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Using Time Trade-Off Methods to Assess Preferences Over Health Care Delivery Options: A Feasibility Study

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ABSTRACT

Objectives: Time trade-off (TTO) methods are often used for utility assessments of different health states to measure quality of life (QOL). They have not generally been used to assess social preferences with respect to options for health care delivery, although the need for quantifying these preferences is arguably just as important. Policy-makers are increasingly faced with decisions about how much to invest in, and how much to incentivize, particular modes of health care delivery, generally with little evidence about user preferences. **Methods:** This study draws on long-term care (LTC) delivery modes as an example. Focus groups were conducted to approach this issue both qualitatively and quantitatively. In a qualitative pilot study, two focus groups discussed issues of the LTC decision-making process and preferences among different LTC options. The TTO was then used to assess QOL for each LTC option, conditional on a specific health state,

and then quantified user's LTC preferences by differential QOL between the two options. **Results:** This study found that the TTO-elicited utilities and their differences are consistent with the LTC preferences revealed from focus group discussions. These preferences depend on levels of disability and education. **Conclusions:** The modified TTO technique seems a feasible method to quantify preferences over LTC delivery options. These methods may be applicable to various health care alternatives in which better evidence is needed to guide funding policy.

Keywords: focus group study, long-term care, preference, time trade-off method.

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Background

Allocation of resources across health care delivery modes is arguably as important as allocation of resources across diseases. For example, given a disease state such as advanced cancer, patients may experience significantly different quality of life (QOL) depending on whether the disease is treated at home, in a hospital, or in hospice [1]. Yet, the science of understanding and comparing the benefits of health care delivery modes is much less developed than that of specific disease states. This study aimed to explore the feasibility of using time trade-off (TTO) methods for utility elicitation in QOL to quantify user's preferences under different existing health care delivery modes, focused on long-term care (LTC), contingent on a specific health state.

This study was conducted in the context of LTC, a setting in which there is a clear need for better evidence on QOL to guide resource allocation. During the last two decades, the expansion of home- and community-based service (HCBS) alternatives to institutional care has been a priority for Medicaid, the US government's health insurance program for US citizens with low incomes and the largest source of funding for medical and health-related services for these individuals. Although most Medicaid LTC dollars still go toward institutional care, the national percentage of Medicaid spending on HCBS has more than doubled over the last two decades [2,3]. These policy shifts are based on qualitative and survey research finding that older adults generally prefer HCBS to nursing home care [4–9], but these preferences have not been

rigorously quantified. Effectiveness research in LTC has focused disproportionately on clinical outcomes that represent only a narrow range of the outcomes of interest and may or may not be correlated strongly with QOL or preferences.

Potential benefits of different health care options need to be translated into comparable units such as quality-adjusted life-years (QALYs) across studies, so that researchers can better gauge the effectiveness of different approaches and provide valid scientific evidence to policymakers using this metric [10]. This study seeks to lay the groundwork for developing a valid scientific methodology for quantifying preferences across LTC options and health conditions, and to provide useful information to policymakers. Specifically, this study tests whether standard TTO methods can feasibly be extended to quantifying patients' LTC preferences.

Methods

The novel approach of this study combines utility elicitation with focus group discussions to help interpret and shed light on the quantitative results from utility elicitation. The research design contains three main components: 1) A group discussion of thoughts and opinions about LTC delivery options; 2) Utility elicitation through individual completion of TTO elicitation by all group members; and 3) A group discussion about the TTO questions themselves. The intent of the initial discussion of LTC options was to gain a qualitative sense of when, whether, and under what

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conditions home-based care was preferred to institutional care if LTC needs arise. The intent of the utility elicitation was to derive incremental QOL estimates that could then be compared with the qualitative discussion to help assess the validity of the quantitative estimates. Finally, the discussion of the TTO questions was intended to shed light on whether respondents fully understood the TTO questions and whether they had difficulties understanding particular aspects of the questionnaire.

Focus Groups

Two focus groups were conducted in a large urban area in the Midwest. In recruiting for each of the two groups, this study focused on individuals “at short-term risk” of needing LTC, though not currently in LTC, which is the perspective likely to be most useful for policy. This approach is considered to balance bias due to adaptation with bias from (lack of) being informed about a health state [11]. Thus, to be considered “at short-term risk” for needing LTC and eligible for this study, potential participants had to report some level of having already thought about their own LTC—talking about it with friends and family, investigating or buying LTC insurance, looking into LTC arrangements, or actually making LTC plans. With a 1 to 5 scale measurement, where “1” equals “very little prior thought” and “5” indicates “significant prior thought,” the average levels of having given the topic prior thought for both groups are greater than 3.4, although high-educated participants generally earned higher scores. For simplicity for a preference-elicitation exercise, this study excluded those with substantial family experience with Alzheimer’s disease or other forms of dementia, choosing to focus on physical disability.

Furthermore, those participants meeting inclusion criteria were sorted into one lower education group (up to an associate’s degree, but no bachelor’s degree) and one higher education group (4-year college degree or higher). Education level is a marker of both information and wealth, and persons of similar education level are believed to feel more comfortable talking about options among others with roughly similar socioeconomic constraints [12,13].

During each focus group session, participants were asked about their LTC decision-making process; their opinions about home care and institutional care; and their preferences between the two, including what contingencies (e.g., health states) would potentially alter their preferences between the two.

Quantify Preference by Modified TTO Methods

Following the general discussion of the choice between nursing home care and home care, participants were guided through the TTO questions. Theoretically, QOL weights, which are anchored at 1 (full or “perfect” health) and 0 (dead), directly reflect patients’ preferences and likely shape patients’ choices between alternative treatments. In this study, the TTO methodology is the primary approach used based on both strong theoretical foundations and empirical evidence for TTO elicitation [14–16]. Using TTO to derive utilities over modes of health care delivery contingent upon health states, however, adds a layer of complexity that makes the feasibility of the method uncertain.

Preferences about LTC should depend on the level of severity of LTC need. Outside of cognitive impairment, functional impairment or disability is the typical feature signaling the need for LTC. Thus, in eliciting utilities over LTC options, participants were presented with three different health scenarios of functional impairment, adapted from Sims et al. [17], leading to disability and LTC need (Table 1) when eliciting utilities about their future LTC preferences.

QOL for each health state was assessed for two common LTC settings, nursing home and formal home care. This research focuses on these two because they are central to policy and

consume the largest portions of Medicaid LTC expenditures, the largest public payer of LTC [18]. In this study, “nursing home care” is defined as “long-term institutional care for those with functional impairments” and “home care” is defined as “in-home assistance with those impairments provided by a non-family caregiver.” To maximize comparability, respondents were asked to consider these settings assuming that both types of care would be of average quality, would entail similar out-of-pocket expenses, and that sufficient care from family and friends would not be available, as this is the scenario with the most salience for public policy regarding funding of institutional versus home care.

For the TTO questions, participants were asked to choose between either 1) living a longer life (a remaining life expectancy of 10 years) with disability state and having a certain type of LTC (either home care or nursing home) (QOL = Q) or 2) living a shorter life (t years < 10 years) without having the health condition (perfect health, QOL = 1) and not needing any LTC. Each participant answered the TTO questions across six clinical scenarios (two LTC settings by three health conditions). The length of the shorter time in perfect health was then varied to identify the length (t) at which the patient is indifferent between the two options. The person’s utility score was calculated by dividing the number of years corresponding to his or her choice by 10. Formally,

$$Q_{ij} \times 10 = 1 \times t$$

Therefore, $Q_{ij} = t/10$. Then, a user’s preferences are quantified as follows:

$$\Delta Q_j = Q_{1j} - Q_{2j}$$

where i indicates LTC options (formal home care when $i = 1$ or nursing home care when $i = 2$) and j denotes specific health conditions. Thus, the user’s LTC preferences under specific health conditions are measured in units of QOL, as the QOL differences between the two LTC options, and the values range between 0 and 1.

Results

Characterizing the Groups

The final sample comprised 10 participants in the low-education group and 8 participants in the high-education group. Because of location demographics, the low-education group was entirely African-American while the high-education group was balanced by white and black race. All participants were adults while 80% of them in both groups were older than 50 years. Low-education participants were more likely to have children nearby, live with others, or currently be married.

Qualitative Discussion About Home Care versus Institutional Care

Participants were asked to express their preferences for home-based or institutionally based LTC if they suddenly needed this immediately. The overall preferences among participants as expressed in the free-flowing discussion were primarily in favor of home-based care: 90% less educated and 78% more educated participants prefer to receive home care services, provided by either relatives or professionals. This preference is generally because many participants believed that home care could provide a higher quality of LTC as well as improve autonomy and independence. However, preferences were clearly state dependent. Many participants expressed strong preferences for home care at lower levels of disability, but switched to preferring institutional care once the need for help became greater.

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