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Daniel Terry
The University of Melbourne-Shepparton

Kaye Ervin
The University of Melbourne-Shepparton

Alan Crouch
The University of Melbourne-Shepparton

Kristen Glenister
The University of Melbourne-Shepparton

Lisa Bourke
The University of Melbourne-Shepparton, bourke@unimelb.edu.au

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HETEROGENEITY OF RURAL CONSUMER PERCEPTIONS OF HEALTH SERVICE ACCESS ACROSS FOUR REGIONS OF VICTORIA*

DANIEL TERRY

*THE UNIVERSITY OF
MELBOURNE–SHEPPARTON*

ALAN CROUCH

*THE UNIVERSITY OF
MELBOURNE–SHEPPARTON*

KAYE ERVIN

*THE UNIVERSITY OF
MELBOURNE–SHEPPARTON*

KRISTEN GLENISTER

*THE UNIVERSITY OF
MELBOURNE–SHEPPARTON*

and

LISA BOURKE

THE UNIVERSITY OF MELBOURNE–SHEPPARTON

ABSTRACT

Access to a range of services, including healthcare, ranks among the key determinants of health and well-being. It varies with both health system supply factors and consumer demand characteristics. For rural populations, access to health services can be restricted for a variety of reasons, contributing to poorer health outcomes compared with metropolitan populations. Access to health care differs between communities, despite commonly being seen as homogenous in terms of lack of service and poor access. This paper seeks to examine consumer perceptions of access to health service in four shires in rural Victoria and explore differences between rural areas. These insights may assist health services to reorient their modes of service provision to be more accessible to rural health consumers. A confidential self-administered questionnaire was mailed to randomly selected households in the four shires. A total of 1,271 questionnaires were returned (35% response rate) with 75% of respondents reporting good access to health care overall. Many factors contributed significantly to the perception of health access; however, these factors were unique to each rural community. The implication of this heterogeneity is that rural health care services must be tailored to promote equitable, quality health care outcomes with attention to local community needs at the core of efforts. Only locally-targeted actions will achieve optimal health service planning and delivery.

Access to appropriate health services ranks among the key determinants of health and well-being in rural Australia, together with socioeconomic disadvantage, Aboriginality, environmental and occupational risk and education level (Smith, Humphreys, and Wilson 2008; Wakerman and Humphreys 2002). For rural residents, the lack of services, distance to services, health workforce maldistribution and the generalist nature of health services restrict access to health

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care. Health access remains complex and encompasses numerous characteristics of the health system as well as the diversity of knowledge, location and skills of health consumers. It is dependent on the nature and quality of the interactions between service providers and consumers, including the assumptions influencing consumer decisions to seek, enter and use health services (Russell et al. 2013). Access can be considered as the degree of “fit “ between health consumers, the system and the context (Penchansky and Thomas 1981:128).

A framework of access to health services, outlined by Penchansky and Thomas (1981), emphasizes five interdependent dimensions that underpin the concept of access. The first dimension is *availability*—the adequacy of supply. This refers to the relationship between current health resources, services and the health consumers’ needs (Penchansky and Thomas 1981). Second is *accessibility* – the relationship between supply and the health consumer in terms of perceived and actual location, distance, travel time and transport and is the dimension often regarded as synonymous with access (Fortney et al. 2011; Khan and Bhardwaj 1994; Penchansky and Thomas 1981). The third dimension is *accommodation* – the organization of supply, which is the actual and the perceived ability to meet health consumers’ needs (Fortney et al. 2011). Fourth is *affordability* or supply being worth its relative cost to either the consumer or health care provider. It is therefore broader than the simple ability to pay. The fifth dimension is *acceptability* – the health consumers’ and health care providers’ perspectives regarding each other and their expectations around the health care encounter (Khan and Bhardwaj 1994; Penchansky and Thomas 1981).

There are additional dimensions proposed by Russell and colleagues (2013) that include *awareness* – the capacity of health consumers to navigate the health care system effectively, including knowing what can be accessed and how. Access also encompasses communication between health care providers and health consumers in ways that engage and enable health consumers to understand and positively contribute to the management of their own health (Thiede and McIntyre 2008). Another dimension is *timeliness*—the interval between the perceived need for service by health consumers and the actual service provision. This centers on reduced availability relative to actual need and may be in the form of travel time, hours of operation or time delays to receive service (Russell et al. 2013).

Due to the nuances and differing population characteristics, health care access differs between various communities and sub-populations within a community (Bourke et al. 2012; McGrail and Humphreys 2009; Wakerman and Humphreys 2002). Often rural is stereotyped as synonymous with poor access (Bourke et al. 2010) and there is perceived homogeneity of populations living outside urban centers (Crouch, Bourke, and Pierce 2016; Lavergne and Kephart 2012; Toivakka et al. 2015). Rural is more than being a certain distance from a metropolitan center

and it is greater than the prevailing binary perspective of rural and urban differences (Toivakka et al. 2015; Wilcox et al. 2000). The assumed homogeneity between rural communities and rural people does not take into account the contextual influences and interregional variability of demographic, geographic, cultural and economic factors. Thus, “rurality “ affects health, health behaviors and health service access (Farmer et al. 2006, 2012).

While access to health services is understood to be variable and related to local rural contexts, it is not clear what rural residents perceive their access to be. Earlier work found that doctors and curative medical services were highly valued among rural consumers, while preventive services were considered less important (Bourke and Lockard 2000; Humphreys and Weinand 1991a, 1991b). Consumer perceptions of health access are vital as these perceptions impact “where, when and even whether patients seek or receive health care “ (Fone, Christie, and Lester 2006:2). It is centered on the interplay between the underlying characteristics of a health care service, its reputation, consumers’ experiences, the perceived service quality, and the perception that care provided will best meet consumers’ needs (Comber, Brunson, and Radburn 2011; Dunfield 1996). Further, consumer perceptions of health access and utilization are also mediated by factors such as knowledge, values and attitudes that then influence potential or actual health care access (Dunfield 1996). Others have suggested that consumer perceptions of access may be influenced by word-of-mouth rather than experiences (Bourke 2006; Comber et al. 2011; Hoodless, Bourke, and Evans 2008). These all suggest ambiguities in what consumers perceive their access to health services to be.

Using the conceptual model of Petchansky and Thomas (1981), supplemented by the additional elements proposed by Russell et al. (2013) as an interpretive framework for the survey data, the study investigates variations in consumer perceptions of health services across rural areas. Therefore, this paper seeks to examine rural consumer perceptions of health service access in four Shires in rural Victoria and explore difference between these rural regions. In this way, the study provides insights into how health services may be reoriented to meet the needs of their rural consumers.

METHODS

Context of study sites

The study sites included four rural local government areas (Shires) in Victoria, namely Moira Shire, Rural City of Wangaratta, Central Goldfields Shire and City of Greater Shepparton. Two shires in northern Victoria are adjacent, one shire is a short distance east of these shires while the fourth is located in central Victoria (see Figure 1). The shires were selected by the co-location of the same University Department of Rural Health in each region. Each Shire demonstrated relative

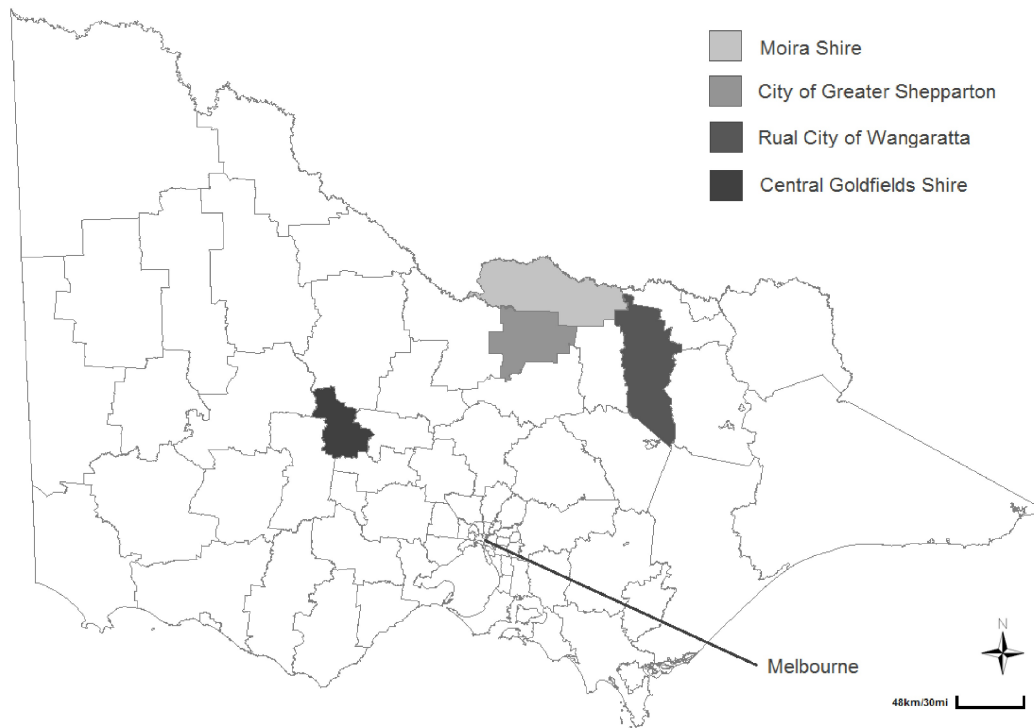


FIGURE 1. MAP OF STUDIED SHIRES WITHIN VICTORIA, AUSTRALIA.

disadvantage in the social and economic conditions among households (high Socioeconomic Index of Disadvantage score) compared with many regions in Australia (Australian Bureau Statistics 2011a, 2011b; Department of Health 2013; State Government of Victoria 2013), as summarized in Table 1.

The City of Greater Shepparton is 112 miles (180 kilometers) north-northeast of Melbourne and the largest of the four Shires with a population of 62,784 in 2,422km². It includes the largest non-metropolitan Aboriginal population in the state, is also a multicultural region with 26 different language groups with many residents with a low socioeconomic status (ABS 2011). The largest town, Shepparton, has 18 General Practices with many co-located with allied health services. Shepparton also has a 280-bed public hospital that services many other regional shires, a 69-bed private hospital and several smaller health facilities across other towns in the Shire (Goulburn Valley Health 2015; Greater Shepparton City Council 2014).

The Rural City of Wangaratta is 144 miles (230 kilometers) northeast of Melbourne and services a population of 26,815 in 3639km² (ABS 2011). Most of the residents live in Wangaratta, which is surrounded by several small townships with populations of 200-1000 people. There are 14 General Practices in the Rural City of Wangaratta, which is also serviced by a 222-bed public hospital, and generally

PERCEPTIONS OF HEALTH SERVICE ACCESS

129

TABLE 1. COMMUNITY PROFILE OF FOUR VICTORIAN SHIRES.

	GREATER			CENTRAL
	SHEPPARTON	WANGARATTA	MOIRA	GOLDFIELDS
Population	60,449	26,815	24,124	12,496
Median age	38	43	44	48
Median weekly hh income (\$AUD)	980	913	828	685
Socioeconomic Index of Disadvantage (score/decile rank)	942/193	965/277	936/167	888/57
Unemployment rate (%)	5.5	4.7	4.8	6.7
University/other tertiary education (%)	5.1	5.6	3.8	4.9
General practitioners per 1000	1.11	1.20	1.08	0.90
Bulk billing clinics	3	1	0	2
Specialist services	Yes	Yes	Outreach	Outreach
Number of acute beds in hospital				
Public	280	222	53	39
Private	69	42	0	0
Community health centers	Yes	Yes	Yes	Yes

considered as a more comprehensive health service for the population size of the shire. There is also a private hospital, a range of locally-based medical specialists and allied health services, and visiting health services, allied health services and specialist medical practitioners.

Moira Shire, in the Hume region of North-East Victoria is north of and bridges both City of Greater Shepparton and Rural City of Wangaratta. The Shire spans 4,000km² with a population of 24,000 people in five major townships, the largest of which has 6,000 people and is 39 miles (62 kilometers) north of Shepparton and 59 miles (95 kilometers) northwest to Wangaratta (ABS 2011). There are four district health services in Moira Shire that provide a total of 53 acute public beds, visiting specialists and allied health services. In addition, there are seven General Practice clinics but no bulk-billing (where the service provider receives a fixed rebate and

no co-payment for medical expenses are made by consumers), so that bulk-billed consultations only occur at the discretion of the GP.

The Central Goldfields Shire is 112 miles (180 kilometers) northwest of Melbourne and occupies an area of 1,534km² and has a population of approximately 12,500 (AIHW 2012a, 2012b). There are five townships in Central Goldfields Shire, the largest town has a population just more than 7,000 residents and is a service center for the Shire. There is one health service with clinics in three of the townships and a total of 32 acute beds for the Shire. In addition, there are two general practice clinics, both of which provide allied health services and bulk-billing to concession card holders and those aged less than 16 years.

Data Collection

A confidential, self-administered questionnaire was mailed to 3,640 individuals who were randomly selected from the telephone directory, asking the person in the household with the most recent birthday (aged of 16 years or older), to complete the questionnaire and return it in the prepaid envelope (Ervin et al. 2015). Questionnaires were mailed between September and October 2014. Follow-up reminder postcards and letters with additional questionnaires were distributed to obtain greater response. A total of 1,271 questionnaires were returned representing a 35% response rate. Approval to conduct the research was granted by the University Human Research Ethics Committee in September 2014. By completing and returning the questionnaire, participants gave consent for the responses to be included in the study.

Research Instrument

The questionnaire was designed by a team of researchers to focus on a range of health conditions, mental health measures, health behaviors, use of services, access to services and demographic items (Ervin et al. 2015). Reported here are findings from the questionnaire related to access to health services. The access questions aimed to determine overall perceptions of access to health services in each region while examining the perceived limitations of seeking health care among respondents. These responses could then be analyzed with demographic data to identify individual characteristics and potential gaps in health care services in the four regions.

Seven statements about access to health services in the region were included in the questionnaire. These statements, based on the various dimensions of access as previously outlined, included: "I have good access to health services"; "health services in the region meet my needs"; "if I was sick, I would pay to see the doctor"; "there are not enough health services in this region"; "I am satisfied with health services in this region"; "it is hard to get a health appointment when I need it"; and

“I trust the doctor that I see.” Response categories were presented using a Likert scale from 1= strongly disagree to 5= strongly agree. To ensure that access to services was explored thoroughly, the researchers asked respondents about possible barriers to accessing health services. Respondents were asked to identify which, if any, of 15 factors that limit them from seeking health care, including “distance to travel to the service”; “cost of the service”; “access to transport”; “waiting to get an appointment”; “time it takes (including travel, waiting, the appointment, etc.)”; “lack of childcare”; “doctors and other health professionals are too busy”; “lack of health professionals in this area”; “don’t know who to see”; “concerns about confidentiality and privacy”; “don’t like the health professionals in this area”; “can’t be bothered”; “they don’t seem to help me”; “can’t get an appointment at a time that suits me”; “no Medicare card¹.” Each of these factors became dichotomous variables that either limited the seeking of health services or did not limit seeking services.² These questions serve as an additional check for validity of the earlier measures of access.

A range of demographic questions were also included: gender (male/female), age (measured in years), length of residence (in years), English as a first language or not, living in a large/regional center, a small town or on a property/farm, education (Completed or did not complete year 12 (secondary school)) and income (greater or less than \$AUD800/week). In addition, a measure of self-reported health status (excellent, very good, good, fair and poor) was included as well as the K-10 measure of psychological distress, measured as an overall score from responses to 10 questions about mental health (Kessler and Mroczek 1994).

Data Analysis

Descriptive statistics were used to report responses to questionnaire items (Munro 2005) and group comparisons were undertaken through ANOVA using SPSS v22.0. Results are shown as means, medians, range or standard deviation (SD). Factor analysis and multiple regression were used to explore respondents’ characteristics and access to health care and differences among the four sites. Significance was determined by two-tailed $p \leq 0.05$. A more comprehensive description of the analysis precedes the relevant section.

RESULTS

The sample consisted of 1,271 respondents from City of Greater Shepparton (n=479), the Rural City of Wangaratta (n=274) and the Shires of Moira (n=232)

¹Medicare provides access to free or subsidised medical and hospital services and medicines for all Australian residents, who are Medicare cardholders. See <https://www.humanservices.gov.au>

²The full questionnaire instrument is available at <http://www.ruralhealth.unimelb.edu.au/research/projects%20and%20publications/index.html>

and Central Goldfields (n=286). Characteristics of questionnaire participants are summarized in Table 2. Respondents ranged from 16 to 93 years of age with a median of 60 years (SD=15). Approximately half of respondents (53%) were 60 years of age or older and around one-third (35%) were retired reflecting the older age of the sample. A large proportion (70%) of the sample lived in a single or two person household, and more than 60% reported weekly family incomes of \$800 or less. A comparison of the survey respondents and the population for each shire is shown in Table 2.

Overall Perceptions of Access to Health Services

More than 75% of respondents perceived that they had good access to health services, and 70% of respondents perceived that health services met their needs. Sixty percent agreed that they were satisfied with health services in their region; however, 40% of the sample indicated that getting an appointment when needed was hard and 58% perceived there were not enough health services in their region. Respondents in Moira and the Central Goldfield Shires were significantly less likely to perceive they had, overall, good access to health services ($F(3,1215)= 12.583$, $p=.001$) or were able get a health appointment when they needed it ($F(3,1193)= 5.909$, $p=.001$) compared with the larger Shire of Greater Shepparton. However, Wangaratta respondents indicated they were significantly more likely to perceive they had overall good access to health services ($F(3,1215)= 12.583$, $p=.001$), that health services met their needs ($F(3,1204)= 11.493$, $p=.001$) and they were satisfied with local health services ($F(3,1200)= 7.316$, $p=.001$) than respondents from Shepparton, Moira and Central Goldfield Shires. Overall, residents of Wangaratta indicated better access to health services than the more rural shires of Moira and Central Goldfields and the most urban shire (Shepparton). Table 3 shows respondents agreement to statements about access (and access dimensions) to health care.

Barriers That Limit Seeking Health Care Between Shires

To explore perceptions of access further, respondents were asked to indicate the factors that limited seeking health care. Response categories were provided and “waiting to get an appointment” was the most frequent response, followed by “doctors and other health professionals are too busy,” “the time it takes including travel etc.,” and “can’t get an appointment time that suits me” (see Table 4). All 15 factors were matched to the conceptual dimensions of access (see Penchansky and Thomas 1981; Russell et al. 2013) and responses highlight the importance of timeliness and availability.

When examining each shire, the percentage of respondents that indicated the barriers that limited seeking health care varied. Respondents in Shepparton were

TABLE 2. CHARACTERISTICS OF COMMUNITY HEALTH QUESTIONNAIRE RESPONDENTS COMPARED WITH 2011 CENSUS.

VARIABLES	GREATER SHEPPARTON	WANGARATTA	MOIRA	CENTRAL GOLDFIELDS
	% Survey participants (% Pop.)	% Survey participants (% Pop.)	% Survey participants (% Pop.)	% Survey participants (% Pop.)
Sex (N=1232)				
Male	61 (49)	56 (48)	61 (50)	60 (50)
Female	39 (51)	44 (52)	39 (50)	40 (50)
Age Groups (N=1226)				
49 yrs. and younger . . .	26 (67)	19 (59)	24 (57)	21 (53)
50–59 yrs.	28 (13)	29 (14)	26 (13)	25 (15)
60–69 yrs.	26 (10)	30 (13)	22 (13)	30 (16)
70 yrs. and older.	20 (10)	22 (14)	28 (17)	24 (14)
Indigenous background (N=1218).	2 (3)	1 (1)	1 (1)	1 (1)
Born in Australia (N=1237)	83 (81)	90 (88)	90 (85)	90 (87)
English language (N=1238)				
English as 2 nd language	11 (12)	5 (8)	5 (10)	4 (2)
Currently living (N=1238)				
In lge. town/reg. center	51	52	8	23
In small town	23	13	56	39
On a property or farm .	26	35	36	38
Education (N=1223)				
Year 11 or less	52 (57)	54 (58)	53 (62)	60 (63)
Year 12 or VCE cert . .	17 (33)	19 (35)	15 (27)	22 (27)
Diploma/trade	16 (27)	13 (29)	17 (44)	11 (59)
University degree.	15 (10)	14 (12)	15 (12)	7 (15)
Family weekly income (\$AU) (N=1177)				
< \$400/week.	22 (25)	26 (16)	22 (22)	31 (53)
\$400 to \$799/week . . .	31 (22)	41 (24)	37 (35)	38 (30)
\$800 to \$1499/week . .	32 (26)	22 (26)	28 (31)	23 (14)
>\$1500 /week.	15 (38)	11 (34)	14 (8)	8 (3)
Median yrs. in community (N=1242).	37	35	26	30

TABLE 3. PERCEPTIONS OF HEALTH ACCESS AMONG COMMUNITY HEALTH QUESTIONNAIRE RESPONDENTS.

STATEMENT	ACCESS DIMENSION	GREATER			CENTRAL	TOTAL
		SHEPPARTON	WANGARATTA	MOIRA	GOLDFIELDS	
		SA/A	SA/A	SA/A	SA/A	SA/A
I have good access to health services	Accessibility	91%	94%	84%	85%	89%
I am satisfied with the health services in this region	Acceptability	77%	87%	73%	74%	84%
Health services in my region meet my needs	Accommodation	83%	93%	79%	80%	87%
If I was sick, I would pay to see the doctor	Affordability	87%	91%	88%	83%	87%
It is hard to get a health appointment when I need it	Timeliness	44%	47%	59%	57%	78%
There are not enough health services in the region	Availability	61%	68%	50%	52%	51%
I trust the doctor that I see	Acceptability	92%	96%	92%	91%	93%

NOTE: SA = Strongly agree, A = Agree

TABLE 4. BARRIERS THAT LIMIT HEALTH CARE SEEKING BY REGION

RESPONSE CATEGORIES	ACCESS DIMENSION	GREATER SHEPPARTON	WANGARATTA	MOIRA	CENTRAL GOLDFIELDS	TOTAL
Waiting to get an appointment.	Timeliness	29%	31%	40%	47%	35%
Doctors/other health professionals too busy	Availability	16%	19%	24%	31%	22%
Time it takes including travel and waiting etc.	Accessibility	15%	13%	24%	23%	19%
Can't get an appointment time that suits me	Acceptability	16%	13%	20%	24%	18%
Lack of health professionals in this area.	Availability	16%	11%	20%	24%	17%
Cost of the service	Affordability	14%	14%	15%	14%	14%
Distance to travel to the service.	Accessibility	9%	11%	19%	20%	14%
Access to transport (e.g., a car).	Accessibility	6%	4%	6%	8%	6%
Don't know who to see.	Awareness	7%	4%	7%	3%	5%
Don't like the health professionals in this area.	Acceptability	6%	1%	4%	6%	3%
They don't seem to help me	Accommodation	5%	3%	4%	4%	4%

significantly less likely to indicate “waiting to get an appointment” or “distance to travel to the service” were barriers compared with Moira and Central Goldfields respondents ($F(3,1255) = 10.355, p = .001$). Similarly, Wangaratta respondents were less likely to indicate “waiting to get an appointment” or “distance to travel to the service” were barriers compared with Central Goldfields respondents ($F(3,1255) = 7.976, p = .001$). In addition, respondents in Shepparton and Wangaratta were significantly less likely to indicate the time it takes (including travel, waiting, the appointment, etc.) was a barrier compared with Moira and Central Goldfields ($F(3,1255) = 8.451, p = .001$) while doctors and other health professionals being too busy was more of a barrier for Central Goldfields respondents compared with those from Shepparton and Wangaratta ($F(3,1255) = 8.822, p = .001$). Lastly, respondents in Wangaratta were significantly less likely to indicate that getting an appointment at a time that suits them was a barrier compared with Moira and Central Goldfields respondents, while Shepparton respondents were only significantly different to Central Goldfields in this regard ($F(3,1255) = 4.632, p = .003$). Again, access to services was perceived as more problematic in the more rural shires and there were fewest barriers perceived among Wangaratta respondents.

Perceptions of Health Access Between Each Shire by Respondent Characteristics

To create a measure of perceived access to health services, factor analysis of the seven items of access was undertaken. All seven items contributed to a primary factor (Eigenvalue 3.04 explaining 43% of the variance) but the items about cost, trust, waiting to get appointments and lack of health services also contributed to a second factor (Eigenvalue 1.2 explaining 17% of the variance). Given that the key barriers to accessing services identified in Table 4 reflected timeliness, availability, accessibility, acceptability and affordability, including these dimensions seemed important. Furthermore, the seven items are internally consistent, yielding a Cronbach’s alpha of 0.7. Therefore, our single measure of perceived access to health services includes Penchansky and Thomas’ (1981) five dimensions, Russell et al.’s (2013) dimension of timeliness as well as the major barriers to accessing health services identified by our respondents. Using the mean of these seven items created a single measure called “health access.” Multiple regression was performed using nine independent variables (gender, age, rurality, time in community, English as a first language, income, education, self-reported health status and psychological distress) to determine how they were related to health access in each shire and if the correlates of perceptions of access were similar or different across these locations. The factors that affect consumer perception in each Shire, using multiple regression is outlined in Table 5.

PERCEPTIONS OF HEALTH SERVICE ACCESS

137

TABLE 5. BETAS AND COEFFICIENTS OF DETERMINATION FOR HEALTH ACCESS REGRESSED ON RESPONDENT'S CHARACTERISTICS

RESPONDENT CHARACTERISTICS	GREATER			CENTRAL
	SHEPPARTON	WANGARATTA	MOIRA	GOLDFIELDS
Gender	-.09	-.12	-.24*	-.15*
Age . . . . .	.15*	.01	.21*	.20*
Rurality	-.04	.09	-.13	-.01
Length of residence English as a first language . . . . .	.05	.10	.17*	.19*
Income	-.06	.06	-.07	.05
Education . . . . .	.14*	.14	-.16*	-.05
Self-reported health status . . . . .	.04	-.14	.17*	.04
Psychological distress (K10) . .	-.04	.02	-.05	.16
R^2	-.12	-.18*	-.19*	-.12
	.06	.07	.23	.12

NOTE: * $p \leq .05$

The analysis found there is considerable variation in correlates of perceived health access in each of the four Shires. The model was a reasonable fit for Moira ($R^2=0.23$). In Moira, age and gender were the main correlates with access while psychological distress, length of residence, education and income were all contributing factors. In the other shires, the model was a poor fit and variables significantly related to perceived health access varied between these sites. This suggests differences in perceived access across the four shires and differences in the independent variables correlated with these perceptions. For example, length of residence and age were statistically significant in three of the four shires but not the same three shires. Income was statistically significant in the two closest shires, Shepparton and Moira, and education was statistically significant in Moira only. Women were more concerned about access to health services in the more rural shires of Moira and Goldfields. Mental health was a significant variable in Wangaratta and Moira while health status was only significant in Central Goldfields. Thus, perceptions of access to health services seemed to vary across rural areas.

DISCUSSION

Access, as a health construct, is more than the difference between actual use and anticipated use of health services. "Access" extends beyond a "consumers' ability or willingness to enter into the health care system" (Penchansky and Thomas 1981:128), and is not an indicator of utilization, service quality, or clinical outcomes (Fortney et al., 2011; Levesque, Harris, and Russell 2013). Arguably, descriptions

of rurality and rural health have frequently adopted a binary tone of rural versus urban differences in health access (Toivakka et al. 2015; Wilcox et al. 2000). This study, as a point of difference, has explored health access perceptions between four rural Shires by respondents' characteristics. We found different perceptions of access to healthcare across the four rural Shires, three of which are geographically close. These findings suggest perceived access to health care differs across rural areas and are influenced, in part, by demographic characteristics.

Moira shire respondents had the lowest perceived access of the four Shires. Moira has smaller, more widely dispersed population centers, with smaller health facilities providing fewer after-hours services and currently no bulk-billing services. Getting an appointment that is suitable, waiting to get an appointment, distance to travel to the service and the overall time it takes to receive care were perceived as significant barriers for Moira residents. Moira (along with Central Goldfields) has lower numbers of GPs and hospital beds per capita than the Shires with larger populations (Shepparton and Wangaratta). Further, Moira residents suggested they were the least likely to pay to see the doctor if they were sick, which suggests affordability of services was an issue in line with lower average income (Goins et al. 2005).

Residents of Central Goldfields, a similarly less populated and geographically more rural shire, also reported poorer perceived access, with: getting an appointment that is suitable; waiting to get an appointment; distance to travel, the overall time it takes to receive care, and doctors and other health professionals are too busy, were significant barriers. These challenges may be associated with lower per capita numbers of medical practitioners and publicly funded acute hospital beds. Despite being the shire with the largest regional center, Shepparton respondents also reported several barriers and limitations to health care access. Shepparton respondents reported more barriers and limitations to health care access than residents of Wangaratta, also a populated regional center. The health services in Shepparton may be at capacity, given the size and diversity of the population, low socioeconomic status and health needs. Conversely, Wangaratta is generally considered to have a more comprehensive health service for its population size and a more centralized and homogenous population, perhaps increasing its capacity to meet the needs of its residents. Wangaratta may also be benefitting from a more stable resident population.

Several factors were identified in the multivariate perceived health access model in this paper. These factors included gender, where women had stronger concerns about access in the two more rural shires (van Loenen et al. 2015; Zhang, Tao, and Anderson 2003). This suggests that women in these rural Shires may have a greater interaction with health services or may take a greater health role than men within a family. Other studies have suggested that women may assume responsibility for

PERCEPTIONS OF HEALTH SERVICE ACCESS

139

health, being more aware of their health, recognizing poor health and seeking health care more frequently than men (Addis and Mahalik 2003; Puentes-Markides 1992; Townsend et al. 2014). There is also evidence that concepts of masculinity within Australian rural cultures may reduce health seeking behavior among men with suggestions that stoicism, capacity to endure pain, need to appear both physically and emotionally strong and beliefs that illness is a threat to masculine identity can influence patterns of access (Addis and Mahalik 2003; Townsend et al. 2014; van Loenen et al. 2015; Wang et al. 2013).

Working age respondents within these same two shires were less likely to agree that they had good health access, similar to findings in rural communities in the U.S. (Zhang et al. 2003). These findings may be associated with the needs of consumers or the acceptability that respective age groups may have with health services. Those who were aged less than 60 years were more likely to be in paid employment and this may also have an impact on how well they can access health services. Yet, other studies have shown that those aged between 16 and 60 were less likely to seek health care than those older than 60 years of age (Regan and Wong 2009; Wang et al. 2013; Zhang et al. 2003). Potentially, those who are older may be reluctant to criticize health services for fear of the loss of current services (Riden et al. 2012).

Another factor related to perceptions of health access was psychological distress, which suggests that those at risk of mental illness perceive less access to health services in Moira and Wangaratta shires. Poor access in Moira may potentially be explained by specific mental health needs of the residents and/or complexities due to limited availability of specialists, lack of health care provider choice and potential inability of health professionals to undertake mental health care due to heavy workloads (Response Ability 2008; Vines 2011).

While several underlying factors shape consumer attitudes to health access, what the study indicates is that no single consistent variable underpins perceived access to health care. This suggests that health access is highly complex and influenced by variations among rural people and across rural contexts. For example, while the model may be a good fit in Moira Shire, it is a poor fit for the more urban shires of Greater Shepparton and Wangaratta where other factors must contribute to perceived access to care. Again this highlights that perceptions of access differ between rural areas and may be attributable to differences in health services or expectations among individual respondents.

Although this study highlights variation between rural areas in southeast Australia, the study has some limitations. The response rate was 35% and the sample was skewed to older respondents with landline telephones. More men responded, probably due to telephone directories listing males more than females and envelopes containing the questionnaire were addressed to the person listed

from the telephone directory. Despite this, the data reflects the views of more than 1200 rural residents who were randomly selected.

The findings of the study may be applicable to other rural contexts and communities. For example, assumptions of homogeneity of rural consumers that arguably influence central health service planning do not take into account contextual influences and regional variability of demographic, geographic and economic factors. In this study, correlates of health access, including gender, age, income, employment, education and length of residence influenced respondent perceptions very differently between shires. Each shire differed in the relative size and diversity of their health services and differed widely in the per capita numbers of GPs, specialists and acute public hospital beds. Further, a greater population size and more health services did not result in a stronger perception of adequate access to health services, as expected. Perceptions of access to health services differed in each region when explored by respondents characteristics.

CONCLUSIONS

While each dimension of access (i.e., availability, accessibility, accommodation, affordability, acceptability, awareness and timeliness) can play a role in overall consumption of health care services, this study found that the heterogeneity of rural regions requires locally tailored, site-specific solutions to perceived access issues. Using a broad brush approach rural health policy and health service planning risks implementing modes of service provision that fail to address identified needs locally. Population demographics such as age, gender, culture, location, income, employment and the length of residence in the community must all be considered when planning health services. This study found heterogeneity in the influence of these demographic factors, suggesting that the *fit* between a particular and unique rural community and its health services may influence perceived access. This provides insight into the importance of site-specific health initiatives to promote equitable, quality health care outcomes. Attention to local community needs and perceptions must be at the core of efforts to achieve the optimal *fit* across the spectrum of health service planning and delivery.

AUTHOR BIOGRAPHIES

Daniel Terry PhD is a Research Fellow in Chronic Ill Health with the Department of Rural Health at The University of Melbourne. He has been involved with projects concerning health workforce, health care access, and chronic ill health.

Kaye Ervin is a research fellow for the University of Melbourne, Rural Health Academic Network. Her research interests include ageing and rural health.

Alan Crouch PhD is a population health professional with more than thirty years global experience. Before joining The University of Melbourne in 2013, he

worked in a range of roles and disciplines with a diverse group of organizations including the Australian Agency for International Development, the Pan American Health Organization, the United Nations Children's Fund, The World Bank, the World Health Organization, and the Government of Queensland. In these roles, Alan was responsible for the implementation of more than thirty major health projects in Africa, Asia, Australia, Eastern Europe, Latin America, the Caribbean and the Western Pacific.

Kristen Glenister PhD is a Research Fellow based in Wangaratta in regional Victoria. She has a background in science, and has undertaken research in a range of biomedical fields, from Rural Health to Blood Transfusion to Intensive Care. Her research interests include Chronic Ill Health, the Patient Journey and Access to Health Services in regional Australia.

Lisa Bourke PhD is a rural sociologist with a focus on the discipline of rural health in Australia as well as the social issues facing rural health consumers. She is currently Director of the University Department of Rural Health at The University of Melbourne. Email: bourke@unimelb.edu.au

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