The effectiveness of health psychology interventions.

Associate Professor John Toumbourou, BA (Hons), MA, PhD, MAPsS
Department of Paediatrics, University of Melbourne and Murdoch Childrens Research Institute, Royal Children's Hospital Melbourne, 2 Gatehouse Street, Parkville, Vic., 3052,Australia.
Ph (03) 9345 6535 Fx (03) 9345 6502
EMAIL: jwt@unimelb.edu.au

Abstract
This paper presents the main conclusions from a number of literature reviews that have examined what is currently known of the effectiveness of health improvement interventions based on psychological theory, research and practice. Inclusion and evaluation criteria emphasised review studies with a high standard of evidence. Evidence for efficacy emphasised designs involving random assignment to a control group and post-intervention follow up. Evidence for effectiveness required, in addition to evidence for efficacy, a demonstration of benefits outside the controlled research context. Evidence was sought by searching the Cochrane collaboration site together with other systematic reviews. The evidence for health psychology intervention was organised to align with treatment and prevention objectives for health targets arising from three objectives underpinning the development of health psychology research and practice. These three objectives are not mutually exclusive and involve 1) servicing market demand 2) reducing health problems and 3) achieving the theoretical potential for optimal health. The review reveals a strong evidence base for interventions addressing health targets arising from the first two objectives and an emerging evidence-base relevant to health targets arising from objective three.

Introduction.
This paper has been developed as part of my role on the National Committee for the Australian Psychological Society, College of Health Psychologists where I accepted an assignment to review the evidence for the effectiveness of health improvement interventions based on psychological theory, research and practice. In what follows I have briefly overviewed my approach to the task of reviewing the evidence for health psychology interventions.

This paper is written in two parts. The first part examines the different objectives that can be set for the development of health psychology research and practice. This sets the scene for the second part of the paper that examines the evidence for the effectiveness of interventions targeting outcomes that arise from these different objectives.

Part 1: The objectives of health psychology intervention.
The present paper considers three objectives that have been used to guide the development of health psychology research and practice. These are not mutually exclusive and involve 1) servicing market demand 2) reducing health problems and 3) achieving the theoretical potential for optimal health. These three objectives of health psychology intervention are considered in more detail below.

1.1. Servicing market demands.

In the inception and early application of the discipline the work of health psychologists has been greatly influenced by the requirement to service market demands by responding to available job opportunities and to provide services that clients are seeking. In an early survey of where Australian professionals were working Groth-Marnat (1988) identified a number of psychologists employed in hospital and physical rehabilitation settings, occupied with work relevant to the clinical health areas. In a later review Oldenburg & Owen (1990) noted the potential work for health psychologists to extend beyond these areas into health promotion or public health psychology. The growing understanding of the underlying contribution of behaviours such as tobacco use and alcohol misuse to health costs led to the emergence in Australia of job opportunities for psychologists to work in areas relevant to the prevention of unhealthy behaviours. To the extent that growth of the field of health psychology has been directed by emerging job opportunities and the expressed needs of clients it can be argued that the field has grown on the basis of "market demands".

Based on market demands health psychology interventions have been implemented addressing a range of health problems including pain, sleep disorders, chronic fatigue, and muscular/ skeletal problems. As consumers are likely to continue to experience problems of this type, evidence is reviewed in later sections relevant to the effectiveness of interventions addressing health targets arising in these areas.

1.2. Reducing health problems and disease burden.

A second possibility for directing investment in health psychology involves a consideration of health priorities that have been identified as national and international health targets. Efforts have been made in recent years to identify the underlying contributors to morbidity and the disability burden experienced due to common health impairments and this information is being used to guide heath investment targeting these priorities. Major reports have examined the dominant contributors to mortality and health impairment.

The World Health Report 2004 (World Health Organisation, 2004a) examined current health threats and argued that in 2004 HIV/AIDS was the leading cause of death and lost years of productive life for adults aged 15–59 years worldwide. The major underlying causes of death in developed countries including the United States of America (US) and Australia are tobacco, poor diet/ lack of exercise, alcohol misuse, infectious agents, risky sexual behaviour, major vehicle crashes, illicit drug use, pollutants toxins, and in the US firearms. Table 1 presents data from the Australian Institute of Health and Welfare relevant to the major categories of underlying causes of death in Australia in 1996.

Table 1: Actual (underlying) causes of death, Australia, 1996.

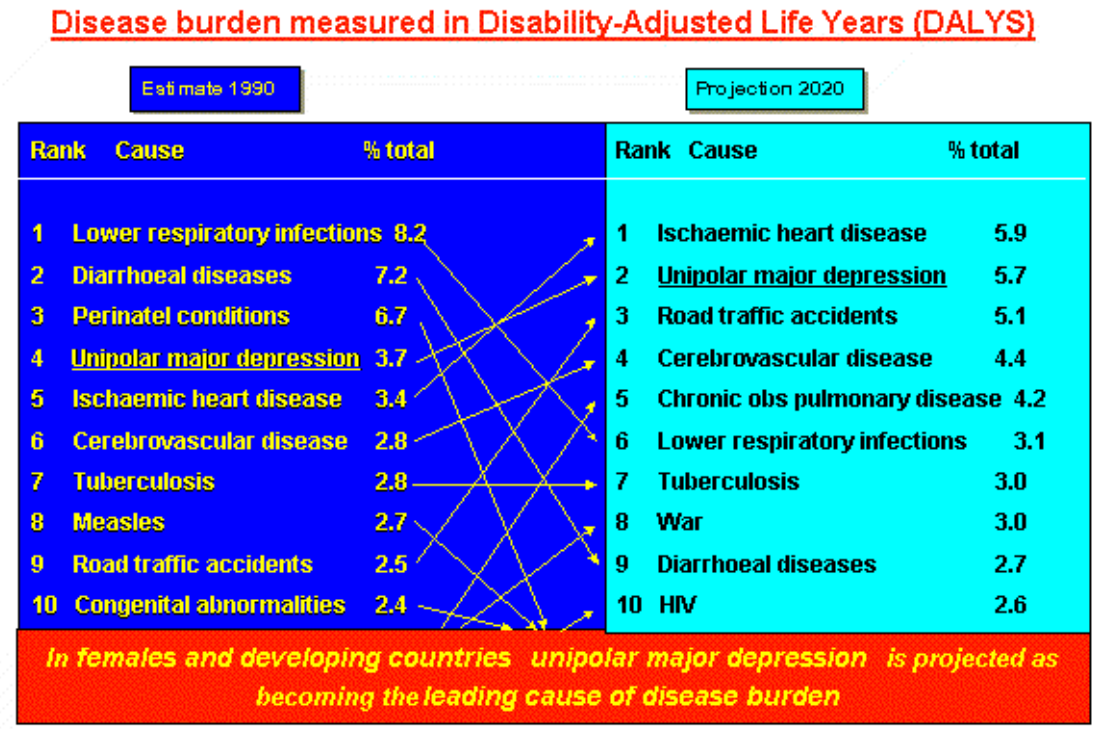
Cause	Number	Percent
Tobacco [a]	18,580	14.4
Diet/exercise [b]	17,975	14.0
Alcohol [a]	3,656	2.8
Infectious agents [c]	3,329	2.6
Motor vehicles [d]	1,686	1.3
Illicit drug use [a]	739	0.6
Firearms (1995) [e]	470	0.4
All other causes	82,267	63.9
Total deaths	**128,702**	**100.0**

Source:
http://www.aihw.gov.au/bod/bod_risk_factors/#B (accessed September 27th 2004).

Additional data relevant to Australian mortality trends can be obtained from the Australian Institute of Health and Welfare.
http://www.aihw.gov.au/mortality/data/current_data.html (accessed 27th September 2004)

The World Health Organisation (WHO) in collaboration with the Harvard School of Public Health & the World Bank has developed the Global Burden of Disease and Injury study. Through this project available international data has been gathered relevant to mortality and quality of life. The report presents a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990, while also projecting trends until 2020 (Murray & Lopez, 2004). Comparisons are not just based on longevity but also on units known as Disability Adjusted Life Years (DALYs). This enables comparisons to be made of factors that undermine expectations for healthy years of life. The World Health Organisation (WHOb) (2004) has argued that "the leading causes of disability are shown to be substantially different from the leading causes of death, thus casting serious doubt on the practice of judging a population's health from its mortality statistics alone."
http://www.who.int/msa/mnh/ems/dalys/intro.htm (accessed September 27th 2004).

Figure 1: International disease burden in 1990 and projected to 2020.



SOURCE: WHO (2004b).

Table 2 below presents the ten leading causes of DALYs in developed regions of the world as assessed by Murray & Lopez (2004).

Table 2: - Ten leading causes of DALYs in developed regions, 1990

	DALYs (thousands)	Per cent of total
All causes	160,944	
1. Ischaemic heart disease	15,950	9.9
2. Unipolar major depression	9,780	6.1
3. Cerebrovascular disease	9,425	5.9
4. Road traffic accidents	7,064	4.4
5. Alcohol use	6,446	4.0
6. Osteoarthritis	4,681	2.9
7. Trachea, bronchus and lung cancers	4,587	2.9
8. Dementia and other degenerative and hereditary CNS disorders	3,816	2.4
9. Self-inflicted injuries	3,768	2.3
10. Congenital abnormalities	3,480	2.3

SOURCE: Murray & Lopez (2004) (http://www.who.int/msa/mnh/ems/dalys/intro.htm) (Accessed September 27th 2004).

By 2020, it is expected that unipolar major depression will be the leading cause of DALYs for both females and males throughout the developing regions of the world.

By 2020, it is expected that the burden of disease attributable to tobacco (9%) will outweigh that caused by any single disease (Murray & Lopez, 2004).

Healthy life expectancy (HALE) is based on life expectancy, but includes an adjustment for time spent in poor health. This indicator measures the equivalent number of years in full health that a newborn child can expect to live based on the current mortality rates and prevalence of population health trends. WHO provides internationally comparative tables http://www3.who.int/whosis/hale/hale.cfm?path=whosis,burden_statistics,hale&language=english (Accessed September 27th 2004).

Healthy life expectancy is high in countries such as Sweden (73.3) and Australia (72.6) and ranges down to the thirties in countries such as Angola (33.4), Lesotho (31.4) and Sierra Leone (28.6).

Setting the objective for health psychology interventions to address areas that contribute to a high disease burden could focus attention on priority targets that include changing risky sexual practices, tobacco use, alcohol misuse, illicit drug use, and interventions to prevent and treat cancer and cardiovascular disease. The sections below present the conclusions from a number of reviews that have examined the evidence for health psychology interventions addressing targets of this nature.

1.3. Achieving the theoretical potential for optimal health.

New or innovative applications of psychological knowledge in treatment and prevention have in a number of cases emerged within psychological research settings such as universities. It is possible that future advances in health psychology could be based on a consideration of the theoretical potential of the field to advance “optimal health” (Sperry, 2003) and "wellness" (Hattie et al, 2004). Health psychology holds the potential to contribute to research and practice in a variety of areas relevant to positive health and wellbeing. A short list of relevant topics would include healthy behaviours and lifestyles, optimism, resilience, life satisfaction, vitality, hardiness and disease resistance. It is possible that the achievement of positive health may contribute considerably to reducing negative health conditions.

Health is defined in the World Health Organisation's (WHO) constitution as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. WHO's objective, as set out in its Constitution, is the attainment by all peoples of the highest possible level of health.

In the field of mental health Cowen (2000) and others have argued for prevention programs and policies that focus less on the avoidance of specific disorders and more on the optimisation of social and psychological functioning to encourage both prevention and health promotion objectives. In related work Catalano and colleagues (2004) demonstrate that many programs that have been implemented with the objective of preventing “problems” such as substance abuse or violence have evidence that they also contribute to broader health and wellbeing objectives for children and young people.

There is evidence that psychological interventions can encourage brain and physical health states associated with optimal immune functioning (Ray, 2004). Behavioural

and psychological interventions can also contribute to establishing and maintaining lifestyles and behaviours associated with improved quality of life (Spencer et al, 2003). Evidence such as this suggests that health psychology interventions have the potential to make an important contribution to a variety of areas relevant to optimising healthy functioning in both normal populations and also in populations with high health needs.

1.4 Conclusions from Part 1.

There are a variety of potential objectives for research and practice in health psychology. If psychology is to continue to develop based on servicing market demand then it will be important to evaluate the effectiveness of interventions that consumers and health providers request such as pain management and assistance for the treatment of specific disorders. If, psychology is to move more stridently in the pursuit of priorities identified through the study of the major contributors to mortality and morbidity, then the evidence for effectiveness should be arranged according to these priorities. Finally if psychology is to develop interventions based on the theoretical target of optimising health, then a broader study of the links between psychology and health should form the preliminary to a consideration of effectiveness.

Part 2 - What works in prevention, health promotion and clinical health psychology?

In the sections that follow evidence for the effectiveness of health psychology interventions is examined against targets arising from the various objectives described above. For the present report the primary literature searching strategy was to identify evaluation evidence published on the Cochrane collaboration website. In some cases other systematic reviews adopting similar standards to those adopted in the Cochrane reviews were also utilised, but searching for this type of material was less systematic. Due to time limitations the present review is not comprehensive. Due to space limitations the review that follows provides only a brief summary of relevant evaluation studies.

There are a variety of positions as to what constitutes "evidence" in the field of psychology. Anticipating a debate regarding the relationship of evidence that should be utilised to guide practice, it must be acknowledged that the sources of evidence that have been used in the present review fall into the neo-positivist tradition emphasising “objectivity” through the control of research biases. At this stage the evidence base does not appear to provide a sophisticated level of information relevant to important questions regarding client, intervention, and context factors that may modify effects. Hence, there will be obvious weaknesses from the perspective of psychologists whose preference is for idiographic analysis and evaluation sensitive to contextual distinctions.

In reviewing the evaluation literature against various health targets the distinction is made between treatment and prevention. In the present context treatment refers to interventions addressing populations already experiencing the health issue being addressed while prevention efforts work with either the whole population or vulnerable sub-groups to reduce the risk of developing the targeted health outcome.

Table 3 below presents a summary of the evaluation evidence located through the present review. Summaries are presented to separate the evidence for treatment (where an intervention results in health improvement effects for a population afflicted with health problems) from that of prevention (where an intervention reduces the risk of future health problems or leads to increased health within a specified population).

The evaluation criteria utilised in Table 3 uses the notation developed by Toumbourou et al (2000). The symbol (O) denotes categories where no studies were located. For these areas innovation and formative evaluation may be required to settle an intervention model. The flag (⚑) indicates areas warranting further research. In these cases an intervention model may be emerging, and process evaluation may be warranted to achieve a safe and effective intervention process. Evidence for implementation (★) denotes an intervention manual has been documented and there may be some evidence for efficacy. The symbol ★★ denotes evidence for outcome efficacy. This required the weight of evidence to be favourable across two or more experimental and well-controlled trials. The symbol (★★★) denotes evidence for outcome effectiveness. This required evidence that efficacy could be maintained in real-world service delivery contexts.

Table 3: Summary of health psychology intervention effectiveness.

Health Target	Treatment	Prevention
Evidence for interventions serving market demands. Interventions important to consumers and health providers.		
Chronic Fatigue Syndrome	★★	O
Digestion, stomach/ bowel disorders	★	⚐
Headache Pain	★★	⚐
Muscular/ skeletal and joint problems	★★	★★
Sleep disorders	★★	⚐
Evidence for interventions addressing health priorities.		
Tobacco use	★★★	★★
Alcohol related-harm	★★★	★★★
Illicit drug use	★★★	★★
Cancer	★★	★★★
Cardiovascular disease	★★	★★★
Health system costs	★★	★★
Evidence for interventions to achieve optimal health.		
Positive child and youth development	★★	★★
Wellbeing, wellness and quality of life	★★	★★

LEGEND:

O	No studies located
⚐	Warrants further research
★	Evidence for implementation
★★	Evidence for outcome efficacy
★★★	Evidence for outcome effectiveness

2.1. Evidence for interventions servicing market demands (important to specific groups of consumers and health providers).

The following topics are not exhaustive but have been selected as they represent areas where systematic reviews were located.

2.1.1. Chronic Fatigue Syndrome

In general, in order to receive a diagnosis of chronic fatigue syndrome, a patient must satisfy two criteria: Have severe chronic fatigue of six months or longer duration with other known medical conditions excluded by clinical diagnosis, and concurrently have four or more of the following symptoms: substantial impairment in short-term memory or concentration, sore throat, tender lymph nodes, muscle pain, multi-joint pain without swelling or redness, headaches of a new type, pattern or severity, unrefreshing sleep, and post-exertion malaise lasting more than 24 hours (Centres for Disease Control, 2004).

Treatment ★★

A Cochrane review found three trials (including an Australian study) that met quality standards (Price & Couper, 2002). These trials investigated Cognitive Behavioural Therapy (CBT) incorporating the modification of thoughts and beliefs about

symptoms and illness and modifications of behavioural responses to symptoms and illness. The findings revealed that CBT significantly benefited physical functioning in adult out-patients with chronic fatigue syndrome when compared to orthodox medical management or relaxation. The Number Needed to Treat (NNT) analysis (http://www.cebm.net/nnts.asp) suggested that the size of the treatment effect was impressive for a health intervention - for every two patients treated one experienced observable health improvement six months after the initiation of treatment.

Prevention **O**

No review studies were located that attempted to prevent chronic fatigue syndrome using psychological intervention and there has at this stage been no theoretical proposal as to how this might be accomplished.

2.1.2. Digestion, stomach/ bowel disorders

Within this category one review was located addressing non-ulcer dyspepsia.

Treatment ★

A Cochrane review (Soo et al, 2001) found three trials meeting quality standards. Based on evidence from these trials psychological intervention in the form of psychodynamic psychotherapy and CBT appear to be useful in the treatment of non-ulcer dyspepsia. The three trials showed improvement in the dyspepsia symptom scores at the end of treatment. One further trial showed improvement in the psychological parameters following intervention. Further research with specific types of treatment will be required to move the level of evidence to the standard required for a demonstration of outcome efficacy.

Prevention ⚐

Preventative studies have not been reported. Studies have shown that non-ulcer dyspepsia patients have higher scores for anxiety, depression, neurotism, chronic tension, hostility, hypochondriasis, and a tendency to be more pessimistic when compared with the community controls (Soo et al, 2001). Psychological interventions for patients suffering non-ulcer dyspepsia have proven effective (see above). Further research should, therefore, be completed to investigate the development of this disorder and its epidemiology thereby setting a firmer base for preventative intervention studies.

2.1.3. Headache Pain

Treatment ★★

There is evidence for the efficacy of psychological treatments for children and adults managing pain. A Cochrane review (Eccleston et al, 2002) found very good evidence that psychological treatments, principally relaxation and CBT, were effective in reducing the severity and frequency of chronic headache in children and adolescents. The effect of psychological therapies for children or adolescents with chronic or recurrent pain was examined relative to a placebo or waiting list control group. Eighteen trials meeting quality standards were examined covering a total of 808 patients, 438 in the intervention condition. The average size of effects was large with meta-analysis demonstrating an over eight-fold improvement in pain symptoms for treated patients relative to untreated controls. The Number Needed to Treat analysis revealed that an average of 2.32 patients (95% CI 1.96 to 2.88) need to be treated to

cure one case of chronic or recurrent headache. This is considered a relatively large treatment effect.

Prevention ⚐
There is evidence that some drug abuse problems may be due to poor methods of coping with physical and mental pain (Toumbourou, in press). The evidence that children and adolescents can be taught to manage pain provides a theoretical basis for exploring preventive interventions relevant to drug abuse prevention, mental health promotion and wellness.

2.1.4. Muscular/ skeletal and joint problems

Three Cochrane reviews were located relevant to osteoarthritis, chronic low back pain, and the prevention of osteoporosis.

Treatment ★★
There is evidence from Fransen et al, (2001) that therapeutic exercise can reduce pain and improve physical function for people with osteoarthritis of the knee. This conclusion was based on analysis of 17 studies that provided data on a total of 2562 participants. Supervised exercise classes appeared to be as beneficial as treatments provided on a one-to-one basis.

Van Tulder, (2000) found that behavioural treatment is an effective intervention for chronic low back pain patients. Six trials met quality standards. When compared to no-treatment control groups those exposed to behavioural treatments show a moderate positive reduction in pain intensity (pooled effect size [ES] = 0.62), and small positive improvements on generic function (ES = 0.35) and behavioural outcomes (ES = 0.40). It is still unknown what type of patients benefit most from what type of behavioural treatment.

Guzmán et al, (2001) found that psychological intervention can be useful in the context of multidisciplinary bio-psycho-social rehabilitation for chronic disabling low back pain. In this review interventions were examined if they involved assessment and treatment by qualified professionals according to a plan that addressed physical and either psychological, or social/occupational dimensions. Ten trials were included covering a total of 1964 patients with chronic low back pain who had been randomised to intervention. Evidence supported intensive multidisciplinary bio-psycho-social rehabilitation directed by functional restoration objectives. There was strong evidence that such an approach improved function when compared with inpatient or outpatient non-multidisciplinary treatments. There was moderate evidence that this approach improved pain when compared with outpatient non-multidisciplinary rehabilitation or usual care. Less intensive outpatient psycho-physical treatments did not improve pain, function or vocational outcomes when compared with non-multidisciplinary outpatient therapy or usual care. Few trials reported effects on quality of life or global assessments. The specific contribution of psychological treatment could not be established in this review.

Prevention ★★
Bonaiuti et al, (2002) concluded following a Cochrane review that exercise interventions are effective in reducing the risk of osteoporosis in postmenopausal

women (OR = 1.79). Based on 18 studies aerobics, weight bearing and resistance exercises are all effective in increasing the bone mass density (BMD) of the spine in postmenopausal women. Walking also appears effective in increasing hip BMD.

2.1.5. Sleep disorders

Treatment ★★

A Cochrane review (Montgomery & Dennis, 2002) concluded that psychological interventions can be important in the treatment of sleep problems. This review found six trials that had examined the effectiveness of CBT for sleep problems for clients with insomnia. (total participants 224). The data suggested a mild effect of CBT for sleep problems in older adults, best demonstrated for relieving sleep maintenance insomnia.

Prevention ⚐

Sleep disorders appear to predict the development of poor health (e.g., Pollack et al, 1990). Research into the prevention of sleep disorders as a health promotion strategy appears to be warranted.

2.2.0. Evidence for interventions addressing health priorities

The interventions that follow are relevant to a number of the major identified causes of mortality and health impairment.

2.2.1. Tobacco use

Treatment ★★★

Over the past four decades psychological research and theory has played an important role in the development of interventions to help people quit smoking. In concert with a range of economic, health and intervention strategies these interventions have assisted a large population who have negotiated the difficult behaviour change from smoking dependence to abstinence. Smoking rates in Australia have reduced from above 70% fifty years ago to the current rates that are below 20%. In a systematic review Loxley et al (2004) found strong evidence for interventions in health settings where medical and other professionals were encouraged to assess smoking behaviour and then deliver a brief intervention to encourage and advise on behaviour change. A number of treatment programs for dependent tobacco users were also found to have evidence for their effectiveness.

Prevention ★★

In their review Loxley et al (2004) concluded that there was strong evidence that a number of strategies were effective in preventing tobacco use. Many of the important strategies rely on economic and legislative mechanisms such as tobacco taxation to create price disincentives and the enforcement of passive smoking regulations. However there is also efficacy evidence supporting the contribution of interventions that make use of psychological science. These include drug education and social marketing strategies (Loxley et al, 2004).

2.2.2. Reducing alcohol-related harm

Treatment ★★★

Loxley et al (2004) concluded that there was strong evidence that a number of strategies were effective in treating alcohol use disorders including substance abuse treatment and brief interventions. Effective substance abuse intervention strategies that emerge from psychological sciences include: motivational interviewing, family / relationship interventions, relapse prevention, contingency management approaches and social skills training (Toumbourou, in press).

Some examples of effective brief intervention strategies include: Surveying alcohol use at entry to University (Marlatt et al, 1998; Baer et al, 2001), community wide health screening for symptoms of liver damage (Kristenson et al, 1983) and screening within a health care consultation (Swedish Council on Technology Assessment in Health Care, 2002).

Prevention ★★★

Many of the most effective strategies for preventing alcohol-related harm are based on economic and legislative principles including price controls (taxation), legislation and enforcement (e.g., minimum drinking age laws, public drunkenness laws) and market controls (e.g., liquor licensing, alcohol server training). Effective preventative interventions that have incorporated principles from the psychological sciences include random-breath testing, school-based alcohol education and parent education (Loxley et al, 2004).

2.2.3. Illicit drug use

Illicit drug use contributes directly to preventable harm, while injection practices can also result in transmission of HIV and other problems.

Treatment ★★★

Effective behavioural or psychological treatments for problems associated with illicit drug use include: contingency management, family / relationship interventions, motivational interviewing, needle / syringe exchange programs, relapse prevention, social skills training and therapeutic communities (Loxley et al, 2004; Toumbourou, in press).

Prevention ★★

A number of interventions incorporating principles from psychological sciences have been shown to have efficacy in preventing developmental pathways that lead to children initiating illicit drug use behaviour. These include: family home visitation programs for vulnerable mothers and babies, school interventions to promote educational success, school drug education, family interventions and parent education, programs to divert young offenders away from criminal behaviour (Loxley et al, 2004).

2.2.4. Cancer

The following review of cancer interventions provides only a summary comment of the relevant literature.

Treatment ★★

There is evidence from a systematic review that exposure to psychological therapies improved treatment and disease related symptoms for 14% of adult cancer patients (Meyer & Mark, 1995). Evidence from a systematic review demonstrated that psychological interventions to prepare cancer patients for surgery can significantly improve both physical and psychological outcomes (Johnston & Voegele, 1993). Evidence from a systematic review concluded that psychological interventions can also reduce the level of psychological problems experienced by people with cancer (National Breast Cancer Centre and National Cancer Control Initiative, 2003).

Prevention ★★★

Behavioural interventions play an important role in reducing risk factors for cancer including the reduction of tobacco use and excessive alcohol use (see above).

2.2.5. Cardiovascular disease

A number of relevant Cochrane reviews have been reported.

Treatment ★★

A Cochrane review (Jolliffe et al, 2000) demonstrated that the addition of exercise to existing heart care interventions reduced mortality by 27%. This conclusion was based on a meta-analysis covering 7683 patients. Variation by treatment types has not yet been studied. As higher intensity programs do not appear to offer advantages, this review emphasised cost-effective interventions such as

- gym based aerobic exercise twice a week for 4 weeks (Bertie et al, 1992)
- home-based tape and manual, supported by a facilitator (Lewin et al, 1992)
- mail out diet and exercise package (Heller et al, 1993)

A Cochrane review (Rees, Taylor et al, 2004) based on 29 studies with 1126 patients randomised to intervention established that exercise training improved exercise capacity and quality of life in patients with mild to moderate heart failure. Greater improvements in oxygen volume were observed for training of greater intensity and duration. Effects on clinical outcomes remain unclear. Aerobic exercise training is recommended in a supervised hospital based setting or with equipment provided at-home, each protocol being tailored to individual needs.

Rees et al, (2004) examined 36 trials that included 12,841 patients. This review concluded that psychological interventions (stress management, and advice on risk factors) showed no evidence for an effect on total or cardiac mortality, but showed small reductions in anxiety and depression for patients with chronic heart disease.

Prevention ★★★

Psychological and behavioural interventions play an important role in reducing risk factors for cardio-vascular disease including the reduction of tobacco use, excessive alcohol use (see above), inactivity and depression (Anderson, 2003).

2.2.6. Health system costs

Systematic reviews have been conducted and they indicate that well conducted psychological interventions have the capacity to achieve net savings in health system and other tangible and intangible social costs.

Treatment ★★

Chiles et al (1999) presented a meta-analysis of 91 studies published over the previous three decades examining the efficacy of psychological treatments on the cost of medical services. Psychological treatments examined in this report mainly focussed on behavioural medicine interventions implemented to assist patients undergoing medical procedures (e.g., surgery), interventions targeting patients with a high rate of medical service over-utilisation and patients being treated for disorders with a high psychological component such as substance abuse. On average the savings in medical costs obtained through the implementation of psychological services was around 20%. Savings continued to apply when the cost of psychological services was factored in.

Carlson and Bultz (2004) reviewed the findings for efficacy studies evaluating psychosocial interventions for cancer patients. They conclude that such interventions have a net economic advantage reducing the cost of treatment for cancer patients.

Wutzke and colleagues (2001) present evidence that brief-interventions in primary health settings have cost benefits for reducing the health and social costs of alcohol abuse.

Prevention ★★

In their economic cost benefit evaluation Aos and colleagues (2004) have demonstrated clear net economic benefits with respect to a wide range of health and social costs through the delivery of prevention and early intervention programs targeting children and young people. In the majority of cases the efficacy evaluations reviewed by Aos and colleagues have been based on programs designed on the basis of behavioural and psychological knowledge.

2.3. Evidence for interventions to achieve optimal health.

Evidence from efficacy studies supports the view that psychological interventions can lead to benefits in enhancing a number of indicators of healthy functioning such as days spent free of disease and or experiencing quality of life.

2.3.1. Positive child and youth development programs

Treatment ⚐

Psychological interventions have the potential to reduce the difficulties experienced by children in treatment settings due to factors such as social isolation, developmental disruption and pain (Olsson et al, 1997). Further research is warranted to identify models for conducting this type of work and to evaluate impacts and outcomes.

Prevention ★★

There is good evidence from well-controlled efficacy studies that psychological interventions for children and young people can enhance developmental outcomes in a range of areas including involvement in healthy behaviours, emotional wellbeing,

pro-social behaviour and the achievement of academic potential (Catalano et al, 2004).

2.3.2. Wellbeing, wellness and quality of life

Treatment ★★

Quality of life is emerging as an important area of psychological measurement (eg., http://acqol.deakin.edu.au/introduction/index.htm). There is currently no single measure of quality of life that is being used as the benchmark to demonstrate the potential to move treatment populations toward more optimal functioning. A number of the reviews that have been summarised above demonstrated improvements on indicators of quality of life through psychological interventions delivered to treatment patients (Anderson, 2003; National Breast Cancer Centre and National Cancer Control Initiative, 2003). The need for further research to examine the potential for psychological interventions to reduce problems such as depression in congenital heart disease patients has been noted (Lip et al, 2004).

Prevention ⚐

There are sound theoretical reasons to assume that psychological interventions such as CBT, relaxation training, relationship counselling and lifestyle change could offer large benefit in areas relating to healthy immune functioning, wellbeing and resiliency in the face of health set-backs (Cowen, 2000; Ray, 2004; Spencer et al, 2003). Although research is being conducted, I have been unable to identify systematic reviews relevant to these areas. Investment to encourage further research appears warranted.

3.0. Conclusions

The present review is not comprehensive but presents a sufficient overview of the evidence to demonstrate the important point that there is a strong evidence base supporting the application of health psychology interventions for a variety of health conditions. Treatment interventions addressing health services demanded by consumers and health service providers (market demands) show evidence for efficacy in areas such as chronic fatigue, pain, muscular/ skeletal and joint problems and for improving sleep. There is substantial evidence that health psychology interventions can also treat and prevent major health priorities. There is growing evidence that psychological intervention can also enhance outcomes related to optimal health and wellbeing. The present review demonstrates that health psychology intervention is a potentially important investment for quality health treatment and prevention and hence deserves a high level of recognition within systems for funding health.

References

Anderson CS, Hackett ML, House AO. (2003) Interventions for preventing depression after stroke (Cochrane Review). In: The Cochrane Library, Issue 3. Chichester, UK: John Wiley & Sons, Ltd.

Aos S, Lieb R, Mayfield J, Miller M, & Pennucci A. (2004) 'Benefits and costs of prevention and early intervention programs for youth.' Olympia: Washington State Institute for Public Policy.

Baer, J. S, Kivlahan, D. R, Blume, A. W, McKnight, P, and Marlatt, A. G. (2001). Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. *American Journal of Public Health 91(8)*, 1310-1316.

Bertie J, King A, Reed N, Marshall AJ, Ricketts C. (1992) Benefits and weaknesses of a cardiac rehabilitation programme. Journal of the Royal College of Physicians of London. 26:147-51.

Bonaiuti D, Shea B, Iovine R, Negrini S, Robinson V, Kemper HC, Wells G, Tugwell P, Cranney A. Exercise for preventing and treating osteoporosis in postmenopausal women (Cochrane Review). In: The Cochrane Library, Issue 3, 2004. Chichester, UK: John Wiley & Sons, Ltd.

Carlson, L.E., and Bultz, B.D. (2004) Efficacy and medical cost offset of psychosocial interventions in cancer care: Making the case for economic analyses. Psychooncology, 13(12), 837-49.

Catalano, RF, Berglund, ML, Ryan, JAM, Lonczak, HS, Hawkins, JD. (2004) Positive youth development in the United States: Research findings on evaluations of positive youth development programs. Annals of the American Academy of Political and Social Science, 591, 98-124.

Centres for Disease Control (2004). National Centres for Infectious Diseases web-site. U.S. Centres for Disease Control. http://www.cdc.gov/ncidod/diseases/cfs/ (Accessed 16th November 2004).

Chiles, J.A., Lambert, M.J., Hatch, A.L. (1999) The impact of psychological interventions on medical cost offset: A meta-analytic review. Clinical Psychology: Science and Practice, 6(2), 214 – 220.

Cowen, E.L. (2000). Psychological wellness: Some hopes for the future. In D. Cicchetti, J. Rappaport, I. Sandler, & R.P. Weissberg (Eds.), The promotion of wellness in children and adolescents (pp. 477-503). Thousand Oaks, CA: Sage Publications.

Eccleston C, Yorke L, Morley S, Williams A C de C, Mastroyannopoulou K. (2002) Psychological therapies for the management of chronic and recurrent pain in children and adolescents (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software. Chichester, UK: John Wiley & Sons, Ltd.

Fransen M, McConnell S, Bell M. 2001. Exercise for osteoarthritis of the hip or knee (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software. Chichester, UK: John Wiley & Sons, Ltd.

Groth-Marnat, G. (1988) A survey of the current and future directions of professional psychology in acute general hospitals in Australia. Australian Psychologist. Vol 23(2), pp. 127-135.

Guzmán J, Esmail R, Karjalainen K, Malmivaara A, Irvin E, Bombardier C.. Multidisciplinary Bio-Psycho-Social Rehabilitation for Chronic Low Back Pain (Cochrane Review). In: The Cochrane Library, Issue 3, 2003. Oxford: Update Software. UK: John Wiley & Sons, Ltd.

Hattie, J.A., Myers, J.E., & Sweeney, T.J. (2004) Factor Structure of Wellness: Theory, Assessment; Analysis, and Practice. Journal of Counseling & Development. Vol 82(3), pp. 354-364.

Heller RF, Lim L, Valenti L, Knapp J. (1995) A randomised controlled trial of community based counselling among those discharged from hospital with ischaemic heart disease. Australian & New Zealand Journal of Medicine, vol. 25, no. 4, pp. 362-64.

Johnston, M., Voegele, C. (1993) Benefits of psychological preparation for surgery: A meta-analysis. Annals of Behavioral Medicine. 15, pp. 245 – 56.

Jolliffe JA, Rees K, Taylor RS, Thompson D, Oldridge N, Ebrahim S. (2000) Exercise-based rehabilitation for coronary heart disease (Cochrane Review). In: The Cochrane Library, Issue 3. Chichester, UK: John Wiley & Sons, Ltd.

Kristenson H, Ohein H, Hulten-Nosslin MB, Trell E, Hood B. (1983) Identification and intervention of heavy drinking in middle-aged men: results and follow-up of 24-60 months of long-term study with randomized controls. Alcoholism: Clinical and Experimental Research 1983; 7(2):203–209.

Lewin B, Robertson IH, Cay EL, Irving JB, Campbell M. (1992) Effects of self-help post-myocardial-infarction rehabilitation on psychological adjustment and use of health services. Lancet, vol. 339, no. 8800, pp. 1039-40.

Lip GYH, Lane DA, Millane TA, Tayebjee MH. (2004) Psychological interventions for depression in adolescent and adult congenital heart disease (Cochrane Review). In: The Cochrane Library, Issue 3. Chichester, UK: John Wiley & Sons, Ltd.

Loxley, W., Toumbourou, J.W, Stockwell, T., Haines, B., Scott, K., Godfrey, C., Waters, E., Patton, G., Fordham, R., Gray, D., Marshall, J., Ryder, D., Saggers, S., Sanci, L., & Williams, J. (2004) The Prevention of Substance Use, Risk and Harm in Australia: A review of the Evidence. Canberra: Population Health Division, Australian Government Department of Health and Ageing.

Marlatt, A. G, Baer, J. S, Kivlahan, D. R, Dimeff, L. A, Larimer, M. E, Quigley, L. A, Somers, J. M, and Williams, E. (1998) Screening and brief intervention for high-risk college student drinkers: results from a 2-year follow-up assessment. Journal of Consulting and Clinical Psychology 66(4), 604-615.

Meyer TJ Mark MM (1995) Effects of psychosocial interventions with adult cancer patients: a meta-analysis of randomized experiments (see comments). Health Psychology. 14, 101-8.

Montgomery P, & Dennis J. (2003) Cognitive behavioural interventions for sleep problems in adults aged 60+ (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software. UK: John Wiley & Sons, Ltd.

Murray, C.J.L. & Lopez, A.D. (eds) (2004) The Global Burden of Disease. World Health Organization: Geneva, Switzerland. Global Burden of Disease and Injury Series. World Health Organization, Harvard School of Public Health & World Bank.

National Breast Cancer Centre and National Cancer Control Initiative (2003) Clinical practice guidelines for the psychosocial care of adults with cancer. National Breast Cancer Centre, Camperdown, NSW.

Oldenburg, B., & Owen, N. (1990) Health psychology in Australia. Psychology & Health. Special Edition - The Development of Health Psychology: An International Perspective, Vol 4(1), pp. 73-81

Olsson, C., Toumbourou, J., Bowes, G., & Walsh, B. (1997) Therapeutic Peer Support. In G. Werther, and J. Court (eds.) Diabetes and the Adolescent. Miranova: Australia (pp. 217-230).

Pollak CP, Perlick D, Linsner JP, Wenston J, Hsieh F. (1990) Sleep problems in the community elderly as predictors of death and nursing home placement. Journal of Community Health. 15(2):123-35.

Price JR, Couper J.. Cognitive behaviour therapy for chronic fatigue syndrome in adults (Cochrane Review). In: The Cochrane Library, Issue 3, 2002. Oxford: Update Software. UK: John Wiley & Sons, Ltd.

Ray O. (2004) The revolutionary health science of psychoendoneuroimmunology: a new paradigm for understanding health and treating illness. Annals of the New York Academy of Sciences. 1032:35-51.

Rees K, Bennett P, West R, Davey Smith G, Ebrahim S. (2004) Psychological interventions for coronary heart disease (Cochrane Review). In: *The Cochrane Library*, Issue 3, 2004. Chichester, UK: John Wiley & Sons, Ltd.

Rees K, Taylor RS, Singh S, Coats AJS, Ebrahim S. (2004) Exercise based rehabilitation for heart failure (Cochrane Review). In: *The Cochrane Library*, Issue 3, 2004. Chichester, UK: John Wiley & Sons, Ltd.

Soo S, Moayyedi P, Deeks J, Delaney B, Lewis M, Forman D. (2001) Psychological interventions for non-ulcer dyspepsia (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software. UK: John Wiley & Sons, Ltd.

Sperry, L. (2003) Psychotherapy and the quest for optimal physical and physiological health. Journal of Individual Psychology. Vol 59(1), pp. 94-103.

Spencer CA, Jamrozik K, Norman PE, Lawrence-Brown M. (2005) A simple lifestyle score predicts survival in healthy elderly men. Preventive Medicine. 40(6):712-7.

Swedish Council on Technology Assessment in Health Care. Treatment of alcohol and drug abuse: an evidence-based review.*International Journal of Technology Assessment in Health Care* 2002; 18(1):145–154.

Toumbourou, J.W. (in press) Theoretically integrated interventions to prevent harm related to alcohol and drug use. In C. Browning & S. Thomas (eds) Behavioural Change: An Evidence Based Handbook for Social and Public Health. Churchill Livingstone/ Elsevier.

Toumbourou, J., Patton, G., Sawyer, S., Olsson, C., Web-Pullmann, J., Catalano, R., & Godfrey, C. (2000) Evidence-based health promotion: Resources for Planning. No 2 Adolescent Health. Health Development Section, Public Health Division, Department of Human Services, 31pp

van Tulder MW, Ostelo RWJG, Vlaeyen JWS, Linton SJ, Morley SJ, Assendelft WJJ. (2000) Behavioural treatment for chronic low back pain (Cochrane Review). In: The Cochrane Library, Issue 3. Oxford: Update Software. UK: John Wiley & Sons, Ltd.

World Health Organisation (2004a) The World Health Report 2004 - Changing History. Geneva, Switzerland: World Health Organisation.

World Health Organization, WHO (2004b) WHO Global burden of disease study. http://www.who.int/msa/mnh/ems/dalys/intro.htm (Accessed September 27th 2004)

Wutzke, S.E., Shiell, A., Gomel, M.K., & Conigrave, K.M. (2001) Cost effectiveness of brief interventions for reducing alcohol consumption. Social Science and Medicine, 52(6), 863-70.