults to the development of depression following personal losses and rebuffs. Although the risk of depression following disturbing life events is increased, it is usual for most people *not* to become depressed in spite of the stressful experiences (Paykel, 1978). In the earlier literature, this crucially important phenomenon of very large individual differences in people's responses to

*Based on Margaret Methven Lecture delivered 8 March, 1985, Scottish Division of the Royal College of Psychiatrists

environmental conditions tended to be dismissed with a head-nodding acceptance that constitutional factors must also be taken into account; however, it did rise to an important body of research into temperamental variations and their implications for both the developmental process and psychopathology (Berger, 1985; Porter & Collins, 1982; Plomin, 1983). It is not accurate or helpful though, to conceptualise individual differences as due to nature, and stress effects as the result of nurture. Firstly, temperamental features reflect both experiential and genetic factors (Plomin, 1983). Secondly, a person's genetic make-up in part creates the environments he experiences (Scarr & McCartney, 1983)—i.e. people both select environments and shape them. Thirdly, genetic factors may operate largely through influences on susceptibility to particular environmental conditions (Shields, 1980).

During the 1970s, stimulated by Anthony's (1974; 1978) many times repeated examples of Jacques May's glass, plastic, and steel dolls, the concept of 'invulnerable' children became popular. Rather misleadingly, but understandably in terms of the word 'invulnerable' that had been introduced, people came to consider that there were some children so constitutionally tough that they could not give way under the pressures of stress and adversity. The notion was wrongheaded in at least three respects: the resistance to stress is relative, not absolute; the bases of the resistance are both environmental and constitutional; and the degree of resistance is not a fixed quality—rather, it varies over time and according to circumstance. For all these reasons, most people now prefer to use the relative concept of resilience rather than the absolute notion of invulnerability (see Masten & Garmezy, 1985).

In the field of adult depression following acute life events, the issue of individual differences has led to a search for vulnerability factors that increase people's susceptibility to stressors, and for buffering influences that serve a protective function in the same circumstances. In both connections, the presence or absence of social supports has constituted the main variable of interest, and in terms of the mode of action, most studies have concentrated on the search for statistical interaction effects. The issues are important, and there are a variety of reasons for supposing that social supports *might* have the hypothesised buffering effect attributed to them. Nevertheless, the results of empirical research into the buffering effect of social supports are both contradictory and incon-

clusive (Thoits, 1982). In my view, such confusion is almost inevitable in the way the questions are posed, and I doubt whether the approach is likely to bear fruit. Quite apart from the usual uncertainties over the reliability and validity of measures, there is the problem of conceptual overlap between social supports and life stressors. Thus, divorce is treated as a stressor and the presence of a confiding marital relationship as a support, but in truth, both deal with aspects of the same variable. Then, there is the observation that social ties both create stress and bring support (Belle, 1982). It is not the mere availability of friends and relatives that matters, but rather the quality of a person's relationships with other people and the use made of those relationships (Henderson *et al.*, 1981; Quinton, 1980). However, while that seems to be the psychological reality of the situation, it greatly complicates the analysis of social effects and raises the difficult issue of how far the supportive function stems from the individual's own personal qualities rather than from the features of the surrounding social network. Nevertheless, it does seem that perceived adequacy of personal relationships may protect against disorder only in the presence of adversity—i.e. a buffering influence (Henderson *et al.*, 1981). Finally, there is the vexed question of the statistical model used to test for the hypothesised buffering effect (Rutter, 1983)—a point to which I shall return, as it has been the source of much confusion.

Individual differences

Accordingly, instead of sinking into the mire of the social support buffering controversy, I want to return to the issue of individual differences from which the buffering hypothesis derived. There is no denying the importance of that issue—large individual differences in response to stress and adversity are a universal feature of empirical studies following all manner of research strategies. The simplest explanation would be to posit genetically determined individual differences in vulnerability to psychological stressors. Doubtless, such differences exist, but it is most unlikely that they account for the phenomenon, if only because of the evidence that experiential factors also influence susceptibilities (*vide infra*). In addition, however, there is the need to translate such genetically determined individual differences in vulnerability into physiological or psychological mechanisms. What constitutes vulnerability? Which constitutional features increase resilience and why? Those questions require answers to the equally difficult

question of how stressors and adversities operate—i.e. what do they do to the organism? (Rutter, 1984a).

An equally straightforward explanation is provided by a model of additive main effects—people knuckle under because of the sum of accumulated risk factors minus the sum of accumulated positive experiences. Those who escape the hazards must either have experienced fewer stressors or less severe adversities, or alternatively, these have been counterbalanced by a sufficient weight of compensatory good experiences or happy events. Again, there is doubtless something to this idea, but still it appears inadequate to account for the phenomena. Of course, it is difficult to test it adequately without full knowledge of the processes by which risk factors and positive experiences operate; such knowledge is lacking and, without it, we cannot make the sum required to provide the test. All we can say is that no combination of main effects fully accounts for the phenomenon of individual differences. But much more importantly, there is other evidence that points to the need to search for rather different mechanisms and different models. In particular, there are strong reasons for postulating the likely operation of *protective factors* and *interactive processes*—two closely related phenomena. They constitute the main burden of my argument on the topic of resilience in the face of adversity. Let me begin by seeking to define more precisely the concepts to be considered.

Protective factors

Protective factors refer to influences that modify, ameliorate, or alter a person's response to some environmental hazard that predisposes to a maladaptive outcome. It should be noted that the concept is not at all synonymous with a positive or beneficial experience; it differs in three crucial respects. Firstly, the protective factor may not constitute a pleasurable happening in any ordinary sense of the term. Thus, there is abundant experimental evidence from animal studies that acute physical stresses in early life lead to neuroendocrine changes that enhance the animal's resistance to later stress experiences (Hennesy & Levine, 1979; Hunt, 1979); in certain circumstances, unpleasant and potentially hazardous events may toughen an individual—what has come to be termed the 'steeling' effect of stressors. In humans, somewhat comparable effects have been observed with psychosocial, as well as physical stressors; e.g. the neuroendocrine response of experienced parachute jumpers is quite different from that of novices. The

initial hormonal response of first-time jumpers is that of an acute stress reaction, whereas that of an old hand is rather different (Ursin *et al*, 1978). Of course, in other circumstances, stressful experiences may make individuals more susceptible to later stressors—a sensitising rather than a steeling effect. Investigations of why experiences steel rather than sensitise are in their infancy, but they constitute a potentially fruitful field for study. However, the relevant point here is that protective factors are defined in terms of their effects, rather than with respect to their hedonic qualities.

The second crucial distinction between protective factors and positive experiences concerns the interaction component of the notion of protection. Positive experiences are those that generally predispose to an adaptive outcome—a direct beneficial effect. In contrast, protective factors may have no detectable effect in the absence of any subsequent stressor; their role is to modify the response to later adversity rather than to foster normal development in any direct sense. The examples already given illustrate that phenomenon, but there are numerous other illustrations of indirect effects, both adaptive and maladaptive; e.g. Suomi's (1983) monkey studies of the effects of separation experiences in infancy showed that this created in some individuals a predisposition to depression, but that this predisposition was only manifest when the monkeys were later exposed to stressful social situations—high-risk monkeys were behaviourally indistinguishable from normal monkeys in ordinary environments. Those experiments concerned vulnerability rather than protective factors, but the interaction component is directly comparable. A very different example is provided by the human studies showing that various preventive programmes to prepare children and their families for hospital admission significantly reduce rates of emotional disturbance in hospital (see Wolkind & Rutter, 1985). In this case, we do not know for certain that the preventive programme would not have had an impact in the absence of hospital admission, but it seems highly likely that its effects were specific to the hospital experiences—a modifying effect on a potentially stressful experience, rather than a beneficial impact that was independent of subsequent happenings.

The third distinction is that a protective factor may not be an experience at all; rather, it may concern a quality of the individual as a person. For example, it appears that for many psychosocial adversities, girls are less vulnerable than boys (Rutter, 1970; 1982); the protective factor in this

case is being female! The reasons why girls tend to be less susceptible than boys remain obscure. Of course, the same applies to many physical hazards in early childhood, where boys are at greater risk. However, it doesn't seem to be simply a matter of constitutional resilience to stressors being greater in girls, because there is evidence that females are less likely to elicit damaging behaviour from others. For instance, it is striking that Harlow's socially isolated monkeys were more likely to abuse and kill the male than their female offspring (Ruppenthal *et al.*, 1976). Similarly, Hetherington (1980) observed that when parents were in severe conflict, they were more likely to quarrel in front of their sons than their daughters. It should be added that these personal characteristics that serve a protective function need not be pleasant or desirable traits as ordinarily conceived, any more than protective experiences need be positive ones. Thus, several investigators have noted that people who appear most immune to stress often have a rather 'sociopathic' flavour to their personality in terms of their self-centeredness and shallow, easily changeable relationships (see Rutter, 1981b).

Interactive processes

The twin concept of interactive processes does not mean merely a statistical interaction effect, as determined in the traditional multivariate analyses: such an effect constitutes just one rather specific example (see Rutter, 1983). Because it is usually assumed that the two are synonymous, I need to pause for a moment to consider why they are not. Four main reasons predominate. Firstly, most analyses test for a *multiplicative* interaction—the most extreme type of interaction by which one variable multiplies the effect of some other variable. However, synergistic effects by which one variable potentiates the effect of another may exist without it, amounting to a multiplication. Statistically speaking, this may be examined by testing for what is (rather misleadingly) called an additive interaction.

Secondly, it is commonly, but wrongly assumed that a significant main effect in a multivariate analysis means that that variable has an effect on its own. It does not. What it means is that there is a significant effect for that variable, after other variables have been taken into account; that is *not* tantamount to an effect in the absence of all other variables. Thus, in our own study of chronic family adversities (such as discord, parental mental disorder, overcrowding, etc) we found that no one of these had any effect on psychiatric risk when it

occurred in isolation, but the psychiatric risk went up sharply when several adversities co-existed (Rutter, 1979a). This at first sight surprising finding has been missed before, simply because it is rather unusual for single adversities to occur truly in isolation. However, our observation is in keeping with Emery & O'Leary's (1984) finding that the effects of parental discord in creating a psychiatric risk for the children are less in general population samples than in high-risk groups. Although not specifically examined by them, this is probably a consequence of the fact that in high-risk groups, discord is more often associated with *other* psychosocial hazards.

Thirdly, as ordinarily used, a statistical interaction effect refers to the potentiating effect of one independent variable in its alteration of the effect of a second independent variable on some dependent variable. Often, however the interactive process may concern the second independent variable itself, rather than the dependent variable. For example, in our follow-up study of institution-reared women, we found that an institutional rearing was associated with a worse outcome (compared with a general population control group), but that marital support in early adult life almost obliterated the adverse effect of an institutional upbringing. That appears at first sight as if there are two separate main effects, but no interaction between them. However, that is misleading because an institutional rearing made it much less likely that the women would make a harmonious marriage that provided emotional support—a powerful interactive process, but no statistical interaction effect, as ordinarily tested for.

That links with the fourth consideration; i.e. that interactive processes need to be considered over time as part of development, and not just as some kind of chemistry at the single point of time when an individual encounters stress or adversity. Indeed, many of the above illustrations refer to just these kinds of developmental considerations (see also Rutter 1981b; 1984a and b). However, a further point requires emphasis—that the timing of an event may either increase or decrease stress effects, either because of maturationally determined sensitivities or because timing affects the meaning of an event. An example of the first type is provided by hospital admission, which constitutes a stressful experience for many pre-school children, but is much less of a stressor for older children (Rutter, 1981a). An example of timing affecting meaning is provided by Hetherington *et al.*'s (1982) prospective study of children whose parents divorce. Children

whose mothers had a job outside the home showed *no* increased risk of disorder compared with children of housewife mothers, provided that the mothers first went out to work either well before the divorce or well after, but there was an increased risk of starting work coincided with the divorce. It seemed that having a working mother was not a risk as such, but that the perceived loss of a mother (through her getting a job for the first time) was a stressor if it coincided with the loss of a father through divorce.

Prospective factors, interactive processes and reactions to stress or adversity

By providing illustrations to exemplify what is meant by the concepts of protective factors and interactive processes, research has necessarily been cited that demonstrates their existence as realities in children's responses to stress and adversity. However, before turning to a discussion of possible mechanisms, it is necessary to ask both how general are the hypothesised interactive processes associated with protective effects and also how consistent are the variables that appear to serve a protective function. To answer those questions, I propose to take a few examples of very different stressors and outcomes.

Immediate response to anxiety situations

The simplest paradigm is children's immediate emotional response to an anxiety-provoking situation; perhaps the most striking feature is the extent to which children's distress is reduced by the presence of a parent or some other person with whom they have a close relationship (see Rutter, 1981a). It is noteworthy that in young children, there is a similar although lesser effect from the presence of a comfort blanket (Passman, 1977; Passman & Adams, 1982). The importance of this observation is that a degree of protection is provided by the presence of an attachment object, even if the object is inanimate, and therefore cannot provide active reassurance, guidance, or affection. In many respects, this constitutes the purest example of a protective effect—an effect on the child's response without any direct effect of its own. Nevertheless, even though there is some effect from a comforter blanket, that deriving from the presence of a parent is very much greater. But more than that, the effect on the child is influenced by the parent's expressed emotion (Sorce *et al*, 1984), psychological availability (Sorce & Emde, 1981), and style of interaction with the child (Henderson *et al*, 1984).

Whatever the social supports available, infants still vary greatly in their environmental reactions, and there is increasing evidence that, in part, this variation is due to temperamental differences associated with physiological reactivity (Coll *et al*, 1984).

Separation reactions

Of all the potentially anxiety-inducing situations, separation from parents has been studied most—often in connection with hospital admission (an experience which, of course, involves a variety of stressors other than separation). The literature is reasonably consistent in highlighting the importance of five main features as determinants of individual variations: age, temperamental characteristics, social support, prior experiences, and subsequent patterns of parent-child interaction.

Thus, human infants appear most likely to exhibit emotional distress during separation between the ages of about six months and four years (see Rutter, 1981a). Probably, very young infants are 'protected' because they have yet to develop the capacities for selective attachments; conversely, older children are 'protected' because they have the cognitive skills needed to appreciate that it is possible to maintain attachment relationships over a period of absence. This biphasic association with age emphasises the importance of children's cognitive processing of their experiences—the lack of a capacity to attribute meaning may be protective, but so also may be a sufficient level of understanding.

In both humans (Rutter, 1981a) and monkeys (Mineke & Suomi, 1978), anxiously or insecurely attached infants are more likely to respond adversely to separation experiences. Conversely, those with a secure relationship with parents, with previous happy separations, or who have been well prepared for the experience are less likely to show distress. The available data do not allow an adequate separation of the various elements involved here, but it seems that the protective features reflect variations in temperamental style and in appraisal of and coping with the situation, as well as the effects of the prior relationship. Least is known regarding the role of coping, although there is evidence from other situations suggesting that an individual's emotional reaction is influenced by the way the situation is dealt with and, in particular, by the degree of control exercised by the child (Gunnar-Vongnechten, 1978).

The importance of sources of emotional support, both during the experience and beforehand, has been shown in numerous studies, but one key

feature in terms of protective effects is that a secure relationship with one parent can substantially mitigate the effects of an insecure relationship with the other (Main & Weston, 1981). The quality of security refers to the dyadic relationship and not to a trait inherent in the child; thus, the characteristics of a child's attachment to one parent are of little or no predictive value for the relationships with the other one. What seems important for protection is a secure relationship with someone.

In animals, it is apparent that long-term effects are heavily dependent on whether or not separation leads to a disturbed mother-infant relationship after reunion (Hinde & McGinnis, 1977; Mineke & Suomi, 1978). If it does not, then long-term sequelae are unusual; the persistence of emotional disturbance is a function of the ongoing pattern of family relationships rather than of the separation *per se*. Human evidence is fragmentary, but is consistent with that process (Rutter, 1981b).

In that connection, it is relevant to note that dyadic relationships are much influenced not only by factors that directly impinge on the two partners, but also by additions to or subtractions from the social group in which the dyad is imbedded. This is shown with respect to immediate effects in terms of the way in which father's presence changes the style of mother-child interaction (Clarke-Stewart, 1973). The constellation of changes in a family that follow the birth of a second child well illustrate long-term consequences (Dunn & Kendrick, 1982). It seems in this case that the stress to the older child lies largely in the effects that the arrival of a sibling has on patterns of family interaction: such indirect effects on interactional processes are inherent in the ways in which social groups function. Their importance helps to explain why differences within families in the ways children are treated are as influential on personality development as differences between families in their general styles of interaction (Rowe & Plomin, 1981).

Early parental loss and adult disorder

Bowlby's writings (1951, 1969, 1973, 1980) have been seminal in drawing people's attention to the possible long-term consequences of early parental loss in leading to a predisposition to adult mental disorder. His views, and their development by Brown & Harris (1978) with respect to depression, have given rise to considerable controversy. However, most of the dispute is irrelevant to present considerations, in that the disagreements largely concern the role of death (as against other forms of

loss), the specificity of the link with depression, and the postulate that the effect solely operates through interaction with current life stressors. Longitudinal studies, such as the British National Survey (Wadsworth, 1984) leave no doubt that people who experience parental divorce, death, or permanent separation before the age of five years have a substantially increased risk of both psychiatric illness and delinquency in early adult life. The question is not whether there are effects, but rather how they are mediated and what serves to protect people against adverse sequelae.

Recent research by several independent groups has served to clarify the issues. Firstly, it appears that early parental loss predisposes to depression only if it leads to inadequate care of the children and to lack of emotional stability in the family (Brown *et al.*, 1985; Birchnell, 1980; Kennard & Birchnell, 1982; Parker, 1983). The loss is important only or largely because it serves to bring about chronically unsatisfactory family circumstances. Secondly, it seems that such lack of care is influential not because it leads to fixed effects, but rather because it sets in motion a chain of events that in combination predispose to later disorder. However, each link in the chain is subject to further influences at the time; e.g. Brown *et al.* (1985) found that lack of care predisposed to premarital pregnancy, which in turn made it more likely that the women would marry undependable husbands and later experience depression. But this chain of events was far from inevitable—much depended on how the women coped with the premarital pregnancy. A key element throughout seems to be the person's cognitive set—a sense of self-esteem and self-efficacy makes successful coping more likely, while a sense of helplessness increases the likelihood that one adversity will lead to another. It should be noted, however, that this cognitive set is not a fixed personality trait; it may change with altered circumstances.

The third finding, stemming from Parker's work (Parker & Hadzi-Pavlovic, 1984) concerns the importance of a person's current marital relationship. Parental death may predispose to poor child care and hence to an unsatisfactory marriage; conversely, good care in childhood may increase the likelihood of a harmonious marriage, but the main protective factor with respect to adult depression stems from an affectionate spouse. In other words, the effect of the early childhood experiences on depression was indirect, being mediated via a prior effect on marital relationships.

Fourthly, not only may poor and disrupted

relationships in childhood predispose to an unsatisfactory marriage, they may also be so associated with less satisfactory living conditions and more stressful experiences in adult life (Belle, 1982). Thus, the childhood experiences have indirect effects on depression through their links with stressful life circumstances which, in turn, seemed to be perpetuated through poor coping strategies.

Parenting problems

Our own data from a follow-up study into adult life of institution-reared women (Quinton *et al*, 1984; Rutter & Quinton, 1984) tells a closely similar story with respect to influences on parenting problems and psychosocial difficulties in adult life. As a group, the institution-reared women had a substantially worse adult outcome—demonstrating a relatively strong link between childhood experiences and parenting problems. However, once again, the links proved to be indirect for the most part. Much the weakest effect was the direct one from institutional rearing to childhood disturbance that persisted into adult life. Somewhat stronger was the effect on vulnerability to psychosocial stressors in adult life. Compared with the general population group, the institution-reared women were twice as likely to react adversely in the circumstances of a discordant marriage and disadvantaged living conditions. Interestingly, however, they showed an equally good adult outcome, provided they had a supportive husband in a harmonious marriage; i.e. the effect of adverse childhood experiences was one on susceptibility to stress, rather than on adult disorder *per se*. The third indirect chain effect was the much greater likelihood that the institution-reared women would marry for negative reasons (such as to escape from an intolerable family situation), often to a man with multiple psychosocial problems from a similarly deprived background. Not surprisingly, most of these marriages proved to be unsatisfactory and many broke down. In considerable part, the poor adult outcome appeared to be a function of the women's disharmonious marriages to deviant men, but the fact that they made such marriages in the first place stemmed from childhood adversities. The immediate protective factor, then, was a good marital relationship.

The question that follows, of course, is what enabled some of the women to make a successful marriage in spite of prolonged family discord in early life and an upbringing in a Children's Home. The most influential prior protective factor proved

to be some form of good experiences at school—in terms of social relationships, athletic prowess, musical success, or (less often) scholastic achievement. Such good experiences made it much more likely that the women would exert 'planning', both in terms of choice of marriage partner and in terms of choice of work. The inference is that the experience of success in one arena of life led to enhanced self-esteem and a feeling of self-efficacy, enabling them to cope more successfully with the subsequent life challenges and adaptations. Instead of behaving as if they were 'at the mercy of fate', like most of the institution-reared women, they acted positively in order to try to better their life circumstances.

Other studies give rise to similar conclusions in arguing that a satisfying marital relationship is a potent protective factor, both because it tends to have a direct effect in reducing the level of stressful life events and because it has an indirect buffering effect, enabling people to cope better with such events (Notarius & Pellegrini, 1984).

Relationships outside the marriage may also have an important buffering effect, leading to better parenting in spite of concurrent life stressors (Crockenberg, 1981; Crnic *et al*, 1983). However, the findings also indicate that a straightforward social support buffering hypothesis is inadequate. In the first place, what seems to be important is people's satisfaction with their relationships, rather than their frequency or range of social contacts (Schaefer *et al*, 1981). Clearly, this is likely to reflect their own personal qualities, to an appreciable extent. Secondly, social support can be a two-edged sword, with the prolonged interdependence of friends and kin during times of stress creating bitterness and hostility as well as love and trust (Belle, 1982). Thirdly, with single parents, increased social contacts may mean less time with children, who may respond by being more demanding and resistive when they are together (Weinraub & Wolf, 1983). Similarly, both going out to work and remarriage may provide effective support for divorced women, but yet create additional difficulties for their children (Hetherington *et al*, 1982).

It should be added that parental depression is an important risk factor for difficulties in parenting (Cox & Rutter, 1985) so that, other things being equal, factors that protect against depression are likely to enhance parenting. Probably, the effects of stressors on children's mental health are mediated to a considerable extent through their effects on parental mental health and family functioning (Belle *et al*, 1982; Fergusson *et al*, 1985; Longfellow & Belle, 1984).

Parental mental disorder

My penultimate example of stressors is parental mental disorder. The evidence suggests that for the broad run of emotional and conduct disorders in the children of such parents, the main risk factor when a parent is depressed or otherwise psychiatrically ill stems from the associated family discord, with the greatest impact when the hostility and quarrelling directly involve the child in some way (Rutter & Quinton, 1984). Conversely, the important protective factors include a mentally healthy spouse, the maintenance of a good relationship with one parent, and a restoration of family harmony (Rutter, 1971). However, the child's characteristics also appear influential, with boys somewhat more at risk than girls (Rutter, 1982), with a possibly greater risk for the children of the same sex as the ill parent (Rutter & Quinton, 1984), and with children who show more difficult temperamental characteristics most likely to suffer (Rutter & Quinton, 1984). It appears that one of the main reasons for the temperamental effect is that 'difficult' children are more likely to be the target of parental criticism and hostility, whereas an 'easy' temperament is protective, because it leads to more adaptive parent-child interactions (Rutter, 1977). However, that observation underlines the finding from other studies that 'difficultness' in temperamental style is not an absolute quality—the behavioural feature that one parent finds difficult another may respond to positively (Bugental & Shennum, 1984; Chess & Thomas, 1984; Lerner, 1983). Moreover, temperamental features that aid adaptation in one context may not do so in another; e.g. Schaffer (1966) found that highly active infants fared best in a poor quality institution, because their activity elicited stimulating interactions with staff, but Dunn & Kendrick (1982) found that activity level was unrelated to children's responses to the birth of a sib—it was rather that malleability, low emotional intensity, and positive mood were protective.

Bleuler's (1978) study of the children of his schizophrenic patients adds another dimension. He commented that the stress of living with a mentally ill parent might be health-enhancing, if the stresses are both manageable and of a kind that give rise to rewarding tasks that prove fulfilling (see Garmezy, 1985a). Garmezy drew the parallel with Rachman's (1978) concept of 'required helpfulness', and noted that helping others (such as the sick parent or younger siblings) may lead to heightened morale and the acquisition of new problem-solving skills,

that could predispose to resistance to stressors as encountered later in life.

Multiple social adversities

Finally, I should mention protective factors in relation to the development of youths from high-risk backgrounds, characterised by multiple social adversities. Since the evidence with respect to delinquency as an outcome has been considered more fully elsewhere (Rutter & Giller, 1983), the findings may be summarised quite briefly. It seems that the protection may stem from appropriate social controls and prosocial models (as in the peer group or the school method); from good parental supervision and monitoring of their children's activities (see also Patterson & Stouthamer-Loeber, 1984); from at least one good close relationship; and from good scholastic achievement. The one different element in this list of protective factors concerns the value of parental supervision, preventing their children's involvement in activities and social groups likely to predispose to delinquency.

Two investigations looking at non-delinquent outcomes warrant special mention: Werner & Smith's (1982) study of children in Kauai, and Elder's (1974; 1979) study of children growing up during the period of the Great Depression; a few of their findings emphasise protective factors which have been given less attention by others. In the Kauai longitudinal study, in addition to the protective effects of positive parent-child relationships and good support from kin (especially grandparents), resilience was associated with a good natured disposition (as assessed in infancy), a positive self-concept, and the taking of responsibility for younger siblings. In Elder's study, too, the need to take on domestic responsibilities and to undertake part-time work proved strengthening for many of the older children: it seemed that coping successfully and accepting productive roles of responsibility, where this was associated with closer family ties, led to personality strengths.

Protective factors: variables and mechanisms

Is it possible from these findings from diverse risk situations to draw any general conclusions regarding the operation of protective factors leading to resilience in the face of adversity? It is obvious that this is a new field of research, in which we are only just beginning to clarify concepts and measures, so that it would be premature to attempt any kind of over-arching theoretical construction. Nevertheless, I think that it is possible to draw certain inferences and to propose possible mechanisms that should be

susceptible to systematic testing. However, in doing so, it is necessary first to note some of the complexities involved. I wish to draw attention to just four. Firstly, it is evident that many of the protective influences operate through their effects, both direct and indirect, on chain reactions over time; inevitably, this means that the analysis of protective processes must examine each of the individual links in such longitudinal chains. Any cross-sectional multivariate analysis that treats all variables as if they interact at one point in time cannot test hypotheses regarding such protective influences. Secondly, many protective factors (just as many vulnerability factors) operate indirectly through their effects on interpersonal interactions both dyadic and polyadic, rather than directly through any lasting change in the individual. The reality of such indirect social effects cannot be in doubt, as they have been clearly demonstrated; nevertheless, an understanding of their role in relation to resilience is more difficult to achieve. Thirdly, although certain variables permeate protective influences (these would include factors associated with good affectional relationships, and positive experiences leading to self-esteem and self-efficacy), nevertheless, personal differences are important. Social contacts matter less than a person's satisfaction with his social relationships; to a large extent, temperamental features are influential through their impact on others, and the effect of life events has to be considered in terms of their timing and meaning.

Finally, it follows from these considerations that traditional views on what it involved in personality development must undergo rather radical transformation (see Bronfenbrenner, 1979; Kagan, 1984; Maccoby, 1984; Rutter, 1984b). The infancy years are not determinative; cognitive processes play a major role in emotional and behavioural responses; temperamental features are influential, but operate through interactions as much as individual reactivity; much behaviour is context-related; many of the links in development are social rather than individual; continuities over time are usually indirect rather than direct; and fluidity in functioning continues right into adult life. I will now seek to outline some of the key considerations in the mechanisms to be considered in relation to protective factors.

Timing

For at least six different reasons, it matters when events occur. Firstly, the impact of an experience (beneficial or adverse) is dependent on the child's

capacity to appreciate it: very young infants are relatively protected from the ill-effects of separation experiences because they lack the capacity for enduring selective attachments, and hence have no bond to be disrupted. Secondly, the persistence of effects is likely to be influenced by the extent to which a child attaches meaning to the events and incorporates them into his belief system and set of self-concepts. Kagan (1981) has argued that it is just because babies lack the ability to do this that experiences during early infancy so rarely have lasting effects that are independent of later circumstances (Rutter, 1981a). Thirdly, children's response to stress and adversity will be modified by their cognitive ideations about themselves and their experiences; it is only in middle childhood that children begin to adjust their self-perceptions as a consequence of task failure, with the emergence of both shame about themselves and feelings of helplessness and hopelessness about the future (see Garnezy, 1985b; Rutter, 1985c). Fourthly, during periods of rapid maturation, development may be canalised so that infants are less susceptible to variations in environmental conditions within the normal range; family influences on cognitive development seem less marked during the first two years than they are during the third and fourth years (Rutter, 1985b). Fifthly, reactions to stress and adversity may be reduced when advantage is taken for the older child's ability to understand situations and to develop strategies for dealing with them. Sixthly, timing may be important when it affects the meaning attached to an event: if a mother's taking a job outside the home coincided with divorce, this was associated with disturbance in the children, even though maternal employment did not have that effect at other times. Finally, there is some suggestion that events may constitute more of a stress when they occur at a non-formative time—as with death in early adult life or forced early retirement (Hultsch & Plemons, 1979).

Meaning

Meaning may also be important in other connections; there is some suggestion that children may be more likely to be adversely affected by the death or illness of the same-sexed parent (Rutter & Quinton, 1984). However, it also appears that a person's appraisal of a situation may define whether or not it is seen as positive or threatening (Rutter, 1981b). Perhaps that is why children who have become accustomed to brief happy separations (through babysitters and staying with grand-

parents) tend to react better to hospital admission (Stacey *et al.*, 1970). It should be noted that as children grow older, there are important changes in the types of object or situation that elicit fear (Rutter & Garnezy, 1983). Also, older children are more likely than younger ones to feel anxious about their personal adequacy (Olah *et al.*, 1984) and to have worries about the future (see Rutter, 1979b). Although not as yet investigated, these developmental changes may well have implications for children's appraisal of and response to different kinds of stress and adversity.

Cognitions

The probable importance of a person's cognitive appraisal of his life situation raises the issue of cognitive sets more generally; it is certainly striking how very differently people respond to what is apparently the same situation. The studies of Brown *et al.* (1985) illustrate this point in terms of the way girls deal with a premarital pregnancy, and our own work showed the same in terms of planning for marriage and for work (Quinton *et al.*, 1984). Investigations of family and school influences on cognitive development make the same point (Rutter, 1985a). The long-term educational benefits from positive school experiences probably stem less from what children are specifically taught than from effects on children's attitudes to learning, on their self-esteem, and on their task orientation and work strategies.

Much has been written on the importance of good coping strategies, and doubtless some are better than others. However, what is important may be not so much the specific method of coping than the existence of a coping process at all. What is characteristic of so many people who have experienced chronic stress and adversity is that they feel helpless and unable to do anything about their life situation. Resilience is characterised by some sort of action with a definite aim in mind and some sort of strategy of how to achieve the chosen objective which seems to involve several related elements. Firstly, a sense of self-esteem and self-confidence; secondly a belief in one's own self-efficacy and ability to deal with change and adaptation; and thirdly, a repertoire of social problem-solving approaches. The research findings suggest that the protective factors likely to foster such a cognitive set include two key features: secure stable affectional relationships, and experiences of success and achievement; neither need necessarily be general. One good close relationship does much to mitigate the effects of other bad relationships, and lasting

rewards and achievements in one arena may go a long way to offset problems in other areas of life. However, it is probably crucial that the individual defines the areas of success as central to his interests and involvement. Another protective feature is suggested in the literature—emotionally distancing one's self from an unalterably bad situation, from which you cannot escape. Thus, children reared by seriously mentally ill parents may cope effectively by separating themselves emotionally from their home and developing their ties elsewhere. On the other hand, others become resilient by taking on responsibilities for coping with the stress situation, and doing so successfully.

The role of problem-solving strategies as such remains uncertain. Intuitively, it seems likely that they are influential, in that maladaptive behaviour is so often characterised by inept strategies or ones that induce negative reactions in other people. The evaluations of attempts to teach children interpersonal cognitive problem-solving are promising, but so far inconclusive (Pellegrini & Urbain, 1985) and next to nothing is known about factors in the natural environment that promote effective strategies. However, it may be presumed that the ways in which parents themselves deal with life stresses is likely to influence how the children respond to their challenges and problems. Of course, it is not to be expected that the specifics would be learned; the stress of income tax demands has little in common with children's life situations! It is more probable that what children perceive is more general qualities such as responding to frustration with aggressions against others, rather than discussing alternative ways of overcoming the difficulty. It may well also be important that children learn from inductive disciplinary techniques to appreciate the effects of their actions on others (Maccoby & Martin, 1983).

Interactions with others

In discussing the effects of temperamental differences in modulating children's reactions to stress and adversity, I emphasised that they operated in part through their effects on the environment and in particular on other people's response to them. The same point arose in relation to sex differences. In Hetherington *et al.*'s (1982) study of divorce, parents were more likely to quarrel in front of their sons than their daughters, and in our study of the families of psychiatrically ill parents (Rutter & Quinton, 1984), we found that temperamentally easy children were less likely to be the target of their parents' irritability. Similarly, Dunn & Kendrick

(1982) found that adaptable emotionally subdued children were more likely to have good relationships with their parents after the birth of a sib. In Garmezy's study of central city children, the ability to generate humour was associated with greater social competence in the presence of stress (Garmezy & Tellegen, 1984) and in the Kauai study (Werner & Smith, 1982), a good-natured disposition was protective.

The protective effect of personal qualities leading to adaptive harmonious interactions with others should not be interpreted as meaning that the qualities are either constitutional or unmodifiable. To some extent, children can be helped to develop adaptive qualities. However, the potential for protection also lies in the recognition that at least part of the mechanism lies in the interpersonal interactions that are associated with the qualities. Accordingly, it may be helpful to focus on ensuring that such interactions are as adaptive as possible, avoiding scapegoating and fostering positive elements in personal interchanges, rather than slipping into vicious circles of coercive interaction.

Conclusions

When the topic of protective factors was reviewed some half a dozen years ago (Rutter, 1979a), no firm conclusions were drawn, in view of the scanty evidence available. However, it was suggested that when the findings were all in, the explanations would probably include: "the patterning of stresses, individual differences caused by both constitutional and experiential factors, compensating experiences outside the home, the development of self-esteem, the scope and range of available opportunities, an appropriate degree of structure and control, the availability of personal bonds and intimate relationships, and the acquisition of coping skills". Subsequent research has broadly confirmed that list of postulated variables (Garmezy, 1985a; Masten & Garmezy, 1985; Rutter & Giller, 1983; Werner & Smith, 1982), but has also begun to provide clarification of some of the possible mechanisms that may be involved. To begin with, a person's response to any stressor will be influenced by his appraisal of the situation and by his capacity to process the experience, attach

meaning to it, and incorporate it into his belief system. Age-related susceptibilities are important in that connection: babies may be protected by their cognitive incapacities, but older children may be more resilient as a result of their great level of understanding. Secondly, it matters greatly how people deal with adversities and life stressors—perhaps not so much in the particular coping strategy employed but in the fact that they do *act* and not simply react. Thirdly, people's ability to act positively is a function of their self-esteem and feelings of self-efficacy as much as of their range of problem-solving skills. Fourthly, such a cognitive set seems to be fostered by features as varied as secure stable affectional relationships and success, achievement, and positive experiences, as well as by temperamental attributes. Fifthly, such personal qualities seem to be operative as much in their effects on interactions with and responses from other people, as in their role in regulating individual responses to life events. Sixthly, coping successfully with stress situations can be strengthening: throughout life, it is normal to have to meet challenges and overcome difficulties. The promotion of resilience does not lie in an avoidance of stress, but rather in encountering stress at a time and in a way that allows self-confidence and social competence to increase through mastery and appropriate responsibility. Lastly, all the evidence points to the importance of developmental links. Protection does not primarily lie in the buffering effect of some supportive factor, operating at one point in time, or even over a prolonged time. Rather, the quality of resilience resides in how people deal with life changes and what they do about their situations. That quality is influenced by early life experiences, by happening during later childhood and adolescence, and by circumstances in adult life. None of these is in itself determinative of later outcomes, but in combination they may serve to create a chain of indirect linkages that foster escape from adversity. It cannot be claimed that we have an adequate understanding of how this development takes place, but already the little we do know provides pointers to the elements likely to be necessary in effective prevention and therapeutic intervention.

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(Accepted 1 May, 1985)