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Posttraumatic Stress Disorder (PTSD) in the Armed Forces: Health Economic Considerations

[running title: Health Economics of PTSD]

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Post-traumatic Stress Disorder (PTSD) in the Armed Forces:

Health Economic Considerations

Abstract

This paper addresses the use of health economics in relation to posttraumatic stress disorder (PTSD) in the Armed Forces, with a view to assessing the feasibility of carrying out future evaluative studies. Although psychological and pharmacological interventions can be used to treat PTSD, no economic evaluations are known to exist. There is an economic 'burden' associated with PTSD and treatments require the use of scarce resources. Health economics provides tools (including cost-effectiveness, cost-benefit and cost utility analyses) to ascertain the relative efficiency of different treatment options. The paper concludes that the quality of life and resource consequences of PTSD require a better understanding of the economics of the disorder and the alternative ways to treat it.

Key-words

stress disorders, post traumatic

combat disorders

health economics

health care costs

cost-effectiveness analysis

Background

General population studies reveal a current prevalence of PTSD of 3.6% (National Institute of Mental Health, 2001) with a lifetime prevalence between 1% (Helzer, Robins, & McEvoy, 1987) and 7.8% (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). The latter figure was reported in the *National Comorbidity Survey* in which combat exposure was among the four most cited causes of PTSD. The lifetime prevalence rates in Vietnam veterans has been reported as 31% (Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar, et al., 1990), whilst in the UK 22% of a sample of 64 Falklands War veterans were found to have PTSD (O'Brian & Hughes, 1991). In another study, Gulf War body handlers showed marked symptoms of PTSD in 50% of the sample nine months after the conflict (Deahl, Gillham, Thomas, Searle, & Srinivasan, 1994). PTSD is now a recognised problem within the military environment, even though it only affects a minority of serving personnel.

Whilst a large number of mental health economic studies have been conducted (McCrone and Weich, 2001) none have been of interventions for combat-related PTSD. This focus is important in that PTSD is a major issue facing the military both in terms of the 'burden' imposed on the forces and also the recognition of care responsibilities to personnel. The aim of this paper is to address the role of health economics in evaluating service interventions in this area. However, it is realised that combat-related PTSD is not a disorder in itself and PTSD that follows other events may be no less serious. Therefore, much of what follows is relevant to PTSD in general.

The importance of economic evaluation

The cost of combat-related PTSD

The impact of PTSD is not only felt by those people who suffer the disorder, but also by families, employers and the wider society. Some of these impacts are 'economic', having effects associated with personal income, the ability to work, or the utilisation of treatment and support services. When aggregated, these economic impacts are likely to be considerable.

Because of the stigma of mental illness and the avoidance of phenomena associated with PTSD, many servicemen and women suffer in silence and fail to seek help or discuss their symptoms, taking their problems with them when discharged. There may also be serious problems in readjusting to normal life resulting in marital, family, and social relationship difficulties, occupational instability and possibly antisocial and criminal behaviour. Homelessness is also a problem (Randall & Brown, 1994). To date no economic evaluation has taken place examining the financial impact on the National Health Service (NHS) of ex-Service personnel who leave the Armed Forces already suffering from the disorder, or who subsequently go on to develop PTSD following discharge.

Two approaches could be used for the estimation of the social costs of combat-related PTSD. The 'prevalence approach' would involve estimating all current cases of PTSD in the Armed Forces and to calculate the costs for that particular year. The 'incidence approach' would involve estimating all new cases of combat-related PTSD and then calculating the costs that would arise over the course of the illness.

An alternative to cost-of-illness studies is to estimate the impact of PTSD in terms of disability-adjusted life years (DALYs), which combine data on the number of life-years lost due to an illness with data on the number of years spent with a disability. DALYs are useful in making comparisons across illness groups but they do not necessarily reflect resource implications.

Economic evaluations of PTSD services

Economic evaluations can assist policy and practice at two levels. At the macro level, the scarcity of available resources relative to the many demands and needs for them necessitates careful consideration of the alternative uses to which society's (or an agency's) resources may be put and the resultant consequences for outcomes. This clearly raises ethical issues as to how resources are best allocated. At a micro level the focus is on how treatments and policies impact upon the lives of individual people and the activities and resource flows of different organisations, for example, assisting the individual clinician or care professional in deciding how to spread limited treatment resources across competing uses.

Treatment options for PTSD

Different interventions have been proposed for the treatment of PTSD and most of these can be categorised as psychological or pharmacological. Psychological interventions include eye movement desensitisation and reprocessing (EMDR), exposure therapy, cognitive-behavioural therapy, hypnotherapy, psychodynamic therapy, anxiety management and psychoeducation. Different types of medication have been proposed for the treatment of PTSD including: selective

serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants, monoamine oxidase inhibitors, benzodiazepines and anticonvulsants.

A number of trials have been conducted to evaluate the clinical efficacy of these medications. A meta-analysis of different interventions for PTSD, conducted by van Etten & Taylor (1998), included the results of 61 trials (controlled and uncontrolled) published between 1984 and 1996. SSRIs, behavioural therapies and EMDR tend to produce greater effect sizes. The authors did not find that effect sizes were significantly different when treatments were divided according to the type of stressor that caused the PTSD. None of the studies reviewed included an economic component. Another study (Shepherd and Stein, 1998) did estimate the NHS costs of EMDR, but only included the actual therapy costs.

Conducting economic evaluations

Health economics has developed a number of tools to evaluate services, treatments and policies, and these are now usually deployed alongside or as integral parts of clinical studies. Excellent accounts of these methods are provided by Gold, Siegel, Russell, and Weinstein (1996) and Drummond, O'Brien, Stoddart, and Torrance (1997). Cost-offset and cost-minimisation analyses are the simplest of approaches. A cost-offset analysis compares costs incurred with (other) costs saved. A cost-minimisation approach often (but not always) proceeds in the knowledge that previous research has shown outcomes to be identical in the two or more treatment or policy alternatives being evaluated. The aim of each of these two models is to look for the lowest cost alternative.

Other modes of economic analysis are more interesting and informative in that they are truly evaluative in measuring both costs and outcomes. The best known (but toughest to do) is cost-benefit analysis *(*CBA). This approach is unique in that it addresses the extent to which a treatment or policy is socially worthwhile in the broadest sense, with all costs and benefits valued in the same monetary units. If benefits exceed costs, the CBA would recommend providing the treatment, and vice versa. With two or more alternatives, the evaluation would recommend the one with the greatest net benefit as the most efficient. CBAs are intrinsically attractive, but conducting them is problematic in mental health care because of the difficulties associated with valuing all outcomes in monetary terms. However, methodologies are being developed which aim to obtain direct valuations of health outcomes by patients, relatives or the general public, such as 'willingness-to-pay' techniques, where an individual states the amount they would be prepared to pay (hypothetically) to achieve a given health state or health gain.

Cost-effectiveness analysis (CEA) is usually employed to help decision makers choose between alternative interventions aimed at specific patient groups. For instance, if two care options are of equal cost, which provides the greater effectiveness? Or if two options have been found to be equally effective in terms of reduced symptoms, improved functioning or enhanced quality of life, which is less costly? In the strict sense, a CEA looks at a single effectiveness dimension and the treatment with the greatest effectiveness per pound or dollar spent is then deemed the most cost-effective.

A generalisation of CEA to multiple outcomes is cost-consequences analysis, which looks at costs alongside a number of outcomes rather than one single measure. This has the ability to

evaluate policies and practices in a way which comes much closer to everyday reality. The decision calculus may be more complicated than when using cost-effectiveness ratios or monetary measures of cost-benefit differences, but decision-makers in health care systems - from strategic policy-makers to individual professionals - face these kinds of decisions every day.

Cost-utility analysis (CUA) is similar to CEA but it measures and then values the impact of an intervention in terms of improvements in health-related quality of life. The value of the quality of life improvement is measured in units of 'utility', expressed by a combined index of the mortality and quality of life effects of an intervention (the Quality Adjusted Life Year - QALY - is the best known index). CUAs avoid the potential ambiguities that arise with multi-dimensional outcomes but are obviously more general than the single-outcome CEA. The transparency of the methods used to derive utility scores is a particular strength, but the currently available measures (which are intended for use across the widest range of illnesses) may not be sensitive enough to the kinds of changes usually found in mental health care to provide the *sole* indicator of impact (Chisholm, Healey, & Knapp, 1997).

Discussion

PTSD affects people in a variety of ways and can be chronic or acute. Some individuals will eventually experience a natural reduction in symptoms but most will require specialist interventions. Studies have revealed that some drug therapies, CBT and EMDR all appear to be effective in reducing some of the symptoms of PTSD. However, patients with combat-related PTSD may require a more intensive level of input than patients whose PTSD arises within the wider community. No study has yet looked at the wider resource consequences – either

concurrently with the treatment or in the longer term - of these treatment options. SSRIs may not be fully effective in treating combat related PTSD, and an intensive form of CBT - or even EMDR - could be required.

The impacts of PTSD are wide-ranging, often long lasting, and sometimes profound. To date, no studies have estimated the cost of PTSD, either combat-related or from a wider community perspective. However, if an estimation of the cost of combat-related PTSD were to be undertaken there are a number of important factors that would need to be considered, including: the prevalence/incidence of combat-related PTSD; the range of services used by people with combat-related PTSD; the training of staff in the specific area of PTSD in terms of treatment and education; the presence of comorbid psychiatric and physical disorders, including depression and substance misuse; the occurrence of replacement costs, i.e. replacement of mental health workers and their training; the possibility of litigation brought against the MoD by Service personnel; individual and family costs, e.g. deterioration in standard of living, guilt, fear, isolation; and the impact on the wider society.

Cost measures and so called ‘burden-of-illness’ calculations do not though provide an adequate basis for decision-making. Economic evaluations - such as CEA or CUA - are clearly needed, for these examine cost impacts and differences in the context of outcome differences. Looking specifically at PTSD, its often considerable quality of life and resource consequences make it imperative that a better understanding is obtained of the economics of the disorder and the alternative treatment options.

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