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Using qualitative methods to understand the determinants of patients' willingness to pay for cataract surgery: A study in Tanzania

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Abstract

Cataract is the leading cause of avoidable blindness in Africa. There are various documented barriers to the uptake of cataract surgery, cost being one of them. There is, however, little evidence regarding patients' willingness to pay (WTP) for cataract surgery in Africa and the best way to measure it. We conducted a grounded theory study in order to understand better cataract patients' WTP for surgery in Tanzania. A total of 47 cataract patients from three regions of Tanzania were interviewed. The interviews were tape-recorded and transcribed verbatim. The coding process involved identifying emerging themes and categories and their interconnection. Our study reveals that the main factors behind patients' WTP for cataract surgery are (1) the level of perceived need for sight and cataract surgery; (2) the decision-making processes at the family level and (3) the characteristics of local eye care programs. Our study shows that WTP concerns not only the patients but also their relatives. For most patients and families, the amount of $20–$30 is deemed reasonable for a sight-restoring procedure. It does not appear realistic for eye care program managers to charge the real cost of cataract surgery at present (about US $70—in Kilimanjaro). However, eye care programs can influence WTP for cataract surgery by providing quality services and by offering adequate counseling about the procedure. The qualitative findings enriched the interpretation of a previously reported quantitative survey and yield implications for both researchers and decision-makers using or relying on WTP methodologies in developing countries.

Keywords: Tanzania; Willingness to pay; Cataract surgery; Eye care services

Background

In 2002, 37 million people were blind worldwide, around 48% of them due to untreated cataracts (WHO, 2004). Increasing the number of cataract surgeries in developing countries is a key target of organizations and programs aiming at reducing the burden of avoidable blindness, in particular the VISION 2020 initiative (Foster & Resnikoff, 2005). However, there are several barriers preventing cataract patients from undergoing surgery, including, but not restricted to, user fees (Muluken, Wondu, Friedland, & Courtright, 2004; Palmer, Mueller, Gilson, Mills, & Haines, 2004; Yorston, 2005). The broad issue of a population's willingness

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to pay (WTP) for health services is particularly important in cataract surgery because cataract is a universal and growing problem even though modern cataract surgery is highly successful and can be provided at a reasonably low cost. Some centers in Asia have demonstrated that cataract surgery services can be provided in a financially self-sustaining way to even the poorest (Lions Aravind Institute of Community Ophthalmology, 2001).

In Africa, the price of a cataract operation varies between and within countries and free services are sometimes available but not in a systematic and sustainable fashion and without always reaching the poorest of the poor (Lewallen et al., 2005). In Kilimanjaro region (Tanzania), we estimate that it costs around $70 USD to perform an extracapsular cataract extraction with intra ocular lens (ECCE/IOL) surgery (authors' data), although the regional hospital is charging patients only $15 USD. The decision to charge this amount in Kilimanjaro region, as in most of sub-Saharan Africa, was not based on solid empirical evidence related to what most people in the area are able and willing to pay for a sight-restoring surgery.

A scan of the literature on WTP for health care services in developing countries reveals a field of research with emerging theoretical and methodological debates. The theoretical issues are rooted in the fact that most published studies applying the concept of "willingness to pay" to health care services rely on the expected utility theory (Johannesson, 1996) or random utility theory (Bonu, Rani, & Bishai, 2003) to explain individual treatment behaviors. These studies are based on the preconception that people always act to maximize "utility" for themselves. For blind cataract patients, undergoing a sight-restoring surgery appears to be the most "rational" thing to do and one would expect to find a high WTP for such a minimal risk procedure. However, some health economists argue that a wide range of plausible social objectives that are inconsistent with the presuppositions of formal economic theory need to be more thoroughly explored when looking at individual decision-making. For example, people may be ready to make personal sacrifices to improve the life of others or, at the personal level, may simply adjust their health expectations down as they get older (Richardson & McKie, 2005; Sen, 1987). In Africa, anthropological studies have long shown that individual health decision-making and therapeutic itineraries are heavily influenced by culturally determined health beliefs that are sometimes incompatible with the principles of professional medicine (Foster, 1976; Helman, 2001). Traditional medicine and self-treatment strategies are commonly used for treating a wide range of health problems (Geissler et al., 2000), including eye illnesses (Courtright, 1995). The concept of the therapy management group has been used to explain medical pluralism in Africa and health care seeking behaviors (Janzen, 1978, 1987). For example, anthropologists have focused on how the social dynamics of households influence therapy management but Nichter (2002) notes that the "perception that household members are largely altruistic, that they pool their income and function as a homogenous unit having common goals, has been brought into question" (p. 82). In Tanzania, Muela, Mushi, and Ribera (2000) have shown that the activation of social networks for financial support actually depends on the perceived etiology of certain illnesses. Financial support for "out-of-order illnesses" may involve the extended family and the use of expensive traditional therapies. For "normal illnesses", patients may be willing to pay for biomedical services but they receive less financial support from a smaller circle of people to do so.

The measurement of costs and benefits is thus complex and this inherent complexity of health care WTP partly explains why a diverse range of methods and techniques are currently used by researchers. A review of 48 contingent valuation method (CVM) studies published between 1984 and 1996 revealed that 52% of studies were administered by mail, 38% through in-person interviews, 8% by phone and that value elicitation techniques included open-ended questions (38%), payment cards (19%), discrete choice questions (26%) or bidding games (29%). (Diener, O'Brien, & Gafni, 1998) The use of qualitative methods is increasing as a way to either support the design of a quantitative WTP survey or to facilitate and/or validate the interpretation of survey results. An illustration of the latter scenario is provided by Smith (2007) in his qualitative study that suggests that higher WTP values have greater stability and reliability because they are associated with worse health states that require more thought and are "somehow more vivid for people" (Smith, 2007, p. 214). A recent study conducted in Nepal exemplifies the former scenario. The researchers used focus group discussions with local community members in order to obtain the most appropriate description of the good to be valued and the means by which payment could be elicited (Borghi,

Shrestam, Deepa, & Jan, 2007). This study alludes to some extent to the concept of "community values" and the need for socio-culturally contextualized individual decision-making processes. Donaldson (2001) argues that values derived from members of the community may be more relevant than values derived from patients when the motivation for the study is to aid decision-making for program development, implementation and improvement. These different studies that used a qualitative research perspective ultimately suggest that broader units of analysis may need to be included in WTP analyses, as well as considering elements that go "beyond health" (Donaldson, 2001, p. 182). Using a qualitative approach in combination with a WTP survey may provide one way to ensure a greater synergy between theories and methods. In this regard, Johannesson (1996) notes that classic approaches to determine the "willingness to pay" of individuals for health services are based on the assumption that the expected utility theory holds, "even though it has been noted that individual decisions often violate the theory" (Johannesson, 1996, pp. 310–311). The behaviors that violate theories and traditional econometric models thus need to be better documented and understood.

In an effort to capture the richness and nuance of heath care WTP, we report, in this paper, on a qualitative study whose objectives were (1) to identify if and how much Tanzanian cataract patients are willing to pay for cataract surgery and (2) to understand better the underlying decision-making process at the household and family levels. We will discuss the implications of our findings for WTP researchers as well as for the decision-makers who are using WTP studies to inform policies and programs.

Methods

Given the theoretical and methodological ambiguities characterizing health care WTP studies (Cookson, 2003), we framed our research strategy within the grounded theory approach (Strauss & Corbin, 1998) in order to provide a fresh perspective on these issues. The general goal of grounded theory research is to construct theories in order to understand complex and multidimensional phenomena (Creswell, 2003; Glaser & Strauss, 1967).

This research complemented a cross-sectional study that used quantitative data (Lewallen et al., 2006) to determine patients' WTP for cataract surgery in two regions in Tanzania.

Settings, respondents and data collection

We interviewed 47 patients in three regions of Tanzania: 18 in Kilimanjaro region, 13 in Dodoma region and 16 in Iringa region. We purposefully selected these regions according to a maximum variation sampling strategy (Patton, 2002) because the price for surgery is different in each one. Patients in Kilimanjaro region pay $15 USD for surgery (all inclusive—transport, food, bed and drugs at discharge), while patients pay $36 USD in Dodoma region excluding the cost of transportation. In Iringa region, the surgery is advertised to be free but patients must pay between $5 and $20 USD for a different mix of expenses (bed, drugs, etc.) that varies from one hospital to another.

In each of the three regions, we purposefully selected cataract patients with contrasting characteristics (see Table 1). We were interested in making qualitative comparisons between (1) men and women; (2) patients who paid for the surgery; (3) patients who were operated free of charge and (4) cataract patients who had not had surgery. The data were collected through semi-structured interviews. The interviews lasted 60 min on average. We interviewed 25 women and 23 men. In total, 22 respondents paid for their surgery, 13 were operated for free and 12 respondents had not had surgery. We conducted seven more interviews than initially planned in order to reach data saturation. We considered having reached data saturation after no new viewpoints or perspectives were collected in the last 10 interviews despite having sought out negative cases. Most interviews were conducted inside the respondents' home—four respondents in Dodoma region were interviewed in a private room after a visit at the local hospital. Informal discussions with the respondent's relatives often occurred after the semi-structured interview.

The interview guide comprised three sections: (1) a detailed chronological history of the patient's experience with cataract including, when applicable, the diagnostic and treatment procedures initiated and/or completed and the amounts of money invested; (2) a detailed assessment of the respondent's and his/her close relatives' (household) financial situation over the last 12 months; (3) open-ended questions about the motivations behind accepting or refusing surgery and (4) open-ended questions about the

Table 1
Description of 47 respondents in three regions

Amount paid for surgery	Annual cash incomes of respondents' households in USD		
	Kilimanjaro ($n = 18$)	Dodoma ($n = 13$)	Iringa ($n = 16$)
Free	\$20 \$100 \$180 \$425	\$62 \$75 \$120	\$7 \$12 \$36 \$168 \$1470 Unknown
<10 USD	–	–	\$80 \$100 \$390
10–1999 USD	\$112 \$200 \$250 \$300 \$310 \$372 \$840 \$1410	–	\$65 \$840
20–2999 USD	–	–	\$800
⩾30 USD	\$700	\$25 \$90 \$838 \$958 \$1410	
Have not had surgery	\$6 \$190 \$190 \$150	\$16 \$64 \$120 \$150	\$4 \$29 \$134 \$255

decision-making processes at the household level. Ethical approval for the study was obtained from Tumaini University.

Data analysis

The interviews were tape-recorded in Kiswahili and transcribed verbatim in English. The informal conversations with the respondents' relatives were not recorded but the field notes were added into our database. The transcripts and field notes were coded and analyzed with the support of the software N6 (QSR, 2002). We followed the steps of grounded theory data analysis through different rounds of coding (Creswell, 1998; Holstein & Gubrium, 1994). The coding was performed solely by the lead investigator. A first round of open coding produced a list of initial analytical categories. Ideas and categories generated after performing line-by-line analysis were tested and further explored in subsequent interviews—thus keeping data analysis an iterative process—until saturation was reached. A phase of axial and selected coding then allowed us to explore how these categories are interconnected.

The coding process led to the creation of data matrices that were analyzed by all investigators. One matrix contained a non-repetitive list of all statements made by the 47 respondents. Other matrices were designed to facilitate qualitative comparisons between the different categories of respondents according to their place of residence (Dodoma, Iringa, Kilimanjaro). Each idea/statement was supported by quotes extracted from one or several transcripts. A series of quotes were highlighted because they either (1) succinctly summarized a viewpoint expressed by several respondents (introduced by "many", "most" or "some" respondents in the paper) or (2) were unique and were thus taken as expressing a part of reality. Five different versions of the conceptual framework were drafted with Microsoft Visio at different stages of the analytical process before a consensus was reached on the final figure (Fig. 1).

Results

Data analysis reveals that personal income is just one of the several factors influencing the willingness of cataract patients to pay for surgery. The other main factors are (1) the level of perceived need for sight and cataract surgery; (2) the decision-making processes at the household level and (3) the characteristics of local eye care programs.

Perceived need for sight and cataract surgery

The primary factor influencing WTP for cataract surgery is the perceived need for sight. The respondents expressed a need for better sight by visiting an eye care provider at least once. However, the level of perceived need for cataract surgery must be seen as a continuum. It is higher for individuals with bilateral cataract, especially for those who are still physically capable of performing agricultural activities. Whether they are "rich" or "poor" by local standards, those patients hoping to resume farming activities after surgery were less likely to place a ceiling on how much they would be willing to pay. They said that "one must do what it takes"

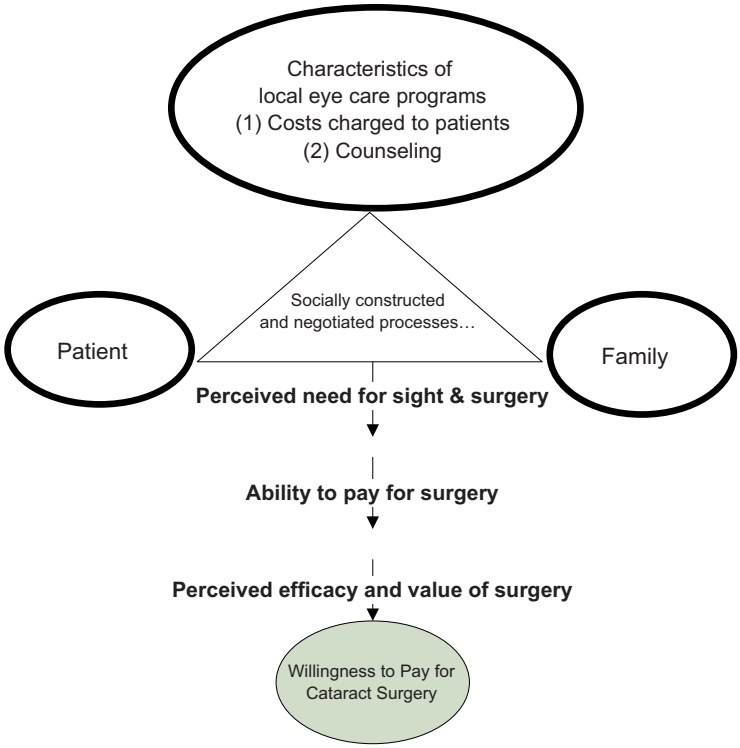

Fig. 1. The determinants of patients' willingness to pay for surgery.

to come up with whatever amount of money is required. We found contrasting stories between the old and very old patients (over 75) regarding their willingness to mobilize resources and pay for cataract surgery. The very old respondents were more likely to report coping well with diminished visual acuity:

> Yes, I stayed at home with cataract (for 11 years) because the eyes didn't have much pain and I could "see" someone and we could talk well … (Dodoma-8: Man: 81 years old)

> The eyes are someone's heart … So wealth is nothing to the eyes. Eyes are not something to play with … I resumed farming the moment I got cured. (Kilimanjaro-14: Man-62 years old)

Having one "good eye" was perceived to be sufficient by many of the respondents. We found that men were more likely than women to adopt a "sick role" and to take an active role in mobilizing resources. Women were more likely to try to carry on with their routines through "adversity" instead of emphasizing to their relatives the need for surgery. One of the respondents explained that blindness does not stop her from cooking:

> When I lit a fire for cooking I do recognize it by its heat … I hear the sound when water starts boiling. Then I put flour and the food gets ready. I put the food on the plate and family members serve themselves. (Dodoma-6: Woman: over 75 years old)

The WTP for cataract surgery is also partly linked to its perceived efficacy. Surgery is not always perceived to be the only "cure" for cataract. Some patients first try traditional medicine, tablets, or try out eye drops or glasses before seriously considering paying any amount of money for cataract surgery:

> I do not think that I have cataract. People who have cataract say that their eyes do burn a lot. I do not find my position to be so … I can get cured through traditional medicine. (Dodoma-7)

> Yes, I think that tablets can treat cataract. (Iringa-6)

Once blind, patients are less likely to be in a position themselves to pay for the operation. However, their perceived need for cataract surgery (and WTP for it) dramatically increases at that point and fear tends to disappear:

> I tried eye medicine and it didn't work … I was not afraid (of surgery) because I needed to see. (Iringa-7)

For others, however, the fear of pain or the fear of complications during or after surgery is so strong that blindness and death appear preferable. They are simply not willing to come for cataract surgery, even free of charge:

> I would rather stay blind; I better die than going for the operation. (Kilimanjaro-1)

In summary, the level of perceived need for sight precedes the phenomenon of WTP for cataract surgery. The age of the patient, his/her expectations of productivity and quality of life and the perceived visual acuity needed to meet them are among the factors that are shaping his/her health seeking behaviors. Patients who perceive that they could greatly benefit from cataract surgery tend to remain vague about how much they would be willing to pay for cataract surgery—"even up to $100" was a common answer. Older patients with unilateral cataract were more likely to refuse to pay for surgery. In most cases, as we will see below, it essentially meant that they were not willing to negotiate financial support with family members or go in debt. It is also interesting to point out that among respondents willing to pay "something", no one reported a WTP below 10,000 Tsh (approximately 10 USD).

Income, social support and willingness to pay

Only four out of the 35 respondents who already had surgery had personal funds to pay for the direct and/or indirect costs (e.g., transport, food on the ward, etc.) of cataract surgery. The other 31 respondents reported having received financial support from close relatives. The respondent who paid the most for surgery (approximately $120 in direct and indirect costs for bilateral cataract) received financial support from seven different relatives. Few of the 47 respondents had a personal income in cash greater than $50 USD per year and all respondents mentioned that in the scenario of a future cataract operation they would require financial assistance from their relatives. The issue of "willingness of pay", in our sample, concerns several persons apart from the patient himself. From this perspective, the question of how much an elderly patient is willing to pay for cataract surgery appears inextricably linked to decision-making processes at the family level.

As an illustration, most respondents feel that it would be "reasonable" to pay between $30 and $50 for a cataract surgery. However, this does not mean they are all able to pay this amount:

> I want to see … so I would agree to pay $50 but if I ask around my family I could probably only find $10 and if I have to pay myself I could only contribute $1. (Kilimanjaro-10)

The decision-making processes involved in the mobilization of the resources necessary to go for cataract surgery may take different forms depending on the characteristics of the patient (e.g., gender, age, personality) and the family dynamic. Elderly cataract patients usually expect greater financial support from their adult son(s), since daughters often have little or no personal income or assets (like land):

> These clothes we are wearing have come from Tabora from our daughters. They are helping us stealthily as their husband do not like them helping us … We can't ask them to pay for surgery. (Dodoma-4)

The amount of money one can legitimately request from family members for medical treatments is limited by various factors such as the income of each family member in kind and in cash, the number of children going to school, the number of people in the family with health problems and the nature of their illness. Since having cataract is not painful, other medical conditions are often given a higher priority:

> One of my children who got some money came home and wanted to send me to Mvumi. Unfortunately, he became seriously sick … We sent him to Mvumi hospital for treatment. Therefore, the sum which was to be spent for my treatment was accordingly utilized for my son's treatment. (Dodoma-6)

The ability and willingness of family members to pay is also affected by the fact that their income is seasonal and can vary enormously from one year to another. Younger adults have competing needs (house, clothes, school fees, etc.) and those relying exclusively on agriculture must make decisions to meet the most "expensive" or "urgent" ones in the 4–6 weeks following the sale of their crops:

> Every child I asked says he has not got any money. They tell me wait, to let them plant ground nuts and other crops. When they harvest the crop and sell it they will get money. Maybe next year they will send me for operation. (Dodoma-6)

> When my (son) finishes building his house he will start farming and when he gets money from the sale of his crops then only can I go for treatment. (Iringa-3)

For many elderly cataract patients, going for surgery appears to be a matter of getting the proper alignment of several factors. Indeed, a less than average rainy season or multiple medical care needs in the family can delay the decision-making process by months or years even for the patients with a high perceived need for sight and surgery.

In addition, many patients are ready to place other family members' needs ahead of their own. We asked the respondents if, after receiving an unforeseen amount of money, they would go for cataract surgery or help a son/daughter requesting financial help to pay the school fees of his/her children. Out of the 40 respondents who answered this question, 62.5% said they would go for treatment first. Women were more likely than men to use the available money for surgery first (70% of women compared to 55% among men). However, only some of the men rationalized their decision by saying it would be a sound financial decision for the future:

> Because going to school is an important thing, I would give him the money to pay for his school fees, because I believe that if I will have more time to live, he would become rich in the future and help me. (Dodoma-8)

In general, the WTP for cataract surgery expressed by the respondents appears to be tied with the highest perceived amount of financial support elderly patients can expect and ask from their children and relatives in case of medical health care needs. The consensus among respondents is that asking between \$10 and \$30 USD would not be considered "abusive" according to community norms and standards. However, the actual financial support given to elderly patients does vary according to the household income of those involved in the decision-making processes. From the in-depth interviews carried out in the three regions, we found that cataract patients living in a household with an income over \$200–\$250 USD in cash per year do not consider cost (between \$15 and \$38 USD) to be a major barrier. For households with an annual income in cash between \$100 and \$200 USD, paying for cataract surgery requires more planning and sacrifices and patients need to be proactive in requesting and mobilizing the financial resources. Below \$100 USD per year, it is a clear challenge for household members to contribute any money for the cataract surgery of an elderly relative. The level of income does not tell the whole story either. Community members use the presence of animals (chickens, goats and cows) and the size of the family land as markers of the financial status of an individual/household. Since most people do not have any savings in cash, land lots and animals are the only safety nets in case of emergencies. However, cataract does not qualify as an "emergency" in rural settings. When land lots and animals are sold with the purpose of paying for cataract surgery, it is more likely the action of patients themselves; elderly men are more likely than elderly women to still own these kinds of assets. Typically, the respondents who described themselves as being "poor" and "too poor to pay" for cataract surgery were part of a household getting less than \$100 in cash per year, had no cows, few or no goats and chickens, and owned less than 2 acres of land.

Characteristics of local eye care programs

In Kilimanjaro region, the consensus among the respondents, even among the poorest, is that \$15 USD is a price that most people can and are willing to pay for cataract surgery. In comparison, the poorest respondents interviewed in Dodoma region would be willing to pay \$37 USD but find this price to be too expensive. The price of \$15 or \$20 USD is perceived as being reasonable and affordable for the majority of patients. In Iringa region, most respondents were willing to pay \$15 USD or less.

The perceived ability to pay for cataract surgery is thus quite similar across the three regions, albeit somewhat lower in Iringa region. However, we do notice differences in the WTP for cataract surgery between Kilimanjaro, Dodoma and Iringa region as shown in Table 2.

The general trend is that patients reported a higher WTP for cataract surgery in Kilimanjaro and Dodoma regions compared to patients in Iringa region.

Table 2
Willingness to pay among respondents by region

WTP	Kilimanjaro ($n = 18$)	Dodoma ($n = 13$)	Iringa ($n = 16$)	Total
\$0–15	$n = 4$ (22%)	$n = 2$ (15%)	$n = 9$ (56%)	$n = 15$ (32%)
<\$15–\$30	$n = 8$ (44%)	$n = 2$ (15%)	$n = 3$ (19%)	$n = 13$ (28%)
<\$30–45	$n = 1$ (6%)	$n = 3$ (23%)	$n = 2$ (13%)	$n = 6$ (13%)
<\$45–60	$n = 1$ (6%)	$n = 3$ (23%)	$n = 1$ (6%)	$n = 5$ (11%)
>\$60	$n = 4$ (22%)	$n = 3$ (23%)	$n = 1$ (6%)	$n = 8$ (17%)
Total	$n = 18$ (100%)	$n = 13$ (100%)	$n = 16$ (100%)	$n = 47$ (100%)

One reason might be that the costs associated with cataract surgery are more consistent and homogeneous in Kilimanjaro and Dodoma regions compared to Iringa region. Several cataract patients in Iringa region did not know the price of a cataract surgery. The vagueness of the program characteristics can be illustrated by the fact that the richest respondent interviewed in this study (making \$1, 470 in cash per year) was operated free of charge in Iringa with no indirect charges while poorer patients had to contribute financially. In Kilimanjaro and Dodoma regions, patients have a greater level of knowledge about the eye care programs in place. The "desirability" of the surgery and the hospital experience as a whole is enhanced by counseling in Kilimanjaro region, where patients are told that the real cost of cataract surgery is much higher than \$15.

An emerging framework linking multiple levels of analysis

Our findings show that the decision to go for surgery is a social phenomenon sometimes unfolding over a long period of time. We understand WTP for cataract surgery to have three interrelated dimensions, as shown in Fig. 1.

First, patients' perceived need for sight and for surgery can be influenced by family and community members as well as by contacts with eye care professionals. Once this need is clearly expressed, a negotiation takes place at the family level about the mobilization of financial resources to pay for surgery. At this point, the decision-making process can go forward or be derailed by the perceived efficacy and the perceived cost and value of the surgery. In other words, there is, to some extent, a process of going back and forth with the decision to go or not for surgery. For some respondents and their relatives this meant looking for the "negative" cases (those with a poor visual outcome after surgery). In most cases, not knowing exactly how much money will be required in total for the surgery created a source of stress great enough to suspend the decision to go for surgery. The pricing schemes of local eye care programs and whether or not counseling is used exert an influence on both the final decision about the surgery and the amount of money patients and their relatives are willing to pay for it.

Discussion

In this study, we developed a conceptual framework based on empirical evidence in order to *explain* WTP for cataract surgery in Tanzania. The qualitative findings enriched the interpretation of a WTP survey and yield implications for both researchers and decision-makers.

With the WTP survey using a short interview form, the average expressed WTP was 2547 Tsh (S.D. 4534) or approximately 2.30 USD. (Lewallen et al., 2006). While this qualitative study uncovered similar differences in WTP between regions (higher in Kilimanjaro region and lower in Iringa region) as the ones identified with the quantitative tool, contrasting findings about individual WTP emerged. No respondent expressed a very low WTP (between 1 and 10 USD) for cataract surgery during the semi-structured interviews, although some respondents reported being unwilling to pay anything at all. One possible explanation is that the short interview technique did not allow for respondents to give a nuanced answer about their true WTP for cataract surgery. Their answers might have reflected more their individual ability to pay. During the semi-structured interviews, a minimum of 45 min was needed in order to cover the different topics related to individual and collective decision making processes. This qualitative approach was

key to the process of understanding better how older Tanzanians really "value" cataract surgery. Those unwilling to pay anything often justified their decision by the fact that they do not want to be perceived as a "burden" by their children. These findings suggest that cataract patients themselves may be inclined to prioritize the needs (related to health or not) of younger family members ahead of their own. In other words, some elderly cataract patients accept restrictions in their functioning—what a person is or does—in order to improve the capabilities of younger family members (Johannesson, 1996).

Among the respondents willing to place a monetary value on cataract surgery, the interview process revealed that WTP for surgery actually meant how much financial support they felt comfortable asking from their relatives. In this study, for example, the figure of $20–$30 USD is perceived by most as the highest amount relatives would be willing to contribute for cataract surgery.

We also showed in a previous study that the decision to undergo cataract surgery concerns several people apart from the patient (Geneau, Lewallen, Bronsard, Paul, & Courtright, 2005). Other studies in Africa have also found an association between individual WTP for services and the number of people living in the household (Onwujekwe, Shue, Nwagbo, & Okonkwo, 2001).

In summary, WTP researchers working with the concept of "utility" to capture WTP for health services need to acknowledge that peoples' motivations and behaviors are the results of a complex interplay of individual and socio-cultural factors. This calls for considering broader units of analysis, documenting more thoroughly community values and incorporating these elements when designing a survey or while interpreting survey results. For example, the very definition of "blindness" is culturally specific; being "blind" is often defined in the communities at the level of hand motion and light perception vision and not necessarily according to the definitions used by the medical community. (Schemann, Leplege, Keita, & Resnikoff, 2002) In this study, the open-ended questions were followed by probes in order to elicit what is actually meant by "blindness" and "eyesight" in local communities.

Two sets of findings brought changes to how decision-makers understand WTP for cataract surgery in Tanzania. First, our findings showed that WTP for cataract surgery is affected by the reputation of local eye care programs and the price charged for cataract surgery. Another study conducted in Mali has also shown that improving the care processes can significantly increase patients' WTP for health services. (Mariko, 2003) A second important lesson learned is that WTP partly depends on how health care professions "connect" not only with the patients but also with their relatives (clarity, perceived efficacy, perceived availability and perceived fairness). These findings imply that eye care programs should be more consistent and should invest in counseling activities that involve patients and their relatives.

Finally, further research is needed, both quantitative and qualitative, in order to better capture the relationship between "ability" and "willingness to pay". In this study, WTP was often considered, especially among poorer patients, a mirror image of theirs or their relatives' ability to pay for cataract surgery. Another study done in Tanzania and using bidding games showed that people who were unable to pay for a service were also more likely to report being willing to pay little or nothing for that service, even with a hypothetical best case scenario in terms of quality of care and outcome (Bonu et al., 2003). Ability to pay is a determinant of WTP but the distinction between these two concepts becomes narrower or even nonexistent when applied to the poorest of the poor (Walraven, 1996). Future WTP studies in Africa could also consider using the household as the central unit of analysis instead of individual respondents.

Conclusion

Our study shows that the phenomenon of willingness to pay for cataract surgery in Tanzania concerns not only the elderly patients but also their relatives. From this perspective, individual willingness to pay for health services may have little significance in some age groups and cultures. The higher the price of cataract surgery, the larger is the number of people involved in the decision-making process at the family level. The WTP for cataract surgery often relates to how much money elderly patients feel comfortable requesting from their relatives. Our findings show that, for most patients and families, the amount of $20–$30 USD is deemed reasonable for a sight-restoring procedure. From the standpoint of empirical ethics, it does not appear realistic for eye care program managers to charge the real cost of cataract surgery at present

(around $70 USD). However, eye care programs can influence WTP for cataract surgery by providing quality services and by offering counseling regarding the surgery and all related steps and costs. WTP researchers in Africa should consider including qualitative approaches to enrich the interpretation of survey results.

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