

Factors associated with young adults' obtaining general practitioner services

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Abstract

This paper explores factors associated with the use of general practitioner services by young adults aged 20 to 24 years. The analyses examined sociodemographic and health data obtained for a community survey of respondents who lived in Canberra or Queanbeyan in 1999 and 2000 and linked this information to Medicare records of general practitioner visits over the following six months. In line with the Andersen model of health behaviour, predictor variables were classified as measures of physical and mental health needs for such services or as factors that predispose or enable the individual to obtain those services.

Those who obtained general practitioner care were more likely to be female, to have been or be undertaking higher education and to be living with children. They were also identified by their having poorer physical health, more chronic diseases, higher levels of suicidal ideation and by their regularly using marijuana. General practitioners need to be aware of the potential mental health and substance use problems experienced by consumers in this age group. Strategies are also needed to encourage young men to seek general practitioner services when they are ill.

Background

When compared with those in all other age groups, young Australian adults are the least likely to obtain general practitioner care (Britt *et al.* 2000). Studies elsewhere have also found that this age cohort is less likely to have a regular general practitioner but more likely to require accident and emergency services (Brogan *et al.* 1998). While Australians in this age group are more likely to self-assess their health status as excellent, very good or good, they also experience significant mental health problems (Moon *et al.* 1999).

Governments have allocated substantial resources in efforts to reduce the impact of suicidality and substance misuse on this cohort of the population (Commonwealth Department of Health & Aged Care 1997). Treatment for such problems is often only provided in emergency facilities once the individual reaches crisis point; for example, attempted suicide or unintended illicit drug overdose (Moon *et al.* 1999). It could be expected, however, that those in this age group who do obtain services from general practitioners would often have mental health problems, regardless of whether they perceive such problems as the reason for their seeking help on that occasion.

Factors associated with health care use - the Andersen model

A range of factors has been found to influence individuals' patterns of health service utilisation. Health care consumers are more likely to have both self-perceived and clinically assessed needs for such care (Andersen 1995). Other non-need-related factors might also predispose or enable an individual to obtain health care. Women and those with higher levels of education, for example, have been found to be more predisposed to seek help for

problems that others would choose to ignore or to self-treat (Andersen & Newman 1973; Neal et al. 2000; Van de Kar et al. 1992). Those who self-perceive that they have a health problem that warrants medical treatment may be unable to obtain such treatment in their local region (Humphreys & Rolley 1998; Wilkinson 2000). Prices charged for services can also reduce an individual's ability to obtain such care although, in Australia, this problem is largely addressed by the universal health insurance system, Medicare. The Andersen behavioural model of health care utilisation assumes that factors relating not only to the individual's need for care but also those that predispose or enable the individual to obtain such care will influence patterns of health care consumption (Andersen & Newman 1973).

An analysis of associations between predisposing, enabling and need factors and young adults' use of general practitioner services was made possible with access to data on a cohort of 2,404 young adults who lived in the Australian Capital Territory and the neighbouring New South Wales town of Queanbeyan. In 1999 and 2000, this cohort participated in the PATH Through Life Project conducted by the Centre for Mental Health Research. During interview, survey participants provided a range of sociodemographic variables and measures of mental and physical health problems. For 90.8% of this cohort, information was also collected on the number of general practitioner services obtained during the six months following their PATH interview. This paper applies the Andersen behavioural model to these data and examines the predisposing, enabling and need factors associated with young adults obtaining services from general practitioners.

Methodology

The survey

Participants in the first wave of the PATH Through Life Project were aged between 20 and 24 years on 1 January 1999 and were listed on the Electoral Rolls for Canberra or Queanbeyan, Australia. As the Australian Electoral Commission released only decade age ranges for research purposes, potential participants initially contacted for interview were aged 20 to 29 years. A total of 12,414 letters were sent to potential participants. Of these, 5058 were out of the required age range, 1061 were known to have moved out of the area and 2190 could not be found. Of the remaining 4,105 respondents, 1701 refused to participate or had no English, giving a participation rate for those contacted of 58.6%. Participants used hand-held computers under the supervision of a professional interviewer and completed a questionnaire that included questions on sociodemographic characteristics, and mental and physical health. All participants were asked if they would consent to the researchers being provided information on the number of Medicare-funded medical services they obtained during the six months following their PATH interview.

Data items

Number of general practitioner services obtained

For the 2,184 in the sample who agreed to the release of their Medicare data, information on the number of visits they had made to general practitioners during the six months following their PATH interview was obtained from the Health Insurance Commission. This information is collected by the Commission for administrative purposes and does not identify the type of health problem presented or medical care provided during visits.

Predictor variables measuring need

Three predictor variables indicating the need for general practitioner services for physical health reasons were available from the data set and included in these analyses. These were: a measure of physical health drawn from the Medical Outcomes Study 12-item Short-Form Health Survey (SF-12) (Ware et al. 1996); a categorical variable indicating whether or not female participants were using oral contraception; and a count of the number of chronic physical diseases self-reported by individuals from a list of nine problems: heart trouble; cancer; thyroid disorder; asthma, chronic bronchitis or emphysema; cataracts, glaucoma or other eye disease; arthritis; diabetes; and epilepsy. The analyses included four predictor variables relating to substance use in the past year. Three of these concerned potential substance misuse: drinking hazardous or harmful amounts of alcohol,

moderate to high cigarette consumption, and regular use of marijuana. Those who had abstained from alcohol in the past year were also identified. Previous research has found that abstainers as well as those drinking excessively are likely to have higher levels of depression (Caldwell et al. 2002) and poorer physical health (San Jose et al. 1999).

Mental health measures included Goldberg's depression and anxiety scales (Goldberg et al. 1988), the Neuroticism score from the revised version of the short form Eysenck Personality Questionnaire (EPQ-R) (Eysenck et al. 1985), and the mental health score from the SF-12 (Ware et al. 1996). Information on three levels of suicidal ideation during the 12 months preceding the interview was asked of all respondents. Those who answered 'Yes' that they thought about taking their own life were then asked if, during that period, they had made plans, or attempted to take their own life. Responses to these five questions were used to generate a severity of suicidal ideation score. While all of the above measures concern self-reported health over different periods preceding the PATH interview, they are also likely to be indicators of health care need following that event.

Predictor variables measuring predisposing and enabling factors

Five predictor variables measuring respondents' predisposing factors were included in the analysis: being female, having or undertaking higher education, having children living with them full-time or part-time, being married and being separated or divorced. Three enabling variables were also included: being unemployed, having financial problems and being a full-time student. The first two of these variables may reduce an individual's ability to obtain affordable health care while the third was considered to be potentially enabling since those studying full-time often have access to bulk-billed general practitioner care through student health services. Variables concerning age and geographical location that have been found to predispose or enable an individual to obtain health care are not relevant here since these analyses concern a specific age cohort confined to a limited geographical area. Descriptions of all predictor variables are provided in Table 1.

Statistical analysis

As seen in Figure 1, general practitioner visits followed a skewed distribution in which data were neither normally nor randomly distributed. Use of linear regression or Poisson distribution models were therefore assessed as inappropriate for analysing these data (Gardner et al. 1995). Analyses that fitted numbers of general practitioner to a negative binomial regression model were undertaken using the statistical packages SPSS 11.0 and Stata Release 7 (Statacorp 2001).

Results

Of those for whom Medicare information was available, 1,427 (65%) saw a general practitioner at least once in the six months following the PATH interview. The number of visits to general practitioners during that time ranged from zero to 18 while the mean number of visits was 1.71. Table 1 shows mean measures of each predictor variable for the cohort as a whole and for the two sub-groups: those who saw a general practitioner one or more times and those who obtained no services. Compared with those who did not obtain general practitioner services, the subgroup who saw a general practitioner included higher percentages of women, the more educated, those living with children, those married or in a de facto relationship, but also those who were separated or divorced. Service users were more likely to have had financial problems during the past 12 months, more chronic diseases, worse physical health and to be using prescribed oral contraceptives. They were also more likely to be non-drinkers and to have more mental health problems as scored on the five mental health measures.

Univariate and multivariate regression analyses using the negative binomial model were then undertaken. In this model, the coefficient, c , derived for a predictor variable is more easily interpreted as an incidence rate ratio, e^c , which measures the expected change in the dependent variable as a result of a one-unit change in the predictor variable. For example, an incidence rate ratio of 1.97 for the variable being female indicates that young women were almost twice as likely as their male counterparts to have obtained general practitioner care.

Table 1. Descriptions and mean measures of predictor variables

Variable	Description	Measure for: those who obtained:			Pooled SD for (a) & (b)
		total cohort	no GP services (N=757) (a)	any GP services (N=1427)(b)	
Predisposing:					
Sex (female)	% female	51.4	33.7*	60.8*	0.48
Higher education	% undertaking or completed higher education	82.2	80.7*	83.0*	0.38
Living with children	mean number of children full-time or part-time in household	0.14	0.12*	0.16*	0.47
Married/defacto	% married or in de facto relationship	23.7	22.2*	24.5*	0.43
Separated/divorced	% separated or divorced	0.9	0.3*	1.2*	0.09
Enabling:					
Unemployed	% unemployed	10.3	11.1	9.8	0.30
Financial problems	% with financial problems	26.6	24.2*	28.0*	0.44
Studying full-time	% studying full-time	26.1	26.1	26.1	0.44
Need:					
Physical health needs					
PCS-12	mean score on SF-12 physical health scale	53.0	54.0*	52.5*	6.76
Chronic diseases	count of chronic diseases	0.3	0.2*	0.3*	0.52
Oral contraception	% using oral contraception	27.0	14.7*	33.6*	0.44
Substance use:					
Alcohol use - abstain	% abstaining from alcohol in past 12 months	8.0	6.9*	8.5*	0.27
Alcohol use - high	% drinking at hazardous or harmful level	6.4	6.2	6.4	0.24
Cigarette use	% smoking more than 10 cigarettes daily	16.8	16.6	16.8	0.37
Marijuana use	% using marijuana at least once every 4 months	17.9	17.3	18.2	0.38
Mental health needs:					
Suicidal ideation	mean suicidal ideation score (0-5)	0.6	0.5*	0.7*	1.19
EPQ-R Neuroticism Score	mean score on the EPQ-R Neuroticism scale	4.8	4.3*	5.1*	3.37
MCS-12	mean score on SF-12 mental health scale	47.1	48.6*	46.2*	10.38
Goldberg Depression Score	mean score on Goldberg Depression Scale (0-9)	2.9	2.5*	3.1*	2.35
Goldberg Anxiety Score	mean score on Goldberg Anxiety Scale (0-9)	3.8	3.3*	4.1*	2.66

* p<0.05

* p<0.05

Table 2 provides incidence rate ratios and 95% confidence intervals for univariate regressions for each of the 20 predictor variables. These predictor variables were then grouped into five blocks measuring predisposing and enabling factors, physical health needs, substance use and mental health needs. The contribution of each of these blocks of variables in explaining use of general practitioner services was then estimated. These estimates and their p values are given in the third column of Table 2.

These five blocks of variables were then entered sequentially into the analysis, from predisposing first to mental health needs last. Predictor variable incidence rate ratios when all 20 variables were included simultaneously in the analysis are provided in column 4, Table 2. The additional value of each block of predictor variables in accounting for levels of general practitioner service use is also given.

Figure 1. Number of visits made to general practitioners in the 6 months following the PATH interview

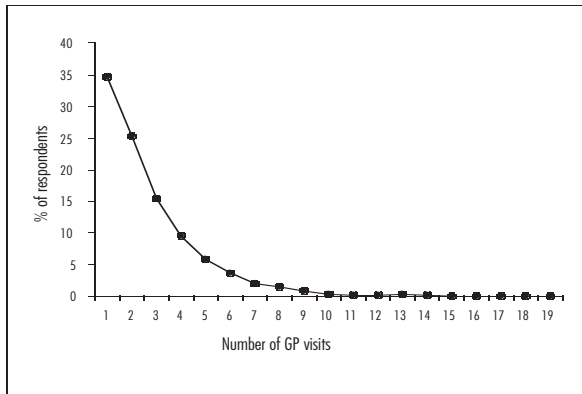


Table 2. Incidence rate ratios for associations between predictor variables and general practitioner visits during the 6 months following the PATH interview.

Predictor variables	Incidence rate ratios for univariate regression (95% CI)	Model Chi² for each block of variables separately	Incidence rate ratios for multiple regression (95% CI)	Model Chi² for each block of variables added sequentially
Predisposing:				
Sex (female)	1.97 (1.78 - 2.18)*	187.92 (p<0.000)	1.70 (1.50 - 1.92)*	187.92 (p<0.000)
Higher education	1.02 (0.89 - 1.17)		1.16 (1.01 - 1.33)*	
Living with children	1.34 (1.21 - 1.49)*		1.15 (1.04 - 1.28)*	
Married/defacto	1.18 (1.05 - 1.33)*		1.02 (0.90 - 1.14)	
Separated/divorced	2.05 (1.25 - 3.33)*		1.24 (0.79 - 1.96)	
Enabling:				
Unemployed	1.00 (0.85 - 1.19)	34.953 (p<0.000)	0.93 (0.80 - 1.09)	17.73 (p<0.001)
Financial problems	1.40 (1.25 - 1.56)*		1.07 (0.96 - 1.20)	
Studying full-time	0.97 (0.86 - 1.09)		1.01 (0.90 - 1.13)	
Need:				
Physical health needs:				
PCS-12	0.97 (0.97 - 0.98)*	122.85 (p<0.000)	0.98 (0.97 - 0.99)*	109.28 (p<0.000)
Chronic diseases	1.26 (1.15 - 1.39)*		1.12 (1.03 - 1.23)*	
Oral contraception	1.51 (1.36 - 1.69)*		1.11 (0.98 - 1.26)	
Substance use:				
Alcohol use-abstain	1.23 (1.02 - 1.47)*	21.80 (p<0.000)	1.21 (1.02 - 1.44)*	21.61 (p<0.000)
Alcohol use - high	1.14 (0.93 - 1.40)		1.04 (0.86 - 1.26)	
Cigarette use	1.24 (1.09 - 1.42)*		1.07 (0.94 - 1.22)	
Marijuana use	1.18 (1.03 - 1.34)*		1.17 (1.03 - 1.33)*	
Mental health needs:				
Suicidal ideation	1.16 (1.11 - 1.20)*	117.94 (p<0.000)	1.08 (1.03 - 1.13)*	59.91 (p<0.000)
EPQ-R Neuroticism Score	1.07 (1.05 - 1.08)*		1.00 (0.98 - 1.02)	
MCS-12	0.98 (0.98 - 0.99)*		0.99 (0.99 - 1.00)	
Goldberg Depression Score	1.10 (1.08 - 1.12)*		1.01 (0.98 - 1.04)	
Goldberg Anxiety Score	1.09 (1.07 - 1.11)*		1.01 (0.98 - 1.03)	

* p<0.05 PCS-12 - score on SF-12 physical health scale MCS-12 - score on SF-12 mental health scale

Predisposing and enabling variables associated with seeing a general practitioner

In the univariate regression, four of the five predisposing variables and one enabling variable were significantly associated with seeing a general practitioner: being female, living with children, being married or in a de facto relationship, being separated or divorced, and having financial problems. Both blocks of predictor variables also contributed significantly to explaining patterns of general practitioner service utilisation. When all predictor variables were considered simultaneously, no enabling variables but three predisposing variables were significantly associated with seeing a general practitioner: being female, having or undertaking higher education and living with children. After controlling for all other measures, women in this cohort could still be expected to visit a general practitioner around 70% more often than young adult men.

Need variables associated with seeing a general practitioner

When predictor variables were considered in isolation, all but one measure of need (hazardous or harmful use of alcohol) was found to be associated with seeing a general practitioner. The three blocks of the variables covering physical health needs, substance use and mental health needs each contributed significantly to the fit of the model of general practitioner service use. In the multiple regression, five variables relating to physical health needs, substance use and mental health needs were significantly associated with obtaining general practitioner care: having poorer physical health, number of chronic diseases, abstaining from alcohol, regularly using marijuana, and severity of suicidal ideation. As seen in Table 2, after all predisposing, enabling, physical health and substance use variables were taken into account, mental health needs continued to contribute significantly to explaining general practitioner service utilisation for this age group.

Interaction effects

Further analyses examining interactions between being female and other predictor variables were undertaken to test whether the impact of those variables on help-seeking differed for young men and young women. The interaction term Female by Oral-Contraception was omitted due to collinearity. This left 18 interaction terms to be tested sequentially for inclusion in the model using the likelihood ratio test (Statacorp 2001).

Only one interaction term, Female by Living-with-children was significantly associated with seeing a general practitioner. When this variable was included in the analysis, it significantly improved the fit of the model. Respondents who obtained more services were more likely to be female, have more education, have children living with them, have poorer physical health or more chronic diseases, be non-drinkers, use marijuana regularly and have more severe suicidal ideation (Table 3).

For the sample as a whole, respondents with children were more likely to have obtained general practitioner care for themselves. This trend was strongest for women. As seen in Figure 2, men who lived full-time or part-time with three children used slightly fewer services, on average, than their counterparts who had no parenting responsibility, although this decline in service use was not significant.

Discussion

These analyses examined need, predisposing and enabling factors associated with a cohort of young adults obtaining general practitioner services in the six months following their participation in the PATH through Life Project. A negative binomial regression model was used to examine singly, then in combination, the impact of 20 predictor variables on use of general practitioner care. Further analysis was undertaken to examine the contribution of gender interaction terms. Examined in isolation, five of the predisposing and enabling variables, three physical health measures, three substance use variables and all five variables measuring mental health needs were associated with obtaining general practitioner care. After controlling for physical and mental health needs and patterns of substance use, those seeing a general practitioner were more likely to have or be undertaking higher education or to be living with children. They were also more likely to be female.

Table 3. Incidence rate ratios for associations between predictor variables and numbers of visits to general practitioners, including gender interaction effects.

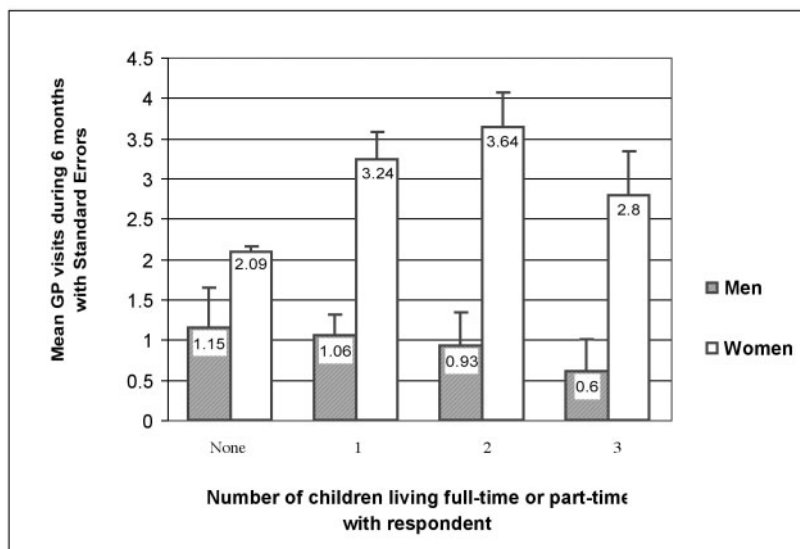
Predictor variables	Incidence rate ratios, (95% CI)	Model Chi ² for each block of variables added sequentially
Predisposing:		
Sex (female)	1.63 (1.43 - 1.85)*	187.92
Higher education	1.18 (1.03 - 1.35)*	(p<0.000)
Living with children	0.61 (0.37 - 0.98)*	
Married/de facto	1.03 (0.92 - 1.17)	
Separated/divorced	1.19 (0.75 - 1.87)	
Enabling:		
Unemployed	0.94 (0.80 - 1.10)	17.73
Financial problems	1.07 (0.96 - 1.20)	(p<0.001)
Studying full-time	1.01 (0.90 - 1.13)	
Need:		
Physical health needs:		
PCS-12	0.98 (0.97 - 0.99)*	109.28
Chronic diseases	1.12 (1.02 - 1.23)*	(p<0.000)
Oral contraception	1.13 (0.99 - 1.28)	
Substance use:		
Alcohol use-abstain	1.20 (1.01 - 1.42)*	21.61
Alcohol use - high	1.04 (0.86 - 1.26)	(p<0.000)
Cigarette use	1.06 (0.93 - 1.22)	
Marijuana use	1.17 (1.03 - 1.32)*	
Mental health needs:		
Suicidal ideation	1.08 (1.03 - 1.12)*	59.91
EPQ-R Neuroticism Score	1.00 (0.98 - 1.02)	(p<0.000)
MCS-12	0.99 (0.99 - 1.00)	
Goldberg Depression Score	1.01 (0.98 - 1.04)	
Goldberg Anxiety Score	1.01 (0.98 - 1.04)	
Interaction term		
Gender by Living with children	1.43 (1.10 - 1.85)*	7.48
		(p<0.006)
* p<0.05 PCS-12 - score on SF-12 physical health scale MCS-12 - score on SF-12 mental health scale		

This finding that young men obtained fewer services than their female counterparts after controlling for other health needs replicates the findings of Andrews *et al.* (2001). Men's health care utilisation patterns are likely to be affected by features of the health care environment and by male attitudes towards help-seeking. Experts reporting to a parliamentary committee, for example, noted that the operating hours, locations and settings of general practitioner clinics often make them more easily accessible and comfortable for women, rather than men (House of Representatives Standing Committee on Family and Community Affairs 1997). Examining help-seeking behaviours of men in general, Tudiver and Talbot (1999) concluded that their patterns of seeking help tended to be indirect, and influenced by fear, denial and perceptions of vulnerability. Strategies for health care delivery that overcome these obstacles are still to be developed but might include greater use of Internet, often perceived by men as offering them greater privacy and confidentiality and more control over their time (Tselikis 2000).

As might be expected, those obtaining care had poorer physical health and more chronic diseases than their counterparts who did not see a general practitioner. They were also more likely to be abstaining from alcohol. Reasons for this last finding are not immediately obvious. Those abstaining from alcohol have been found

previously to have higher levels of distress and depression (Caldwell *et al.* 2002; Rodgers *et al.* 2000). Andreasson (1998) has also suggested that abstainers may include past problem drinkers with relatively poor physical and mental health. However, this analysis found that abstainers' service utilisation continued to be relatively high after mental and physical health needs were taken into account. A closer examination of this issue would need more detailed information on the types of care sought and obtained by this sub-group.

Figure 2. General practitioner visits by young men and women by number of children in household



After controlling for other factors, those who obtained general practitioner services were more likely to be regular users of marijuana. Again, reasons for this finding are not obvious. Previous overseas studies have found that help-seeking behaviours were not significantly affected by illicit drug use (Konings *et al.* 1995) or that the impact of such substance abuse affected inpatient but not ambulatory care (French *et al.* 2000).

Finally, those obtaining general practitioner care were also more likely to have suicidal ideation. This result aligns with the earlier findings of Moon *et al.* (1999) that mental health problems are a substantial burden for young Australian adults. An earlier Australian study by McKelvey *et al.* (1998) also found adolescents and young adults presenting to general practice over a four-week period to have relatively high levels of psychological distress. That study, however, could not assess whether distress experienced by those obtaining general practitioner services differed from that experienced by young adults and adolescents who had not sought general practitioner care. The finding from this study, that young adults seeing a general practitioner are more likely to have suicidal ideation after controlling for other mental and physical health measures, highlights the need for general practitioners to be aware of this problem, and if necessary, ask sufficient questions to ensure such ideation is not present. A brief four-question screening tool developed in Australia for this age group, has recently been tested and reported (Joiner *et al.* 2002).

Limitations of this study

The Medicare data analysed for this paper can be taken as an accurate measure of general practitioner service utilisation during the period being examined. However, a number of the predictor variables included in these analyses are self-reported and may therefore be subject to unreliable recall or intentional omission. The confidentiality of the survey method with participants using hand-held computers may have encouraged more accurate responses than would be obtained through other methods, for example, face-to-face interview.

Conclusion

This study has found that, in a cohort of young adults, those who obtained general practitioner care were more likely to have mental as well as physical health problems. These findings emphasise the need for general practitioners to be aware of, and be able to recognise and treat, mental health problems experienced by this age group. Strategies are also needed to encourage young men to obtain general practitioner services when they are ill.

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