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The importance of population differences: Influence of individual characteristics on the Australian public's preferences for emergency care

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ABSTRACT

A better understanding of the public's preferences and what factors influence them is required if they are to be used to drive decision-making in health. This is particularly the case for service areas undergoing continual reform such as emergency and primary care. Accordingly, this study sought to determine if attitudes, socio-demographic characteristics and healthcare experiences influence the public's intentions to access care and their preferences for hypothetical emergency care alternatives. A discrete choice experiment was used to elicit the preferences of Australian adults (n = 1529). Mixed logit regression analyses revealed the influence of a range of individual characteristics on preferences and service uptake choices across three different presenting scenarios. Age was associated with service uptake choices in all contexts, whilst the impact of other sociodemographics, health experience and attitudinal factors varied by context. The improvements in explanatory power observed from including these factors in the models highlight the need to further clarify their influence with larger populations and other presenting contexts, and to identify other determinants of preference heterogeneity. The results suggest social marketing programs undertaken as part of demand management efforts need to be better targeted if decision-makers are seeking to increase community acceptance of emerging service models and alternatives. Other implications for health policy, service planning and research, including for workforce planning and the possible introduction of a system of co-payments are discussed.

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1. Introduction

Provision of emergency care in Australia is currently, predominantly, a universal service responsibility of the government. Internationally, it is embedded within a culture of system reform focussed on reducing avoidable admissions and encouraging greater personal responsibility for health [1,2]. Health policy shifts have emphasised greater use of healthcare preferences to drive

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https://doi.org/10.1016/j.healthpol.2017.11.006 0168-8510/© 2017 Elsevier B.V. All rights reserved. decision-making about how scarce resources are best allocated e.g., [2–11]. Although the use of preferences is grounded in sound principles of decision-making and represents a strong commitment to consumer engagement, it may also unwittingly reinforce health disparities given the significant inequalities which exist within populations, cultural considerations, and evidence regarding differences in the use of services and how preferences can be shaped by knowledge, attitudes and beliefs [12].

The evidence suggests that the public's healthcare preferences are heterogeneous e.g., [2,6,9,13–19], demonstrating the need to identify and better understand the influencing and differential factors which underpin preference heterogeneity [2,20]. The existence of such heterogeneity is no less the case for emergency care [2]. Although the need to examine the public's preferences for

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emergency care alternatives has been identified [21-23] further research is needed to ascertain the role of individual characteristics in preference construction [2,14,18,23,24]. Furthermore, it is especially important to understand any variation in preferences for emergency care, as this may impact people's behaviour in seeking care, potentially driving both appropriate and inappropriate access. Accordingly, researchers have identified the need for greater consideration of contextual issues, attitudes and beliefs about responsibilities for health (e.g. health and social consciousness), socio-demographic factors and different health status and related experiences on healthcare preferences e.g., [2,18,23,24]. Many of these factors have been found to reflect those which influence emergency department presentations [22,25-28]. In response, this study aims to establish if and how attitudinal, sociodemographic and personal health related factors influence the public's intentions to access care and their preferences for emergency care alternatives as reflected in current and proposed health reforms, both in Australia and internationally [2]. The specific research questions to be addressed were:

- 1. Do socio-demographic characteristics, health related measures and attitudes towards responsibilities for health influence the public's intention to access emergency care; and
- 2. Do socio-demographic characteristics, health related measures and attitudes towards responsibilities for health influence preferences for the different characteristics of emergency care alternatives?

Ultimately, the research sought to better inform health policy, service planning and decision-making processes, including social marketing and workforce planning initiatives in emergency and primary care.

2. Methods

This study was undertaken as part of a larger project seeking to elicit the public's views on priority health issues, and in this instance, relating alternatives to emergency care [10,29]. A discrete choice experiment (DCE), supplemented with a questionnaire on demographic and attitudinal characteristics, was developed and administered online to a stratified sample of the general public. Participants from Queensland (n = 1073) and South Australia (n = 456) were recruited through an internet panel provider (Pure Profile). More than half of the participants (n = 909); 456 South Australians and 453 Queenslanders, were assigned to consider the main hypothetical scenario involving preferences for emergency care for the treatment of a possible concussion (S1).

The primary scenario (S1) used to elicit the public's preferences and consider the impact of jurisdictional differences based on state of residence was designed to represent a typical ED presentation involving injuries from an accident or fall. Respondents were told to imagine; "you have fallen from the top of a ladder and landed heavily. Although you may not have lost consciousness, you hit your head hard and are feeling dazed and nauseous. You are also experiencing pain in your right arm and shoulder and have some cuts and abrasions". Smaller samples of the general public (from Queensland) were assigned to two alternative scenarios to undertake further exploratory analyses to consider if and how the influence of individual characteristics varied in relation to a potentially less urgent or 'GP type' presentation involving themselves or a significant other. Accordingly, (S2) described a scenario involving rash/asthma-related issues (as outlined in Table 1) relating to concerns for the self (n=311) and, (S3) the same rash/asthma problems for their (hypothetical) daughter (n = 309). Before completing the DCE, participants were asked to rate the urgency of the presentation under consideration based on a brief description of Australasian triage categories. A breakdown of each sample against key characteristics is provided in Table 2.

2.1. Materials

2.1.1. Discrete choice experiment (DCE)

The DCE was developed in accordance with best practice guidelines (e.g. [30,5] with further information on the design of the DCE and the identification of attribute levels presented in [2]. The DCE presented a series of hypothetical choices between two service models defined by different levels of five key attributes namely, treating healthcare professional, treatment location, waiting time, out of pocket cost and service quality. The levels associated with each attribute are specified in Table 3.

Key issues affected the experimental design. These included the need to exclude an unfeasible combination whereby an emergency physician provides treatment at home, ensure near orthogonality, and provide a manageable number of choice sets for participants (e.g. [5]. A fractional factorial main effects D-efficient design with five attributes $(4\hat{2}, 3\hat{3})$ was used to generate unlabelled choice profiles for the DCE using NGENE software [31], version 1.1.1). Further precision was achieved by using known 'prior' values for the model parameters from the pilot study to re-run the experimental design for the DCE [30].

An *opt out* option was included for each choice set, whereby respondents could choose to delay accessing care for 24 h to see if their condition improved. This question increased the realism of the scenarios, as it is known that a percentage of the public choose not to wait to be seen in ED or choose not to seek ED treatment in the first instance [2,32]. For each block, one choice set was repeated as a consistency check, to provide an indication of data quality and individual responses to the repeat choice set were excluded from the preference models [33]. A sample choice profile as presented to participants is presented in Table 1.

2.1.2. Factors considered to explain preference heterogeneity

In recognition of the number and complexity of individual factors that may be involved, a large number of individual characteristics were measured in the study. These included a range of demographic and socioeconomic indicators, personal health history, use of healthcare services, health status measures and attitudinal measures relating to personal health and broader social responsibilities. These variables are hereafter described as attitudinal measures, sociodemographics and health related factors.

2.1.3. Attitudinal measures

Health consciousness: There are a paucity of available measures to ascertain attitudes towards one's personal health obligations. Researchers have generally relied on measures of certain health promotion behaviours or whether specific health messages can be recalled e.g., [34,35]. In this study we have used the Health Consciousness Scale (HCS; [36]), which has sound psychometric properties and has been used in previous studies (e.g. [37]).

Awareness of disadvantage: Much of the published research on awareness of social responsibilities and health has involved qualitative approaches emphasising social consciousness or awareness of social injustice in the context of nursing care [38,39]. In view of the paucity of available quantitative measures, a specific item was developed and included in the survey to measure awareness of the impact of social disadvantage. The item asked respondents to agree or disagree with the statement "I am very aware of social disadvantage and how it impacts the community." As a single item the measures was interpreted as awareness of the impact of disadvan-

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