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Clinical Section

NEW DEVELOPMENTS IN COGNITIVE-BEHAVIOURAL CASE FORMULATION. EPIDEMIOLOGICAL, SYSTEMIC AND SOCIAL CONTEXT: AN INTEGRATIVE APPROACH

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Abstract. The historical origins of the case formulation approach to assessment and treatment are described and its role in clinical practice and research discussed. It is argued that treatment based on individual case formulations should not be precluded from clinical trials. The empirical evidence for the reliability and efficacy of case formulation is reviewed. The evidence that an idiosyncratic case formulation approach to treatment has any advantage over a standard protocol is equivocal; however, the studies that have been carried out are under powered and potentially suffer from a Type II error. The standard procedure for case formulation is briefly described and the argument advanced that this method of clinical assessment should be soundly based upon empirical evidence and hypothesis testing and not on speculation. Three modifications are suggested to the current practice of case formulation. These are: 1) the conceptualization of dysfunctional systems in the maintenance of clinical problems; 2) the historical background of a clinical problem should be described in terms of vulnerabilities and epidemiological evidence-base; and 3) the pivotal role of social behaviour and context should be emphasized and accommodated in a formulation. The advantages of a case formulation, in providing an understanding of the maintenance of clinical problems, in providing an integrated approach to intervention are outlined.

Keywords: Cognitive-behavioural, case formulation, social context.

Introduction

Case formulation is one of the core skills of the clinical psychologist (DCP, 2001, p. 2) and is a central process in the role of the scientific practitioner.[1] It involves the elicitation of appropriate information and the application and integration of a body of theoretical psycho-

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[1] Case formulation has been developed in a number of therapeutic schools (see Eells, 1997), but the purpose of this paper is to focus on CBT.

logical knowledge to a specific clinical problem in order to understand the origins, development and maintenance of that problem. Its purpose is both to provide an accurate overview and explanation of the patient's problems that is open to verification through hypothesis testing, and to arrive collaboratively with the patient at a useful understanding of their problem that is meaningful to them. The latter has been termed the ''treatment utility'' of case formulation (Hayes, Nelson, & Jarrett, 1987). The case formulation is then used to inform treatment or intervention by identifying key targets for change. The purpose of this paper is to describe the process and development of cognitive-behavioural case formulation, integrating the epidemiological, systemic and social aspects of clinical problems.

Empirical basis

The factor that has distinguished the broad school of cognitive-behaviour therapies from other schools of psychotherapy has been a commitment to empirical validation both in terms of its basic theoretical premises and treatment outcomes. The issues surrounding case formulation should be no different and should be resolved by reference to empirical findings and not speculation. This is especially true with respect to historical factors that may influence the genesis and development of a clinical disorder.

Origins of case formulation

Case formulation has its roots in the application of psychological science to clinical problems. Kanfer and Saslow (1965), in a seminal paper, described the process of behaviour analysis as an alternative to psychiatric diagnosis. This was to understand and describe in detail the individual's problematic behaviour in terms of environmental stimuli and response contingencies rather than in terms of psychiatric diagnosis (Follette, Houts, & Hayes, 1992; Nelson-Gray & Farmer, 1999). Thus psychological formulation offered alternatives to psychiatric diagnosis and medical models, with inevitable treatment implications (Owens & Ashcroft, 1982; Bissett & Hayes, 1999).

Further understanding of the nature of clinical disorder, especially anxiety and fear, derived from empirical research, for example Lang's (1979) multiple systems approach to fear, increased the complexity of information involved in case formulation. The ''cognitive revolution'' (Meichenbaum, 1977; Wilson, 1978), fuelled by the work of Beck (Beck, Rush, Shaw, & Emery, 1979) and others (e.g. Hawton, Salkovskis, Kirk, & Clark, 1989) further expanded the field of behaviour therapy. The newly named cognitive behaviour therapy incorporated cognitions (including beliefs, attributions and expectations), private unobservable events, into formulations and there was a shift in focus away from environmental factors to internal cognitive processes and content. In some ways, the concept of disease process was replaced by constructs such as dysfunctional assumptions, schema and the like. Case formulation has incorporated these developments in examining the patient's private world into the clinician's understanding of the individual case (see Persons, 1989, pp. 1–18). The influence of cognitive therapy, however, has been to turn attention much more towards examining factors internal to the patient (their thought processes) with much less importance being given to the person's environment (their social context) than had been true historically with more behavioural traditions (Hayes & Hayes, 1992).

Clinical practice and clinical research

There has been a tendency for case formulation to be adopted by the clinician who deals with the day to day challenges and heterogeneity of clinical work rather than by the clinical researcher who, through clinical trials, evaluates the efficacy of specific treatments. Evaluation involves restricting patients in the trial to a homogeneous group and assessing a standardized treatment, usually manual based, a process that has been accused of becoming increasingly distanced from clinical practice (see Bruch, 1998).

There are two major issues. First, should standardized treatment or case formulation protocols be used in clinical research? Second, should standardized treatment or case formulation protocols be used with clinical practice? Regarding the first issue, it is essential that a treatment be clearly described so that replication is possible. A manual or explicit protocol clearly aids this and is a methodological requirement in treatment trials. It could be argued that a strongly protocol driven treatment would be required in an efficacy trial during which a treatment's ability to successfully treat a described disorder or clinical problem under ideal circumstances is established. However, a relatively inflexible treatment protocol becomes less useful in a pragmatic or effectiveness trial in which the utility of the treatment in a naturalistic clinical setting is being assessed (for example, see Barrowclough et al., 1999).

Notwithstanding this point, a strong argument has been advanced for a new type of research protocol that includes idiographic assessment and treatment (Persons, 1991). Cognitive-behavioural treatments based on an individual case formulation have been used in clinical trials. Examples of this include the treatment of schizophrenia (Tarrier et al., 1998), PTSD (Tarrier, Sommerfield, & Pilgrim, 1999) and juvenile offending (Henggeler, Melton, & Smith 1992). It is therefore not inconsistent to include case formulation and idiographic assessment within a treatment protocol and efficacy trial. This flexible treatment protocol also has the advantage of evaluating a ''real world'' treatment in a pragmatic trial and of studying psychological phenomena rather than psychiatric diagnosis (Persons, 1986). It has also been suggested that the failure of group comparisons to distinguish between different psychotherapies has not been the result of the active ingredients being solely the effect of non-specific factors that are common to all psychotherapies, but rather the failure to match the intervention to the patient's underlying problem (Persons, Curtis, & Silberschatz, 1991).

The second issue relates to the use of an evidence-base to dictate clinical practice. Since most treatments have been established by means of a research trial in which a standardized treatment protocol has been used, it could be argued that such a protocol should also be used in clinical practice (e.g. Hickling & Blanchard, 1997). The advantages are clear; standardized clinical protocols that have been empirically validated will become the substance of evidence-based practice and benefit patient care. However, there are disadvantages and counter-arguments to this position. The first is the nature of the evidence. Recruitment and sample selection in clinical trials of psychological treatments, especially in North America, can be criticized for being convenience samples that may well be biased and not representative of the epidemiological base for the disorder being treated (Tarrier, 2001; Tarrier & Wykes, 2002). Furthermore, the exclusion criteria used in trials, especially efficacy trials, may well rule out many of the difficult and complex cases seen in clinical practice (see Johnson, 1988 for a discussion of, and guidelines for, clinical trials in psychiatry). Therefore there will be little substantive evidence that treatment protocols derived from specific

research projects will be efficacious with those cases that have been excluded from the original efficacy trial. Secondly, the use of strict protocols limits the clinical freedom of qualified and competent practitioners and reduces the possibility of innovation and development. Lastly, there is the suspicion that the use of strict protocols is being promoted not by specific evidence but by managed health care, especially in the USA. This is, of course, not to argue that practice should not be informed by research and that treatments need not be validated by outcome trials, but rather that the conclusions drawn from research need to be accurate and that we need to be aware of the social and economic pressures that can also be exerted on practice. For example, one should compare the actual scientific evidence currently available to support some treatment approaches with their heavy marketing (e.g. Rosen, Lohr, McNally, & Herbert, 1999).

How to evaluate case formulation

With the increased rigour and operationalized criteria characteristic of psychiatric diagnosis in the DSM IIIR and DSM IV (APA, 1987, 1994) and ICD-10 (WHO, 1994), explanatory research has become strongly disorder based. Psychological models, such as cognitive models of panic attack disorder (e.g. Clark, 1986) and social phobia (e.g. Clark & Wells, 1995), focus on explanations of specific disorders, and treatment protocols have been derived from these models (e.g. Wells, 1997). This has introduced a conflict into the world of psychological treatment between the production of standardized treatments based on improved diagnostic classification of disorders and the functional analytic tradition of behaviour therapy, which examined the idiosyncratic details of each individual case (Bissett & Hayes, 1999; Farmer & Nelson-Gray, 1999; Nelson-Gray & Farmer, 1999; Schulte, 1996). The first tradition is based very much on clinical medicine, whereas the second is based on applied behaviour analysis. Attempts to produce classification systems based on functional similarities (e.g. Begelman, 1976) rather than nosology have, however, had little impact. The current predominance of diagnostic classification does not necessarily herald the death knell of case formulation and it has been suggested, as with protocol based therapies, that pressure from certain health care systems, managed care and insurance companies (Eifert, 1996) has been as much responsible for this predominance as any scientific reasoning. Factors such as co-morbidity of disorder, personality and complex social conditions argue for the retention of idiosyncratic case formulation not its abandonment (see also Hayes, Kaholokula, & Nelson, 1999).

Does case formulation work?

Reliability

To evaluate the case formulation approach it is first necessary to demonstrate acceptable reliability. Can clinicians agree on case formulations? Persons, Mooney and Padesky (1995) tested whether 46 clinicians could agree on two aspects of CBT case formulations; the patient's overt problems and the underlying cognitive mechanisms. Moderate levels of agreement were obtained for the overall listing of overt problems, and in the main, high agreement on rating underlying mechanisms. Clinicians were very good at identifying family problems, depression, marital problems, unemployment, driving anxiety, grief and feeling

over-responsible, which were identified by a median of 93.4% (range: 100% to 67.4%), but were poor at identifying social isolation, with only 13% identifying this problem. Inter Class Correlations for inter-rater reliability of five clinicians for identifying underlying cognitive mechanism varied between .27 and .92 with a median of .82. Dysfunctional attitudes were the most difficult to reach agreement on, whereas views of the world had good consensus with an ICC of .92. In a second study of 38 clinicians, 67% of patients' overt problems were identified but reliability coefficients for single clinicians were low (mean 0.37, range 0.13–0.66) for schema ratings (Persons & Bertagnolli, 1999).

Is there an advantage of idiosyncratic case formulation?

Classificatory systems are not without their advantages and nomothetic and idiographic approaches are not entirely mutually exclusive. It is feasible to use case formulations within a disorder based classification. Although patients can often be classified by commonalties, there is also considerable variation between individuals so classified, and multiple allocation to different categories, so called co-morbidity. A disorder label may well provide a general structure to the understanding of how that individual is responding but does not provide the detail of, nor wider contextual information on, factors that may well be clinically influential (Hayes et al., 1999; Persons, 1992). Moreover, two individuals who attract the same diagnosis may have few symptoms in common because, to achieve diagnosis, a number of symptoms must be present from a longer list. For example, to meet the criteria for a major depressive episode five symptoms need to be present from a list of nine, and for dysthymic disorder, two from six (APA, 1987).

It should feasible to compare treatment that is formulation-based with standardized treatment delivered from a manual. When this has been done the results have been equivocal. Schulte, Kunzel, Pepping, and Schulte-Bahrenberg (1992) treated a mixed group of 120 phobic patients with a standardized treatment, *in vivo* exposure plus self-statement training, with those who received individualized behaviour therapy based on functional behaviour analysis. In this innovative study they also included a yoked control group in which treatment was based not on the individual's assessment but on that of the yoked patient. The standardized treatment group showed the most improvement and this pattern of results was maintained at two years. Results were the same for experienced and inexperienced therapists, for patients with different types of phobias and panic disorders of different severity. Patients who acted as yoked controls improved as well as the other patients.

Similarly Emmelkamp, Bouman and Blaauw (1994) allocated 22 obsessive-compulsive patients to either tailor-made cognitive behavioural therapy or standardized *in vivo* exposure therapy. There was a very significant improvement over treatment, which was maintained at 2-month follow-up but no significant difference between the two groups. Jacobson et al. (1989) treated 30 distressed marital couples with either a research-based version of marital therapy or a clinically flexible version of the same treatment in which treatment plans were individually based and the number of treatment sessions were not specified. Both treatments resulted in significant improvements at post-treatment. At 6-month follow-up the couples treated with the structured format were more likely to have deteriorated and flexibly treated couples were more likely to have maintained their treatment gains, although this trend was not statistically significant.

The results of these small trials are equivocal but tend to suggest that there may be little

advantage in the use of an individualized treatment over a standard package. This result is not surprising given the sample sizes of these studies. Standard treatment programmes are effective for a wide range of psychological disorders. Even if an individualized treatment was superior, the difference in effect sizes between the two approaches would most probably be small. Thus, the sample size required to significantly demonstrate such a difference would necessarily be large. Therefore, the studies that have been carried out are significantly under powered. To substantiate this we have estimated the sample sizes required to show significant differences with 80% power and .05 significance level based on the data provided in the published reports of two such studies. On the basis of Emmelkamp et al.'s (1994) data the numbers in each group required to show a significant difference for the various measures used in the study would be 25 for the Rational Behaviour Inventory, 560 for the Symptom Check List-90-R, 800 for the Self-rating Depression Scale and Inventory of Interpersonal Symptoms, 4,000 for the Maudsley Obsessional-Compulsive Inventory and in excess of 15,000 for measures of anxiety/discomfort. Similarly, on the basis of data published by Hickling and Blanchard (1997) for the protocol treatment of PTSD following a road traffic accident, to detect a 10% improvement on this from a case formulation treatment would require group sizes of 75 for State-Trait Anxiety Inventory, 130 for the PTSD checklist and 480 for the Beck Depression Inventory. Therefore, the feasibility of carrying out comparison studies between protocol-based and case formulation-based treatments, let alone obtaining funding to do so, is limited.

Purpose and procedure of case formulation

The purpose of case formulation is to define and explain the patient's problem in a manner that is sensible both scientifically and to the patient. The former means that the formulation is open to hypothesis-driven verification. This requires the formulation to account parsimoniously for the available data and to make further testable predictions through both assessment and treatment. Established theoretical constructs and empirical knowledge should guide case formulation.

Consistent with application of case formulation as described by others (e.g. Persons, 1989; Persons & Tompkin, 1997; Turkat, 1985, 1990), we propose that case formulation follows a structured procedure. Conventionally this follows a procedure of identifying and defining clinical problems and identifying their antecedents and consequences. This follows the traditional ABC (antecedents-behaviour-consequences) of behavioural analysis, although cognitive models have allowed the behavioural component to be replaced by a wider definition of the problem with considerably more description of cognitive factors, including content, process and structure. However, we propose three modifications to the way in which formulation is traditionally conceptualized: (1) the conceptualization of dysfunction systems, especially relating to maintenance factors; (2) the historical background in terms of vulnerabilities and epidemiological factors; and (3) a pivotal role of interpersonal and social behaviour and context.

Dysfunctional systems

Dysfunctional systems arise from failure in corrective feedback or homeostasis. Instead there is a tendency for feedback to destabilize and so amplify or maintain feedback processes

that mitigate against self-correction. Response patterns often become entrenched and cyclical, and take on numerous functions. Therefore, because the chain of events often becomes circular rather than linear, it is easier to think of a dysfunctional system that is activated and in which the various components have interacting relationships, which are strengthened through activation of the feedback system (see Figure 1). Such systemic approaches can be seen in models of psychopathology, for example in the ''vicious circle'' model of panic disorder (Clarke, 1986), in the coping feedback model of psychotic symptom maintenance in schizophrenia (Haddock & Tarrier, 1998; Tarrier & Haddock, 2002) and in the social ecological model of adolescent delinquent behaviour (Henggeler et al., 1991, 1992, 1997).

Thus the initial process of case formulation is to identify the dysfunctional interactions that are currently operating in the patient's life and serve to maintain the problem. The relationships of the various components within the dysfunctional system should be open to empirical verification through further assessment and hypothesis testing. The aim is to determine which set of factors is maintaining the problem and preventing some type of natural restitution and return to normal homeostasis. As can be seen from Figure 1 the dysfunctional system can be a complex set of interactions that involve both intrapersonal and interpersonal factors.

Historical background and vulnerability

Traditionally some proponents of case formulation (e.g. Turkington & Siddle, 2000) have viewed the patient's presenting problem as a product of their historical experience and probably few would dispute this in principle. However, the usual and potentially tautological

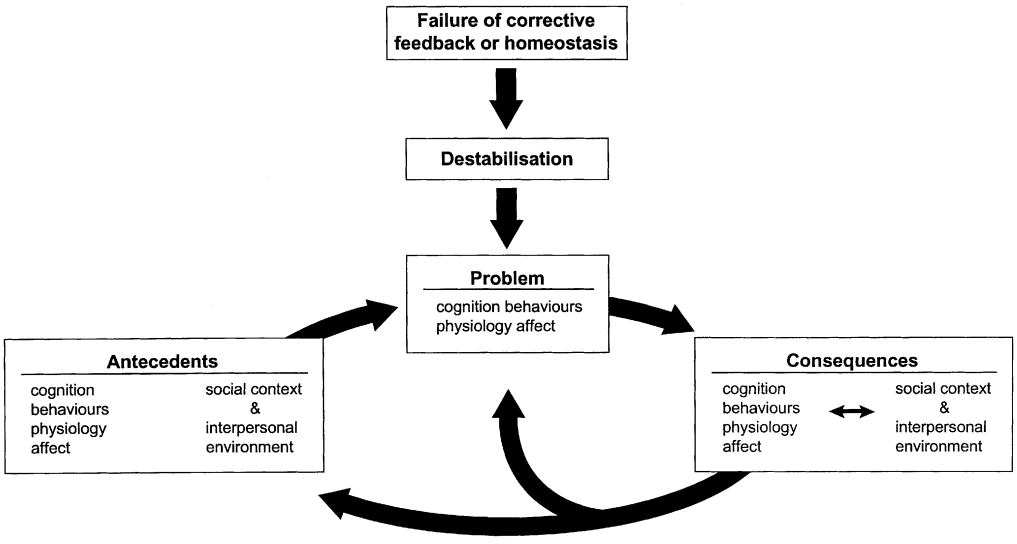

Figure 1. The dysfunctional system in case formulation

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method of using a patient's retrospective recall of the historical development of their problem as evidence of its aetiology is unsatisfactory. We suggest a probabilistic model in which individual characteristics of the patient's life and experience are matched to known vulnerability and risk factors drawn from the research literature to suggest possible pathways to the origins of the current problem. Thus historical aspects of case formulation need to be founded on epidemiological data on risk factors associated with the development of any subsequent disorder.

Vulnerability-stress models

The occurrence of disorder is postulated to be the product of vulnerability and stress. That some common characteristics render individuals more at risk to develop a specific disorder is seen as evidence of vulnerability. Increased vulnerability results in increased risk but does not inevitably result in the occurrence of disorder; some further destabilization or stress is required to precipitate the disorder and also trigger help-seeking behaviour and progress into and through the health care system (see Goldberg & Huxley, 1992). Some vulnerability represents both inherited and acquired biological vulnerability; for example, it is highly likely that there is a genetic component in the cause of schizophrenia and bipolar affective disorder. However, other vulnerability may well be acquired through exposure to specific environments. There are many published studies investigating vulnerability and the later development of psychological disorders but a few examples will suffice. In a famous series of studies Brown and Harris (1978) found that in working class women the lack of a confiding relationship, the loss of their mother before the age of 11, unemployment and three young children at home greatly increased the risk of depression. Thus exposure to a number of vulnerability factors, some distal and some proximal, substantially increases the probability of developing depression in the face of provoking agents. However, it was not inevitable, and other more proximal factors, such as the occurrence of a life event or crisis, serve to explain the occurrence and maintenance of this disorder in any individual.

A second, but related example, is the long established finding that maternal depression is associated with emotional and behavioural problems in young children (Cox, Puckering, Pound, & Mills, 1987), and that, untreated, these persist even when the mother's depression remits. Emotional and behavioural problems in childhood show linkages with a range of problems in adolescence and beyond, including mental health problems (Robins, 1991), reduced educational and occupational attainment (Caspi, Elder, & Bem, 1987; Fergusson & Horwood, 1998), criminal and antisocial behaviours, and suicide (Fergusson & Lynskey, 1998). The importance of consideration of historical factors in case formulation therefore becomes the identification of general vulnerability factors, (i.e. those that pertain to a population) and specific predispositions (those that pertain to that individual alone), which have resulted in increased risk of disorder should other necessary conditions prevail.

There is an important point here in how this is explained to the patient. For example, poor parenting and adverse childhood experience increase vulnerability to developing anxiety and depression in adult life (Goldberg & Huxley, 1992, p. 87). It can be explained that exposure to these factors had meant the person's personal risk has increased. This is very different from using the patient's retrospective account of their parents' behaviour and unhappy childhood to explain why they later became depressed.

To take the example of sexual abuse, Mullen, Martin, Anderson, Romans and Herison

(1996) were able to demonstrate in a retrospective study of a large community sample that, while sexual abuse carries specific risks for later psychological disturbance, many of the apparent adverse long-term effects associated with sexual abuse arise in part from the broader context of childhood disadvantage and family conflict within which abusive events occur. They warned that an exclusive or exaggerated focus on prior sexual abuse might obscure other, equally relevant vulnerability factors.

A useful distinction can be made between distal and proximal vulnerabilities. Distal vulnerability is conferred by events that occurred in the past, such as being the victim of childhood abuse, whereas proximal vulnerability is conferred by vulnerability that is recent or still active or occurring, such as low self-esteem or lack of a confiding relationship in women at risk of depression. This is an important point pragmatically as well as conceptually, as there is probably little that can be done to change distal vulnerability but on-going proximal vulnerability *may* be possible to change. So, for example, Runtz and Schallow (1997) showed that, for students reporting previous abusive experiences, current psychological adjustment was mediated by social support and coping strategies. Findings such as these indicate the value of individual formulation in identifying current interpersonal processes and cognitions that contribute to vulnerability or promote resilience. The stress-vulnerability model is described diagrammatically in Figure 2.

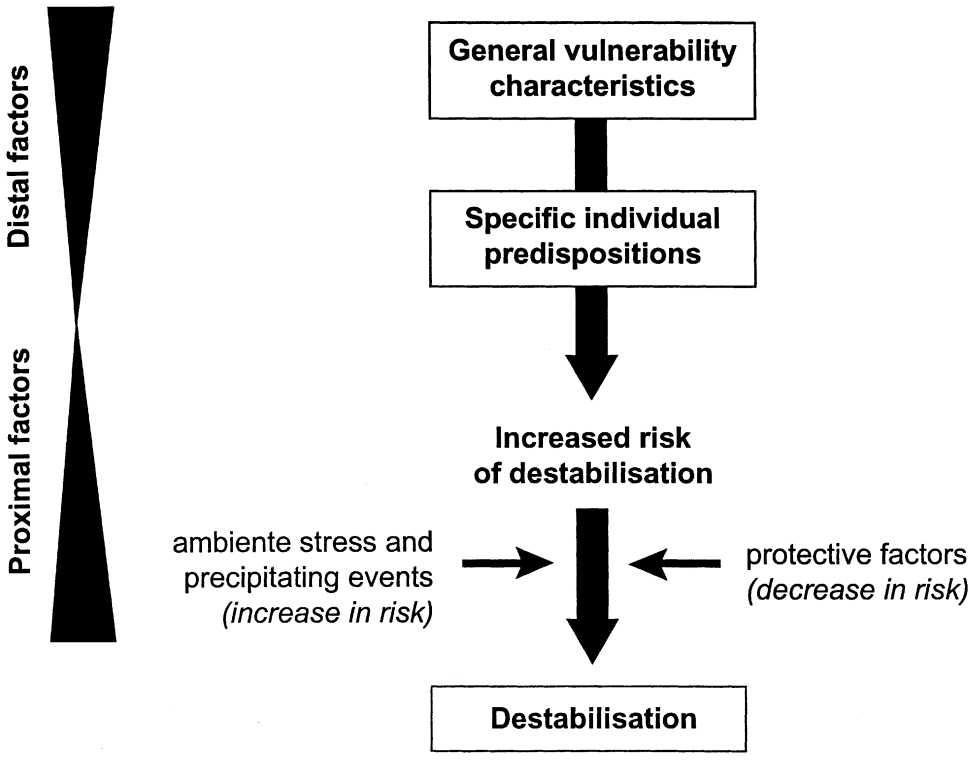

Figure 2. The stress-vulnerability model of psychological disorder

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Homeostatis – collapse and restitution

In spite of the most atrocious experiences, many people do not go on to develop psychological disorders. Thus some type of resilience must be operating that buffers against this adversity. This may be a characteristic of the person, such as personality, or an aspect of their environment, such as social support. In others, when destabilization occurs, restitution and a return to a regulated mental state rather than amplified dysfunctional feedback occurs very quickly. For example, in one of the best known epidemiological studies of PTSD approximately 60 to 70% of the sample suffering from PTSD remitted within the first 12 months (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). In psychological systems, similar to biological systems, there will be a tendency to maintain homeostasis through corrective feedback and only when there is accumulating risk and vulnerability or when the level of ambient stress is so great does destabilization occur and endure. Thus, destabilization can be thought of as a strain on cognitive and behavioural systems that results in change and disruption to functioning and loss of normal homeostasis or equilibrium. From a psychological perspective, important factors that contribute to the maintenance or loss of this homeostatis mechanism are likely to be social. Furthermore, factors that contribute to naturally occurring resilience and restitution are also potentially important therapeutically. For example, coping ability and the effects of family environment have been included in the bio-psycho-social model of schizophrenia (Nuechterlein, 1987). Both the potential coping ability (Tarrier, 2001) and the interaction with family members (Barrowclough & Tarrier, 1992) have been used as a basis of a cognitive-behavioural intervention to reduce psychotic symptoms in these patients.

The process of case formulation is therefore to understand the factors relating to that individual that have increased risk and that have precipitated destabilization and loss of homeostasis; that is, the specific factors that maintain the clinical problem. Although we have treated all clinical problems as equal by referring to them in such general terms, it is very unlikely that the same vulnerability and maintaining factors underlie all clinical problems. Paradoxically, the same disorder can be treated by a number of different cognitive-behaviouiral techniques and the same technique can be used to treat different disorders (Gavono, Godoy, Rodriguesz-Naranjo, & Eifert, 1996). In reality, probably little is known about how general vulnerability factors present in large populations are translated into the antecedents of decompensation in a specific individual at a particular time.

Social factors

Social context of the clinical problem

Traditionally, behavioural analysis has examined behaviour outside of its social context except for viewing it as a reinforcement or punishment delivery system. Cognitive models have further distanced their analysis from the social context by focusing on internal processes. We view meaningful social interactions and the interpersonal environment as central to human behaviour and clinical problems, and therefore their analysis needs to take centre stage in case formulation. There is good reason to do this; human beings have evolved into complex social animals with very complex social behaviours and goals. Baumeister and Leary (1995), in their review of the need for meaningful social interactions, concluded that: 1) people naturally seek and form relationships with others; 2) efforts to dissolve relation-

ships are strongly resisted; 3) information about meaningful relationships and relationship partners are more thoroughly processed than information about other people; 4) the quality and intensity of relationships are directly associated with mood; and 5) intermittent or superficial social bonds do not result in the same mental health benefits as meaningful bonds.

Humans have evolved as a species as social animals for whom socialization and all that goes with it is highly influential in their lives. It is also highly probable that mechanisms to elicit, maintain and regulate social interactions have also evolved and are operational in every aspect of a person's functioning. Aspects of problems seen in the clinic may well have their origins in this social evolution (Gilbert, 2001). For example, Gilbert (2000) provides an explanation of the role of submissive behaviours in depression and their evolution as a form of social defence, and similarly accounts for the function of self-esteem within the role of social attention-holding capacity in social comparisons as a mechanism in forming and maintaining social hierarchy (Gilbert, Price, & Allan, 1995; Price, 2000). Interpersonal environments thus have the potential to generate powerful psychobiological responses that precipitate action that may be persistent or difficult to control. Such action may in itself constitute or lead to psychopathology or disruptive emotion reactions.

There is considerable empirical evidence that good social support has a positive effect on health in general (Uchino, Uno, & Holt-Lunstad, 1999). Social support has been hypothesized to impact on mental health in two ways: by buffering against stress (Cohen & McKay, 1984) or through social cognition (Cohen & Willis, 1985; Rhodes & Lakey, 1999). In the former, perceived social support may impact on the appraisal of stress by providing the individual with the belief that additional resources, in the form of others, are available. In the latter, the positive role of social support may be to have access to others who can provide information about positive health related behaviour and positive beliefs and conceptualization of situations and self-perceptions (Penn, Mueser, Tarrier, Gloege, Serrano, 2001).

Negative interpersonal environments will also have a powerful effect on both the development and outcome of psychological disorders. Rhodes and Lakey (1999) cite over 1000 studies reporting an association between low social support and poor mental health. A related research area is the interpersonal environment in the home, which has been investigated by the measure of Expressed Emotion. Expressed Emotion (EE) is assessed from an audio-taped semi-structured interview with a respondent, usually a close relative, about the index patient. From this interview it is possible to reliably measure dimensions of criticism, hostility, emotional over-involvement and warmth and classify the relative as high or low on EE (Leff & Vaughn, 1985). Living in a household that has high EE members has been shown to have a detrimental effect on the outcome of various psychological disorders (Kavanagh, 1992; Butzlaff & Hooley, 1998; Wearden, Tarrier, Barrowclough, Zastowny, & Rahill, 2000). These include schizophrenia, eating disorders, depression, bipolar disorder, a variety of medical conditions and childhood behavioural disorders. Furthermore, EE levels of significant others may also affect outcome of cognitive behavioural treatments, for example with PTSD (Tarrier, Sommerfield, & Pilgrim, 1999). Various models of how the interpersonal environment, as measured by EE, impact upon the patient have been advanced (Wearden et al., 2000; Tarrier, Barrowclough, Ward, Donaldson, & Burns, in press). Beliefs or social cognitions held by those within the patient's social environment may well determine their behaviour towards the patient (Barrowclough, Johnston, & Tarrier, 1994; Wearden et al., 2000) and also potentially the physiological reactions of the patient (Tarrier & Turpin, 1992). Measurement of EE is time consuming and does not lend itself

easily to clinical practice. However, there are other briefer methods such as the perceived and expressed criticism scales developed by Hooley with depression (Hooley & Teasdale, 1989) that could be used as proxy measures of the interpersonal environment. Although clinical investigations of adult disorders rarely routinely assess the person's social environment, in some clinical settings, such as child and adolescent services, interviewing the parents and other family members is the norm and combines more easily with this type of approach.

Investigations of family environments have led to family interventions in schizophrenia aimed at reducing EE levels and their putative stressful effects. Many of these interventions have used cognitive-behavioural assessments and interventions (e.g. Falloon, Boyd, & McGill, 1984; Barrowclough & Tarrier, 1992). These family interventions have been found consistently to be successful at reducing relapse rates (Pitschel-Walz, Leucht, Bauml, Kissling, & Engel, 2001). Similar efficacy has also been suggested with family interventions in depression (Leff et al., 2000).

Social support is unlikely to be simply a passive substrate against which psychopathology develops. Seeking out the co-operation of others and the utilization of social resources may well be primary bio-social goals (Gilbert, 2001) that can moderate against adversity. Similarly, social context has been shown to mitigate against the effects of abuse in childhood. The literature on maltreatment, for example, suggests that good social support may have a major buffering effect (Runtz & Schallow, 1997), and studies of maltreated children have shown that good peer relationships are associated with better mental health throughout childhood (Bolger, Patterson, & Kupersmidt, 1998). However, this longitudinal study of abused children showed that chronicity and type of maltreatment appear to influence peer acceptance, and severity and timing of maltreatment are important. So, for example, children who are maltreated over a long period of time are less popular with their peers. Initial effects are apparent from early school age, and persist through childhood (Bolger & Patterson, 2001). This is likely in turn to limit the capacity to elicit or benefit from social resources for support and learning, and lead to increased vulnerability.

The interactive nature of the relationship between the person and their social environment can be seen from a study that investigated factors that predicted subsequent PTSD in victims of road traffic accidents (Holeva, Tarrier, & Wells, 2001). The use of social engagement as a method of coping after a road traffic accident was generally a positive coping strategy that appeared to moderate the effects of trauma. However, if the interpersonal environment was itself negative, or perceived as such by the subject, then social engagement became a liability and the risk of later developing PTSD greatly increased by a factor of eight. Similarly, in a longitudinal study investigating the onset of seasonal depression, poor social support, especially in the context of low self esteem, measured during summer when the subjects' mood was normal, resulted in faster onset and longer duration of seasonal depression with the progression into winter (McCarthy, Tarrier, & Gregg, 2002).

The positive effects of a strong social support system could be to neutralize a person's irrational and biased interpretation of events, whereas a critical or rejecting relative or significant other could reinforce negative thinking (Beck et al., 1979). In patients suffering obsessional-compulsive disorder it has been suggested that concealment from others of catastrophic fears is an additional manifestation of avoidance and neutralizing behaviour characteristic of this disorder. Concealment, resulting primarily from a fear of the negative

reaction of others, serves to sustain the obsession by preventing exposure to alternative interpretations of the significance of the thought (Newth & Rachman, 2001).

The evidence that social factors, although complex, are involved in the development and maintenance of psychological disorders is compelling. These factors need to be systematically included in case formulation and treatment. The area of social cognition may well be a good candidate for inclusion here. Social cognition is the domain of cognition that involves the perception, interpretation and processing of social information (Ostrom, 1984). For example, in schizophrenia there is evidence that social cognition is related to level of functioning independently from non-social cognition (Penn, Combs, & Mohamed, in press). Targeting of social cognition as a therapeutic strategy may also be productive; reports from a case study indicate that attributions about the behaviour of others have been successfully modified in a patient suffering from paranoid schizophrenia (Kinderman & Bentall, 1997).

Integration of intervention

Case formulation provides the capacity to list and prioritize the patient or family's problems and to generate testable hypotheses as to why they occur, which allows a strategic approach to treatment. Rather than prescribing a specific treatment for a particular disorder, case formulation allows problems to be translated into treatment goals. Treatment techniques can then be implemented so as to achieve these goals. This approach encourages the use of evidence-based practice through the selection of empirically validated treatment techniques to achieve the treatment goals guided by the case formulation. In this way assessment and treatment are integrated. There are indications that interpersonal behaviour is being given more importance in modified versions of CBT. For example, the ability to identify and modify cognitive and behavioural patterns that underlie interpersonal difficulties has been the aim of a modified form of CBT known as cognitive behavioural-analysis. This method has been shown to be particularly effective in treating chronic depression when used in combination with nefazodone in a large well conducted clinical trial of 662 patients (Keller et al., 2000). Similarly, Henggeler and colleagues (Henggeler et al., 1992, 1993, 1997) have found that multisystemic therapy (MST), based upon a conceptual system in which the problems of juvenile offenders and their families are viewed as embedded in multiple systems, is successful in improving psychiatric symptoms and reducing criminal activity. However, the latter only occurred when the adherence to the treatment protocol was good (Henggeler et al., 1997). It is anticipated that such attempts to modify interpersonal and social context will be developed in an increasing range of psychological disorders.

Summary

The advantages of the case formulation approach are that it allows a flexible and idiosyncratic understanding of each patient's individual problems irrespective of their diagnostic classification. It is sufficiently flexible to be accommodated in clinical research in terms of either efficacy or effectiveness trials. It can include epidemiological information on vulnerability and risk, a systemic approach to problem maintenance and the patient's interpersonal and social context. It is further advantageous in that a targeted and individualized treatment can be produced from the formulation that is specific to the needs of that individual. It is suggested that this is particularly advantageous in complex cases (Tarrier, Wells, &

Haddock, 1998). Further research on the reliability and validity of case formulation is required, although this will impose methodological and logistical challenges. Case formulation can also be informed by other disciplines such as social psychology, psychiatric epidemiology and social psychiatry. Further developments on how best to incorporate the social context, perhaps through detailed assessment of the patient's social cognition or interpersonal environment, are required.

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