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ORIGINAL PAPER

# Predictors of Mental Health Service Utilisation in a Non-Treatment Seeking Epidemiological Sample of Australian Adults

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**Abstract** This study sought to replicate Parslow and Jorm's (Aust N Z J Psychiatry 34(6): 997–1008, 2000) research on need, enabling and predisposing factors as predictors of mental health service use, with the addition of childhood trauma as a predisposing factor. It utilised a non-treatment seeking epidemiological sample of Australian adults (N = 822) to examine 25 variables covering psychiatric disorder, socio-demographics, physical health problems, and childhood trauma as predictors of mental health visits to general practitioners (GP's), mental health specialists and non-mental health specialists. A consistent multivariate predictor of mental health visits to all types of professionals was psychological distress. Presence of an affective disorder, age, and number of health problems were additional predictors of visiting a GP. Being female, divorced, and exposure to childhood trauma predicted use of a mental health specialist, while rural living was associated with lower use of these services. Results highlight the importance of general psychological distress and need factors in seeking help for mental health, and reinforce the lifelong disadvantage arising from adverse childhood experiences and the need to address these issues in adult mental health services.

**Keywords** Mental health services · Service utilisation · Predictors · Childhood trauma · Australia

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## Introduction

It has long been recognised that mental health service use is related to a range of factors such as income, gender, pre-existing psychiatric disorder and lifetime exposure to traumatic events, and is not simply representative of need (i.e. the presence of a psychological disorder) (Elhai et al. 2004, 2005). Andersen and Newman (1973) and Andersen (1995) propose a model of mental health service use that highlights the role of predisposing and enabling variables, in addition to need. Using this framework, this study will examine mental health service use in an epidemiological sample of Australian adults. It will do so by replicating a study conducted by Parslow and Jorm (2000) that used data from the Australian Survey of Mental Health and Wellbeing, but will examine the additional role of childhood trauma and household dysfunction.

### Need, Pre-Disposing and Enabling Factors Contributing to Mental Health Service Use

Need factors, defined as both perceived and evaluated psychological functioning, are the most immediate cause and strongest predictor of mental health service use (Andersen and Newman 1973; Andersen 1995; Dew et al. 1991; Galbaud du Fort et al. 1999; Manning and Wells 1992; Parslow and Jorm 2000; Zola 1973). Within the Australian population, for example, Parslow and Jorm (2000) found self-report measures of depression or anxiety and CIDI-diagnosed substance abuse disorder to be predictive of increased use. Other studies of trauma survivors report increased use in individuals with PTSD (Boscarino et al. 2002; Calhoun et al. 2002; Franklin et al. 2002; Freedy et al. 1994; Goto et al. 2002; Rosenheck and

Fontana 1994; Solomon 1989; Weine et al. 2000; Zhang et al. 2004).

Predisposing factors are the socio-cultural characteristics of an individual that exist prior to the development of an illness (Andersen and Newman 1973; Andersen 1995). Previous research has indicated that those with fewer psychosocial assets, pre-existing physical health problems and previous experience of mental health care are more likely to seek mental health assistance (Bucholz and Robins 1987; Dew et al. 1991; Rabinowitz et al. 1999). Women and people who are single also report increased use (Bucholz and Robins 1987; Howard et al. 1996; Levine and Kozloff 1978; Patten et al. 2000; Rabinowitz et al. 1999; Shapiro et al. 1985). In an Australian sample, specifically, predisposing factors relating to increased mental health service utilization were found to include being female, being separated or divorced, having or undertaking higher education, being on a government pension, and being unemployed (Parslow and Jorm 2000). Individuals with a high number of physical health problems are also more likely to seek help for a mental health problem, highlighting the relationship between somatic symptoms and psychiatric disorder (Parslow and Jorm 2000). In traumatized populations, female sex has also been shown to predict greater mental health service use (Boscarino et al. 2002; New and Berliner 2000; Norris et al. 1990; Suffoletta-Maierle et al. 2003).

Finally, enabling factors relate to the logistical aspects of obtaining care, such as the affordability and availability of mental health services (Andersen and Newman 1973; Andersen 1995). Enabling factors that predict mental health service use include cost of service (and whether the individual has private health insurance) (Hulka and Wheat 1985; Verhaak 1995), cultural appropriateness of the service (Rogler and Cortes 1993), and level of awareness of the types and purpose of the services provided (which may be a proxy-marker of the individual's level of education and the extent of their social networks) (Horwitz 1977; Rogler and Cortes 1993). Enabling factors associated with increased mental health service use in trauma survivors and individuals with PTSD include urban living and being unemployed (Koenen et al. 2003). One study found that those with private health insurance reported increased use of mental health services (Ullman and Brecklin 2002), other studies, however, found no impact (Boscarino et al. 2002; New and Berliner 2000). Enabling factors reported to have no effect on service use in traumatized populations include employment status, physical proximity to one's provider, and rural living, even when the distance to the service provider is controlled for (Elhai et al. 2004; Koenen et al. 2003).

### Studies Comparing Mental Health Service Use in Trauma Survivors and Controls

In the one published comparative longitudinal study to assess post-trauma mental health service use, Van der Velden et al. (2006) compared individuals exposed to a firework disaster with a matched unexposed group from a nearby city. They found that in the first 12 months following the trauma, participants exposed to the disaster were significantly more likely to report increased use of mental health services, with the greatest increase reported in those with the most severe symptoms of depression and anxiety. Additional comparative research is needed to further delineate the long-term impact of trauma on mental health service use.

In summary, research into mental health service use in both trauma survivors and the general population has identified several factors that fit within Anderson and Newman's behavioral model of service use. However, most of the conclusions regarding mental health service use in trauma survivors are constrained by a lack of comparative data where researchers have concurrently examined populations not exposed to trauma. This study will be the first published study to employ a non-treatment seeking epidemiological sample of Australian adults to examine the relative role of childhood trauma as a predisposing factor for mental health service use, in addition to the need, enabling and pre-disposing factors examined in Parslow and Jorm (2000). It is commonly accepted that childhood trauma, specifically, has a significant impact on adult mental health (Bolton et al. 2000; Schilling et al. 2007; Udwin et al. 2000; Yule et al. 2000). Further, recent research in treatment seeking samples has identified a dose–response relationship between number of childhood traumas and prescription rates of antidepressant, anxiolytic, antipsychotic, and mood stabilizing medications (Anda et al. 2007, 2008), adding empirical weight to the public health significance and long-term cost to the community of childhood abuse and neglect. Such research is central to informing health policy planning in terms of treatment decisions and accessibility for populations known to have experienced trauma.

## Method

### Sample

The participants were part of a larger study examining the psychiatric outcomes of childhood exposure to a natural disaster (McFarlane and Van Hooff 2009). The original cohort, recruited from 1983 to 1985, comprised 806 children aged between 5 and 12 years who were attending

primary school in a rural region of South Australia, vastly devastated by the 1983 Ash Wednesday Bushfires (McFarlane 1987; McFarlane et al. 1987). A control group of 725 unexposed primary school children from a socio-demographically matched neighbouring rural community were also recruited. Approximately 20 years later, 1,011 bushfire survivors and controls were followed-up in adulthood. The sample in the current paper comprised 822 adults (440 disaster survivors and 382 of the non-exposed) that completed the entire study protocol, and hence, had data for all variables of interest. The mean age of the sample was 28.3 years (SD = 2.30), and 59% of the cohort resided in a rural region of Australia at the time of follow-up. Further demographic characteristics of the sample are outlined in Table 1.

## Procedure

At 20-year follow-up, each participant was assessed by a self-report booklet and telephone interview. Trained research psychologists, using the computerised version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI Version 2.1) (World Health Organisation 1997) conducted telephone interviews. Scoring of the structured interviews was reviewed on a weekly basis to ensure inter-rater reliability. The University of Adelaide Human Research Ethics Committee and the Australian Institute of Health and Welfare Research Committee approved the study protocol. All authors certify responsibility for this manuscript, and have no known conflicts of interest.

## Measures

Measures were separated into those assessing need, enabling and pre-disposing factors as well as a measure of mental health service use. These factors were chosen to closely replicate Parslow and Jorm's (2000) study on health care utilisation in an Australian population.

**Table 1** Descriptive statistics of predictor variables used in the regression analyses (n = 822)

| Variable | Description | Value |
|---|---|---|
| Need factors | | |
| Psychological distress | SPHERE: PSYCH-6 scale [Mean total score (SD)] | 1.2 (2.13) |
| Somatic distress | SPHERE: SOMA-6 scale [Mean total score (SD)] | 1.5 (2.02) |
| Anxiety disorder | Percentage diagnosed with DSM-IV anxiety disorder | 9.3 |
| Affective disorder | Percentage diagnosed with DSM-IV affective disorder | 4.4 |
| Hazardous drinker | Based on total AUDIT score of 8–12 | 31.1 |
| Alcohol dependant | Based on total AUDIT score of >13 | 12.7 |
| PTSD | Percentage diagnosed with CIDI PTSD | 2.6 |
| Enabling factors | | |
| Rural | Percentage living in rural region | 59.0 |
| Remote | Percentage living in remote region | 4.3 |
| Income | Percentage primarily on government income, pension, allowance or benefit | 6.8 |
| Unemployed | Percentage unemployed | 2.7 |
| Part-time | Percentage who work part-time | 16.5 |
| Student | Percentage who are studying full-time | 1.3 |
| Pre-disposing factors | | |
| Age | Mean age (SD) | 28.3 (2.30) |
| Sex | Percentage female | 53.1 |
| Education | Percentage attained tertiary qualifications | 32.1 |
| Living alone | Percentage living in one-person households | 11.2 |
| Separated | Percentage separated | 2.3 |
| Divorced | Percentage divorced | 1.7 |
| Disability | Percentage on disability pension | 0.8 |
| Home duties | Percentage who perform home duties | 10.3 |
| Days out of role | Mean number of days in last month unable to carry out usual daily activities | 1.5 (5.12) |
| Health problems | Total number of health problems [Mean (SD)] | 0.8 (1.39) |
| Childhood trauma | Percentage who identified as having adverse childhood experiences, using ACE | 56.0 |

*Need Factors*

1. Psychological and somatic distress

The SPHERE-34 (Hickie et al. 2001) was used to screen for psychological and somatic symptoms of distress in the last few weeks that may not be detected using the dichotomous scoring system of the CIDI. Scoring was based on a subset of 12 items in order to create two subscales, PSYCH-6 (comprised of 6 items assessing psychological symptoms of depression and anxiety) and SOMA-6 (comprised of 6 items assessing somatic symptoms such as fatigue and pain). Questions were scored on a 3-point likert scale with a score of 0 for "never or some of the time", 1 for "a good part of the time" and 2 for "most of the time".

2. DSM-IV psychiatric disorder

Twelve-month prevalence rates of DSM-IV (American Psychiatric Association 1994) disorder were assessed using a computerised version of the fully structured, standardised and comprehensive Composite International Diagnostic Interview (CIDI; World Health Organisation 1997). DSM-IV Disorders were sub-grouped as follows: Any Depressive Disorder (296.2x, 296.3x, 311, 300.4) and Any Anxiety Disorder (300.01, 300.21, 300.22, 300.29, 300.23, 300.3, 300.02, 300.00). 12-month DSM-IV PTSD was examined in all participants in relation to the event rated subjectively by the participant to be their "worst lifetime traumatic event". This event was chosen by the participant from a standard list of 10 criterion-A events from the Composite International Diagnostic Interview (CIDI; World Health Organisation 1997). All diagnoses were scored according to the standard CIDI scoring criteria.

3. Alcohol use and abuse

Alcohol consumption and problem drinking in the past 12 months was examined using the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al. 1993). This instrument consists of 10 questions to examine the quantity and frequency of alcohol consumption, drinking behavior, and the reactions or problems related to alcohol (range: 0–36). Scores of 7–12 indicated harmful or hazardous drinking, and a score a 13 or greater indicated possible alcohol dependence. This version was slightly modified for the Australian context by the Centre for Drug and Alcohol Studies.

*Enabling Factors*

1. Rurality

The proportion of participants residing in metropolitan, rural and remote locations in Australia was determined using the Rural, Remote Metropolitan Area Classification (RRMA), which gives an index of residential remoteness based on distance to service centres as well as distance from other people.

2. Source of income, part-time employment and unemployment

Questions relating to income source and employment status were derived from the 1997 Australian National Survey of Health and Wellbeing (Australian Bureau of Statistics 1999).

*Pre-Disposing Factors*

1. Bushfire exposure

Bushfire exposure was a dichotomous variable indicating whether the participant was exposed to the Ash Wednesday Bushfires as a child, or whether they were a control.

2. Demographics

Questions assessing demographics (including age, gender, education, household structure, marital status, questions on disability and days out of role) were derived from the 1997 Australian National Survey of Health and Wellbeing (Australian Bureau of Statistics 1999) and are reported using standards employed by the Australian Bureau of Statistics (ABS) and the Australian Institute of Health and Welfare (AIHW).

3. Physical health problems

Physical health problems were assessed using a sample of questions drawn from a 58-item medical condition questionnaire used in the Australian Gulf War Veteran's study (Kelsall et al. 2004). Participants were asked about 26 problems or conditions that had been diagnosed or treated by a medical doctor in the past 12 months.

4. Childhood trauma and adverse experiences

Childhood trauma and adversity was measured retrospectively using questions drawn from the Adverse Childhood Experiences (ACE) Study (Felitti et al. 1998). The ACE Study assessed seven main categories of adverse childhood experiences over the first 18 years of the child's life. These include three types of abuse (psychological abuse, physical abuse, sexual abuse), and four types of household dysfunction (substance abuse, mental illness, violence towards mother, criminal behaviour). Participants were identified as being exposed to the adverse experience if they answered yes to one or more of the questions within each category (Felitti et al. 1998). The current study utilised the seven categories reported above, together with three additional categories relating to childhood physical and emotional neglect and verbal abuse also drawn from

the ACE Study (Felitti et al. 1998). For the purpose of this study, participants were coded as trauma-exposed if they experienced one or more of the categories of abuse.

*Mental Health Service Use*

Twelve-month mental health service utilization was examined using questions drawn from the 1997 National Mental Health and Wellbeing Survey. Participants were asked whether they had visited a wide range of health services in the 12 months prior to completing the telephone interview and self-report booklet, and to provide the number of mental health related consultations with each of these health service providers during this period. The three categories of mental health services considered were those provided by: general practitioners (GP), mental health specialists, other health service professionals, and a fourth category, services provided by any of these practitioners. Parslow and Jorm (2000) used the additional categories of 'psychiatrist' and 'psychologist'. However, in this study, the proportion of individuals who reported seeking service from either of these professionals was so low as to make statistical analysis impossible (1.9 and 1.9% respectively). For the purpose of this study and to replicate work by Parslow and Jorm (2000), the 'mental health specialist' category covered psychiatrists, psychologists, social/welfare workers, drug/alcohol counselors, other counselors, and mental health teams. 'Other health service professionals' comprised radiologists, pathologists, physicians (not GP), surgical specialists or gyaenocologists, nurses, chemists, and ambulance officers.

Statistical Analysis

Descriptive statistics provided prevalence rates of mental health problems, CIDI diagnoses, and overall health service utilisation in the sample. Using logistic regression analysis, 25 predictor variables, covering a range of need, enabling and pre-disposing factors, were entered separately to examine the univariate relationship between each predictor variable and use of the four different categories of mental health services. The same 25 predictor variables were then entered simultaneously into a logistic regression to provide an estimate of the association between each predictor variable and the dependents while controlling for the effects of the other predictor variables. All predictor variables were given equal weight. A significance level of $P < 0.05$ was used. Statistical Analysis System (SAS) was used to conduct all analyses.

## Results

Table 1 presents descriptive statistics of the predictor variables entered in the regression analyses. In interpreting the data, it is important to draw attention to the nature of the sample. Due to nature of the data collection, the current population is: (a) restricted in terms of range of ages, and (b) the mean age is substantially lower than the data used by Parslow and Jorm (2000). The sample was predominately rural (59%), and there were lower levels of tertiary education and unemployment, factors known to be predictive of use in the broader Australian population. Sample differences will be considered when interpreting the data.

Fifteen per cent of the sample had sought mental health assistance at least once in the past 12 months. Table 2 presents the proportion of those with mental disorders who reported using each category of services for mental health reasons. Levels of service use for those with a CIDI-diagnosed affective or anxiety disorder in the last 12 months were considerably higher than for the population as a whole, however, a large percentage of individuals with CIDI-diagnosed affective or anxiety disorders did not seek mental health care (38.9 and 60.5% respectively). Overall, GP provided most mental health care, with 11.8% of the population reporting obtaining services from this group. GPs represented the most highly utilized health service for all domains of psychopathology except for those with affective disorder, where a higher proportion of participants sought help from a mental health professional.

### Associations Common to All Types of Services

Simple logistic regressions revealed that nine predictor variables were positively associated with use of all four types of mental health services: psychological distress, somatic distress, anxiety disorders, affective disorders, PTSD, female sex, days out of role, health problems, and childhood trauma (Table 3). However, after controlling for the other variables in the multiple logistic regression, only one predictor variable, psychological symptoms as defined according to the psych subscale of the SPHERE, was significantly associated with visits to all mental health services (Table 4). Bushfire exposure was not a predictor of utilisation of any of the mental health services. The remainder of this section is devoted to describing the associations that were not common to all service types.

### General Practitioner Services

Using simple logistic regression (Table 3), the strongest predictor of mental health visits to a GP were being on a disability pension (OR = 10.12). In the multiple logistic regression (Table 4) however, psychological distress emerged as the strongest predictor (OR = 1.42), followed by total number of health problems (OR = 1.30), and age

**Table 2** Percentage of the sample using health services by type of disorder in the last 12 months

| Mental health status | GP (%) | Mental health professional (%) | Non-mental health professional (%) | Any health professional (%) |
|---|---|---|---|---|
| Affective disorder | 38.9 | 44.4 | 19.4 | 61.1 |
| Anxiety disorder | 34.2 | 22.4 | 11.8 | 39.5 |
| Hazardous alcohol problem | 9.6 | 4.0 | 2.4 | 11.6 |
| Alcohol dependant | 17.6 | 13.7 | 5.9 | 26.5 |
| All survey respondents | 11.8 | 6.7 | 3.5 | 15.0 |

**Table 3** Univariate associations between need, enabling and pre-disposing factors and type of health professional (simple logistic regression)

| Predictor variable | GP OR (95% CI) | Mental health specialist OR (95% CI) | Non-mental health specialist OR (95% CI) | Any health professional OR (95% CI) |
|---|---|---|---|---|
| Need factors | | | | |
| Psychological distress | 1.486 (1.37–1.62)* | 1.514 (1.38–1.67)* | 1.448 (1.30–1.62)* | 1.539 (1.41–1.67)* |
| Somatic distress | 1.419 (1.30–1.55)* | 1.421 (1.29–1.57)* | 1.445 (1.28–1.63)* | 1.410 (1.30–1.54)* |
| Anxiety disorder | 4.787 (2.81–8.15)* | 5.533 (2.97–10.31)* | 4.973 (2.19–11.28)* | 4.382 (2.70–7.14)* |
| Affective disorder | 5.242 (2.59–10.63)* | 13.700 (6.84–27.44)* | 7.973 (3.20–19.84)* | 8.304 (4.44–15.52)* |
| Alcohol dependant | 1.685 (0.94–3.03) | 2.510 (1.27–4.98)* | 1.825 (0.69–4.83) | 2.229 (1.33–3.73)* |
| Hazardous drinker | 0.831 (0.50–1.39) | 0.655 (0.31–1.38) | 0.715 (0.27–1.87) | 0.809 (0.51–1.29) |
| PTSD | 3.033 (1.15–8.01)* | 7.986 (3.34–19.09)* | 6.261 (2.02–19.39)* | 4.142 (1.87–9.20)* |
| Enabling factors | | | | |
| Rural | 0.770 (0.50–1.20) | 0.430 (0.24–0.76)* | 0.540 (0.24–1.20) | 0.687 (0.46–1.01) |
| Remote | 1.075 (0.39–2.93) | 0.600 (0.14–2.62) | 2.167 (0.59–7.96) | 1.258 (0.53–3.00) |
| Income | 2.443 (1.26–4.73)* | 2.494 (1.12–5.56)* | 1.016 (0.24–4.38) | 2.620 (1.43–4.79)* |
| Unemployed† | 2.812 (1.00–7.90)* | 3.256 (0.91–11.72) | | 3.604 (1.42–9.12)* |
| Part-time | 2.131 (1.26–3.62)* | 2.847 (1.468–5.523)* | 1.503 (0.58–3.92) | 2.487 (1.54–4.01)* |
| Student† | 1.012 (0.13–8.07) | 2.171 (0.27–17.66) | | 1.831 (0.39–8.68) |
| Pre-disposing factors | | | | |
| Age | 1.097 (1.00–1.20)* | 1.016 (0.90–1.14) | 1.059 (0.90–1.25) | 1.099 (1.01–1.19)* |
| Sex | 1.801 (1.16–2.79)* | 2.904 (1.59–5.32)* | 2.712 (1.19–6.18)* | 2.306 (1.55–3.42)* |
| Education | 1.044 (0.66–1.64) | 0.915 (0.49–1.70) | 0.874 (0.37–2.07) | 1.119 (0.74–1.69) |
| Living alone | 0.816 (0.44–1.53) | 1.806 (0.88–3.71) | 1.279 (0.44–3.76) | 1.286 (0.73–2.26) |
| Separated | 3.589 (1.07–12.07) | 3.933 (1.26–12.28)* | 3.451 (0.76–15.69) | 2.060 (0.73–5.82) |
| Divorced† | 1.682 (0.47–6.07)* | 3.967 (1.07–14.65)* | | 5.930 (2.04–17.21)* |
| Disability | 10.120 (1.99–51.50)* | 16.281 (3.45–76.85)* | 5.510 (0.63–48.49) | 10.983 (2.40–50.27)* |
| Home duties | 1.641 (0.83–3.23) | 1.924 (0.802–4.612) | 1.613 (0.53–4.94) | 2.029 (1.12–3.68)* |
| Days out of role | 1.064 (1.03–1.10)* | 1.060 (1.03–1.10)* | 1.063 (1.02–1.11)* | 1.056 (1.03–1.09)* |
| Health problems | 1.504 (1.33–1.71)* | 1.335 (1.16–1.53)* | 1.470 (1.25–1.72)* | 1.457 (1.29–1.64)* |
| Childhood trauma | 3.106 (1.89–5.10)* | 7.219 (3.06–17.032)* | 3.119 (1.26–7.74)* | 3.389 (2.16–5.32)* |

* $P < 0.05$

† Data excluded as there were not enough observations to provide a valid estimate

(OR = 1.14). Interestingly, by controlling for the effects of all other predictor variables, having an affective disorder in the past 12 months decreased the likelihood of reporting a mental health visit to the GP. Rurality showed no association with mental health visits to a GP in either the simple or multiple logistic regression.

## Mental Health Specialist Services

In terms of need factors, having an affective disorder or PTSD in the last 12 months emerged as the two strongest univariate predictors of mental health visits to a mental health specialist (OR = 13.70) (Table 4). Using

**Table 4** Multivariate associations between need, enabling and pre-disposing factors and type of health professionals (multiple logistic regression)

| Predictor variable | GP OR (95% CI) | Mental health specialist OR (95% CI) | Non-mental health specialist OR (95% CI) | Any health professional OR (95% CI) |
|---|---|---|---|---|
| Need factors | | | | |
| Psychological distress | 1.415 (1.23–1.63)* | 1.327 (1.12–1.58)* | 1.359 (1.10–1.67)* | 1.415 (1.24–1.61)* |
| Somatic distress | 1.085 (0.94–1.25) | 1.089 (0.91–1.31) | 1.082 (0.86–1.36) | 1.035 (0.90–1.19) |
| Anxiety disorder | 1.926 (0.93–4.00) | 1.385 (0.54–3.53) | 1.387 (0.40–4.84) | 1.485 (0.74–2.99) |
| Affective disorder | 0.280 (0.08–0.97)* | 1.118 (0.32–3.88) | 0.528 (0.09–2.96) | 0.784 (0.27–2.29) |
| Alcohol dependant | 1.667 (0.74–3.76) | 2.317 (0.81–6.64) | 1.499 (0.37–6.05) | 2.305 (1.11–4.79)* |
| Hazardous drinker | 1.123 (0.59–2.14) | 0.575 (0.21–1.57) | 0.952 (0.31–2.94) | 1.039 (0.57–1.88) |
| PTSD | 0.243 (0.05–1.10) | 1.677 (0.38–7.40) | 0.517 (0.06–4.41) | 0.823 (0.22–3.04) |
| Enabling factors | | | | |
| Rural | 1.149 (0.64–2.07) | 0.299 (0.13–0.67)* | 0.715 (0.26–1.98) | 0.774 (0.46–1.31) |
| Remote | 1.800 (0.54–5.98) | 0.426 (0.06–2.95) | 3.612 (0.76–17.20) | 1.730 (0.59–5.09) |
| Income | 1.385 (0.45–4.26) | 0.894 (0.12–4.11) | 0.428 (0.03–5.52) | 1.147 (0.41–3.19) |
| Unemployed† | 1.647 (0.38–7.19) | 0.497 (0.03–7.57) | | 1.689 (0.41–6.89) |
| Part time | 1.468 (0.70–3.08) | 1.741 (0.67–4.53) | 1.042 (0.31–3.60) | 1.675 (0.87–3.24) |
| Student† | 0.666 (0.06–7.26) | 1.266 (0.09–18.00) | | 1.241 (0.18–8.56) |
| Pre-disposing factors | | | | |
| Age | 1.137 (1.01–1.29)* | 0.977 (0.83–1.15) | 1.080 (0.89–1.31) | 1.103 (0.99–1.23) |
| Sex | 1.241 (0.65–2.36) | 2.814 (1.10–7.20)* | 2.256 (0.74–6.86) | 1.706 (0.94–3.10) |
| Education | 0.895 (0.49–1.64) | 0.675 (0.28–1.61) | 0.516 (0.16–1.64) | 0.863 (0.49–1.52) |
| Living alone | 1.034 (0.39–2.76) | 1.903 (0.66–5.46) | 1.219 (0.32–4.67) | 1.010 (0.47–2.19) |
| Separated | 1.308 (0.25–6.91) | 0.767 (0.09–6.62) | 2.397 (0.34–16.75) | 0.623 (0.11–3.47) |
| Divorced† | 0.674 (0.10–4.58) | 6.974 (1.15–42.40)* | | 4.216 (1.0–17.85) |
| Disability | 5.681 (0.44–73.06) | 15.044 (0.80–282.43) | 2.616 (0.02–324.52) | 7.296 (0.67–79.30) |
| Home duties | 0.745 (0.26–2.11) | 0.657 (0.17–2.57) | 0.683 (0.13–3.66) | 0.918 (0.37–2.26) |
| Days out of role | 1.036 (0.99–1.08) | 1.017 (0.96–1.08) | 1.010 (0.94–1.09) | 1.019 (0.98–1.06) |
| Health problems | 1.304 (1.12–1.53)* | 0.903 (0.72–1.13) | 1.178 (0.93–1.50) | 1.233 (1.05–1.45)* |
| Childhood trauma | 1.750 (0.97–3.17) | 3.433 (1.30–9.07)* | 1.553 (0.55–4.37) | 1.675 (0.98–2.86) |

* $P < 0.05$

† Data excluded as there were not enough observations to provide a valid estimate

multiple logistic regression, five variables were significantly positively associated with use of specialist mental health services: psychological distress, female sex, being divorced, and a history of childhood trauma, while living in a rural setting was negatively associated. Living in remote areas was also negatively associated with use of mental health specialists, with all cases of anxiety disorder and hazardous alcohol problems treated by either a GP or non-mental health professional. However, this did not reach statistical significance due to small sample numbers. It should be noted that as only 1.7% of the sample were divorced and 0.8% were on a disability support pension (Table 1), confidence intervals for these variables were high, and caution should be taken in the interpretation of these results.

### Other (Non-Mental Health) Professional Services

Results of the simple logistic regressions revealed a similar pattern of predictors to those that emerged in the univariate analysis of mental health visits to a mental health specialist. The strongest predictors were affective disorders and PTSD (OR = 7.97 and OR = 6.26) followed closely by anxiety disorders (OR = 4.97) (Table 4). Psychological distress emerged as the only predictor of mental health visits to a non-mental health specialist in the multiple logistic regression.

### Any Health Services

The final health service category takes into account visits to any of the following three specialists for a mental health

problem: GP, mental health specialist and non-mental health specialist. Univariate predictors were almost identical to the univariate predictors of mental health visits to a GP, with the addition of alcohol dependence (OR = 2.23) and home duties (OR = 2.03). As with mental health visits to a GP, the strongest predictor of mental health visits to any health professional was being on a disability support pension (OR = 10.98), followed by having an affective disorder in the past 12 months (OR = 8.30). Childhood trauma also emerged as a significant univariate predictor (OR = 3.39). Using multiple logistic regression, three risk factors emerged for attending a health service for a mental health issue; alcohol dependence (OR = 2.31), psychological distress (OR = 1.42), and health problems (OR = 1.23).

## Discussion

This study aimed to replicate the work of Parslow and Jorm (2000) in identifying need, enabling and predisposing factors associated with the use of health services for mental health reasons. Additionally, it examined the predictive capabilities of exposure to trauma during childhood. Various conclusions can be drawn from these results.

Most importantly the results of this study support earlier research, which identify need factors as the most immediate cause and strongest predictor of mental health service use (Andersen and Newman 1973; Andersen 1995; Dew et al. 1991; Galbaud du Fort et al. 1999; Manning and Wells 1992; Parslow and Jorm 2000; Zola 1973). This is evidenced by the fact that levels of service use for those with a CIDI-diagnosed affective or anxiety disorder in the last 12 months were considerably higher than for the population as a whole. Furthermore, non-specific psychological distress measured using the SPHERE emerged as the most consistent significant multivariate predictor of all types of service use, above and beyond all other pre-disposing, enabling and need factors.

The finding that non-specific distress was a stronger predictor than actual CIDI diagnosed affective and anxiety disorder is consistent with the finding of Parslow and Jorm (2000) who reported the Revised Eysenck Personality Questionnaire (EPQ-R) neuroticism scale to be predictive of service use even after controlling for mental disorder. In this study, Parslow and Jorm (2000) suggest that the EPQ-R is detecting sub-clinical symptoms of psychological distress. In the current study, the importance of sub-clinical symptoms and mental health care is further supported, particularly as the SPHERE provides a more rigorous measure of psychological symptoms than the EPQ-R neuroticism score. In general, the diagnostic rules for mental health disorders applied by GP's are not in keeping with the strict DSM-IV or ICD-10 categories and this may be reflected in the predictive ability of the SPHERE which was designed for use in general practice settings (Clarke et al. 2008). It would be useful to compare long-term mental health in those who score positively on the SPHERE but do not receive treatment, with those who see a health service provider for a mental health reason. It also remains to be seen, then, whether the utility of the SPHERE lies not just in it being a screener for further diagnoses, but as a screener for early intervention.

Overall, GP provided most mental health care to this sample of Australian adults, with 11.8% of the population reporting obtaining services from a GP. Interestingly, GPs represented the most highly utilized health service for all domains of psychopathology except affective disorder, where a higher proportion of participants sought help from a mental health professional. Rates of service utilization in participants with CIDI diagnosed affective and anxiety disorders closely resembled levels of utilization reported by Parslow and Jorm (2000) (approximately 60 and 40% respectively). Notably, though, there is still a large percentage of individuals with CIDI-diagnosed affective or anxiety disorders that did not seek mental health care.

Andersen and Newman (1973) and Andersen (1995) propose a model of mental health service use that highlights the role of predisposing and enabling variables, in addition to need. This study provides additional support for this model in a non-treatment seeking epidemiological sample of Australian adults. Of note was the finding that there were no predisposing and enabling factors common to all service providers. Again, this is possibly a result of the sample characteristics, for example, being predominantly rural and having lower levels of tertiary education than the national average and lower unemployment. The univariate analyses revealed that those reporting visiting a GP in the last 12 months for a mental health problem were generally female, older, socially disadvantaged, with a significant number of health problems and a psychiatric disorder other than alcohol dependence/abuse. Mental health specialists, in contrast, generally serviced individuals with a psychiatric disorder including alcohol dependence, those with high degrees of disability and greater levels of childhood trauma. The multivariate analysis revealed that older people were more likely to seek help from a GP regarding a mental health problem. Given the narrow age range of the sample, however, this result is likely to be a statistical artefact. For mental health specialists, however, being female and divorced were positively associated with increased service use. As noted by Parslow and Jorm (2000), the increased tendency of females to seek help is possibly related to their increased likelihood of adopting the help-seeking role or self-identifying as having a mental health problem (Leaf and Bruce

1987; Tudiver and Talbot 1999). While this sample contained only a small number of divorced individuals, the finding that being divorced predicts increased use is compatible with earlier findings that suggest the additional psychological distress, such as that which might result from relationship breakdown, is a factor that pushes individuals to seek mental health assistance (Galbaud du Fort et al. 1999; Zola 1973).

It is notable that in the current population (which is 60% rural), rural living proved to be a barrier to receiving mental health assistance from a mental health specialist. This is likely to be a result of fewer health professionals living in these areas, a much smaller choice of health service providers making it difficult for those seeking help to find a suitable provider as well as scarce community support services. Additionally the recruitment and retention of psychiatrists and other mental health specialists to rural areas of Australian has been recognized as a long-standing problem (Wilks et al. 2008). It is important to note here, that this data was collected prior to the introduction of the Medicare rebate for mental health professionals in November 2006. Thus, individuals previously had higher out of pocket expenses than is now the case. Use of specialist services in rural areas needs to be reassessed now that they attract a Medicare rebate. It would also be valuable to assess whether the introduction of the Medicare rebate has resulted in an increase in the number of individuals with a diagnosable anxiety or affective disorder seeking mental health assistance in these areas.

In terms of exposure to trauma, use of a mental health specialist was not predicted by bushfire exposure, but was predicted by adverse childhood experiences. It is not possible to determine whether increased mental health use in this population is a direct consequence of diagnosable mental health problems originating from adverse childhood experiences or whether individuals exposed to trauma during childhood are more likely to self-identify as needing help. Nonetheless, this result does appear to support the notion of the long-term effects of childhood trauma exposure and the vulnerability of traumatized children to long-term adverse mental health outcomes (Schilling et al. 2007). Future research examining factors that predict mental health service use need to consider the important role of childhood trauma, specifically the impact that cumulative trauma and trauma type has on this relationship.

Finally, when the determinants of seeking mental health care from any health professional were examined, psychological distress (as measured using the SPHERE), health-related problems and alcohol dependence emerged as independent predictors. The individual psychiatric diagnoses did not play a role in predicting the use of services, rather the general level of distress arising from these disorders drove help seeking. Furthermore, many of those seeking mental health care had multiple disorders, and hence, no single disorder accounted for help seeking. Alcohol dependence, on the other hand was detected as a different axis of help seeking. Equally, physical health problems were an important driver of help seeking for mental health care, but we are unable to ascertain the extent to which the somatic aspects of psychiatric morbidity were correctly assessed and evidence-based treatment provided. A quarter to a half of all presentations to primary care physicians have a primary somatic focus without an underlying disease cause, indicating the importance of this issue to the patterns of health service consumption (Kroenke and Price 1993).

There are 2 limitations to this study that should be acknowledged. First, the sample used in this study is an epidemiological sample of young Australian adults originally recruited as part of a longitudinal study into the long-term affects of the Ash Wednesday Bushfires occurring in a rural region of South Australia. Hence, results from this study may not be generalisable to other populations that include older adults and purely urban populations. Second, the current study has the potential for multicollinearity in the multivariate logistic regression. It is possible that some predictor variables were related to one another, and hence, obscured real associations that occurred between some predictors and mental health service utilisation. Despite these limitations, the current paper provides valuable input into the scientific literature addressing factors affecting help seeking for mental health in the context of prior trauma.

## Conclusion

This research closely replicated the work of Parslow and Jorm (2000) in identifying patterns of mental health service use, with a number of important differences. It reports one of the only comparative studies to look at mental health use in adults exposed to childhood trauma in a large non-treatment seeking epidemiological sample. The major finding was that SPHERE psychological distress was the factor most strongly related to mental health service use which emphasizes the important role that need factors play in health service utilisation. This result is also important given the previous use of the SPHERE as a simple psychological screener. Further exploration of the value of this measure in identifying sub-clinical populations who might benefit from mental health care would be useful. Also of note was the finding that adverse childhood experiences predicted mental health service use. This reinforces the need for early intervention in children known to have experienced trauma. Finally, there is a need for continued

research with other trauma populations using comparative designs.

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