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ORIGINAL ARTICLE

A socioeconomic survey of kidney vendors in Pakistan

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Summary

In recent years, Pakistan has emerged as one of the largest centres for commerce and tourism in renal transplantation. Kidney vendors belong to Punjab in eastern Pakistan, the agricultural heartland, where 34% people live below poverty line. We report results of a socioeconomic and health survey of 239 kidney vendors. The mean age was 33.6 ± 7.2 years (M:F 3.5:1). Mean nephrectomy period was 4.8 ± 2.3 years. Ninety per cent of the vendors were illiterate. Sixty-nine per cent were bonded labourers who were virtual slaves to landlords, labourers 12%, housewives 8.5% and unemployed 11%. Monthly income was $US15.4 ± 8.9 with 2–11 dependents per family. Majority (93%), vended for debt repayment with mean debt of $1311.4 ± 819. The mean agreed sale price was $1737 ± 262. However, they received $1377 ± 196 after deduction for hospital and travel expenses. Postvending 88% had no economic improvement in their lives and 98% reported deterioration in general health status. Future vending was encouraged by 35% to pay off debts and freedom from bondage. This study gives a snapshot of kidney vendors from Pakistan. These impoverished people, many in bondage, are examples of modern day slavery. They will remain exploited until law against bondage is implemented and new laws are introduced to ban commerce and transplant tourism in Pakistan.

Introduction

The estimated incidence of end-stage renal disease (ESRD) in Pakistan is about 100 per million population (pmp) [1]. Renal transplantation started in the region on a regular basis in 1980's from living-related donors [2]. However, the absence of a deceased donor programme and growing shortage of organs led to unrelated commercial transplants in private sector hospitals constituting 70% of all transplants [3]. Thus, in the last 10 years, unrelated commercial activity has surpassed by many folds the ethical living-related transplants [4,5]. Furthermore, in recent years, Pakistan has emerged as one of the largest host centres of transplant tourism. The backdrop to this activity which started in the 1990's, is first the changing scenario in the subcontinent, mainly on account of prohibition of kidney sale for foreigners in India [6], secondly, the absence of transplant law against commerce and finally, the presence of a well established living donor transplant programme in the country. The internet has provided an access to the world as several private transplant centres advertise kidney sales and transplant packages on the web [7,8]. Transplant tourism and commerce, which exceeds over 2000 transplants a year, has been highlighted by numerous reports in the local and international press [9,10]. Rich buyers come from the Middle East, India and Europe [11]. These reports identify kidney vendors coming from the province of Punjab, the agricultural heartland of the country in eastern Pakistan, an area which is over populated and with low socioeconomic development [9–11]. Several reports have identified the poor outcome of recipients of kidney transplants from our region [12,13]. However, the fate of the kidney vendors from Pakistan of these recipients remains unknown. Our institute has been in the forefront of living-related familial transplantation in Pakistan and provides free

follow-up services to both live-related transplant recipients and donors [5,14]. Our interest in kidney vendors began in the early 2000's when transplant recipients from private centres of such vended kidneys started presenting to our institute with complications and or for follow-up care. Although these recipients manage the expense of unrelated donor transplant mostly through donations, but are financially incapable for follow-up care and medicines. The unknown fate of the kidney vendors prompted us to undertake a survey of these vendors in Punjab on their socioeconomic parameters and general health status. This paper reports the findings of this survey where the kidney vendors were interviewed according to a preset questionnaire, to evaluate demographics, socioeconomic parameters, causes for vending and its consequences in terms of economics and health status.

Subjects and methods

Between February 22nd and 25th 2006, a cross sectional survey of kidney vendors was undertaken in District Sargodha, a province of Punjab in eastern Pakistan. The survey was conducted in collaboration with a crew of a local television company filming a documentary on kidney sale in Pakistan. The team from our institute comprised a female medical social worker, two physicians and a public relations officer. The survey was conducted in the towns of Bhalwal, Kot Momin and Bhera and nearby villages of Sultanpur, Buchan Kalan and Chak Methlan. In all, 239 vendors were interviewed after obtaining verbal informed consent either directly from the vendor or the head of the family. Males and females were interviewed separately and where possible, nephrectomy scar was observed for confirmation. The questionnaire focused on demographics, socioeconomic parameters, reasons for and logistics of vending, achievement of objectives of vending, prospects of future vending in the family and qualitative health status postvending. The general health status was accessed by a simplified qualitative scale keeping in mind the literacy status and life-style of the subjects. The vendors were asked to grade their health compared to prenephrectomy by selecting one of three choices: (i) health good/same as before; (ii) physical weakness; and (iii) health poor/feeling ill. No financial incentives were given to the vendors for taking part in the survey. All those whose nephrectomy period was <1 year were excluded from the study to remove bias of early nephrectomy complications. When there were more than one vendor in a family, only one vendor was interviewed.

Results

Our team accompanied crew members of the television company. Those vendors who came forward and fulfilled our selection criteria were interviewed and all 239 vendors consented to participate in the study.

Table 1. Demographics of kidney vendors (n = 239).

Characteristics		
Mean age (years)	33.6 ± 7.2	Range 19–56
M:F	3.5:1	
Years postnephrectomy	4.8 ± 2.3	Range 14 months–10 years
Education		
Illiterate	214	89.5%
Primary school	11	4.6%
Secondary school	11	4.6%
Matriculation	3	1.2%
Occupational status		
Bonded labour	157	66%
Farm workers	81	
Domestic servant	43	
House maids	33	
Labourer	29	12%
Housewives	20	8.5%
Others	6	2.5%
Unemployed	27	11%

Of the 239 vendors, 118 were from near Bhalwal, 78 from Kot Momin and 43 from Bhera and adjourning villages. Demographics of the vendors are given in Table 1. There were 186 males and 53 females. The mean age of the donors was 33.6 ± 7.2 years. Majority 125 (52%) of the vendors were in the age group 31–40 years followed by 70 (29%) in the age group 21–30 years. Postnephrectomy duration was between 1–3 years in 125 (52%), 3–5 years in 53 (22%) and in the remaining more than 5 years. Analysis of education showed that majority were illiterate while for females the illiteracy rate was 100%. Of the 239 vendors, 225 (94%) were married excepting 14 males.

Occupational analysis revealed that 157 (66%) of the vendors were in bonded labour working as farm workers, domestic servants and house maids. Of the 53 females, 20 were housewives and 33 were maids working for landlords. Labourers worked on daily wages on farms and in building construction. Six were working as drivers of tractors and rickshaw or were small shopkeepers. Those in employment were working since childhood with a mean duration of working period of 19.0 ± 6.2 years for bonded labour and 19.2 ± 7.3 years for labourers. All maids and male workers comprising both farm workers and domestic servants were employed by the landlords, where members of the family worked on account of bondage.

The economic statistics of vendors are given in Table 2. Of the 239 interviewed, 192 responded to the question on monthly income. The remaining were housewives with little income or were unemployed. Of the 192, 62% earned US$10–30 per month with a mean income of

Table 2. Economic status of vendors.

Monthly income in $US (*n* = 192)		
<10	61	32%
10–30	119	62%
30–50	10	5%
>50	2	1%
Dependents in family (*n* = 219)		
2–3	32	14.5%
4–5	86	39.4%
6–7	69	31.5%
8–11	32	14.5%
Reason for vending (*n* = 239)		
Debt repayment	172	72%
Debt repayment + business	12	5%
Business venture	12	5%
Debt repayment + marriage	17	7%
Dept repayment + house construction	10	4%
Dept repayment + illness in family	12	5%
Illness in family	4	2%
Total debt in $US (*n* = 176)		
<1000	32	18%
1000–2500	135	77%
2500–3000	4	2%
>3000	5	3%

Table 3. Economics and outcome of vending.

Economics (n = 179)		
Amount agreed in $US		
Up to 1500	48	27%
Up to 2000	117	65%
Up to 3000	14	8%
Amount received in $US		
Up to 1500	117	65%
Up to 2000	62	35%
Up to 3000	–	–
Expenditure of vending money (n = 239)		
Debt repayment	219	92%
Debt repayment + business	17	7%
Debt repayment + marriage	28	12%
Dept repayment + house construction	27	11%
Dept repayment + illness in family	7	3%
Business venture	20	8%
Health status postnephrectomy (n = 239)		
Good	3	1.2%
Weak	148	62%
Poor	88	36.8%

$15.4 ± 8.9 (range $2.45–57). Of the 12 earning more than $30 per month, four were drivers, two shopkeepers and six worked as labour or tube well operators and all of them were educated up to secondary level or matriculation. The question on number of dependents in family was responded by 219. Nonresponders were six females and 14 males. Females who were married but childless and males who were single working as labourers were in bondage. The mean number of dependents in the family were 5.5 ± 1.9 with a range of 2–11 dependents. Of the 239 vendors, majority 222 (93%) vended for debt repayment and 7% cited independent examples of illness in the family and to establish business (Table 2). Question on amount of debt was answered by 176 of vendors. Nonresponders did not know the actual amount they owed to the landlord as there was no documentation and most responded saying 'too much'. Of those who responded, 135 (77%) owed between $1000 and $2500. The mean debt was $1311.4 ± 819 with a range of $164–5737. Nearly a quarter, 45 (19%) were repaying the debt of their father, uncles and three of their grandfather.

To the question 'How they sold their kidneys', we found 88 (40%) were recruited by the staff of transplant centres, 57 (24%) motivated by family, 46 (19%) went directly to the transplant centres, 36 (15%) went through agents of hospitals and 12 (5%) said they were coerced by the landlords to sell to repay their debt. The mean agreed price in $US for sale of kidney was 1737 ± 262 with a range of $1146–2950. However, none of the vendors was paid the agreed price. The mean amount received was $1377 ± 196 with a range of $819–1803. The amount deducted was for expenses incurred for nephrectomy, hospital stay and travel to and from home (Table 3).

Of the 239 interviewed, 204 (85%) said there was no economic improvement in their lives, as they were either still in debt or were unable to achieve their objectives. Majority utilized the vending money for various reasons including debt repayment. House was constructed by 27, marriage expenses were paid by 28 while 37 spent their money to start a small business, 10 bought rickshaws and 27 setup shops. In all, 10 (4%) said they paid off their debt.

In response to questions on general health status, all vendors responded that their health was good before nephrectomy. Grading their postnephrectomy health, only three (1.2%) said their health was good as before. One-hundred and forty-eight (62%) said they felt physically weak and were unable to work long hours as they did before nephrectomy and 88 (36.8%) said their health was poor and felt ill. They found the work difficult often necessitating periods of lay off from work.

Of the 239 vendors, nephrectomy scar could not be observed in 5 (2%) and all were females. Two females were pregnant where their husband refused examination, three were interviewed in outdoor setting where privacy of examination was not possible.

Of the 239 vendors, 39 (16.3%) had family members who had already sold their kidneys. To the question, 'If they would encourage sale of kidney in the family?', 83 (35%) gave the answer in affirmative. Of the 83, 75 were from bonded labour group, two in labourer group, three

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in unemployed and three in housewives group. To a question 'If they knew their recipient?', 71 (29.7%) answered in affirmative, either they had met their recipient or knew who they were. Of the 71 recipients, 22 (31%) were locals and 69% were of foreign origin.

Discussion

Pakistan has a population of 155 million with an agriculture based economy where almost a third of the population lives below the poverty line on <$1 a day [15]. The region of survey, district Sargodha, has a high population density of 486 persons per square kilometre where 99% of the land is irrigated crop area. The percentage of land owner cultivator or land holders in Punjab is 20%, which means that majority of land is owned by a few rich landlords [16,17]. Therefore, majority of the vendors interviewed were in bonded labour to landlords. This modern day slavery is prevalent in many South Asian countries. It is an exploitative system, where generation of workers work long hours to repay debt, in many circumstances of their father or grand father [18]. Majority of the bonded labour in Pakistan are in the agricultural sector, although the practice is also seen in construction or kiln workers [19].

Many of the vendors being illiterate did not know the amount of money they had to pay back. With an average income of $15 a month when other essential needs appear they have to turn to landlords or money lenders for loans, which have to be paid back with interest.

The vulnerability and exploitation of the vendors are reflected by the fact that none received the promised amount of money. Expenses were hidden from them and all were short charged when deductions were made from the agreed sum to pay for travel, food and hospital stay. Although 93% included debt repayment as the reason for vending, their priorities changed on receipt of payment. This was mainly due to the fact that the amount received was insufficient to pay off the debt completely. Therefore, expenditure besides debt repayment was also directed towards other immediate needs of house building, marriage and business establishment with illness taking the lowest priority. Only 15% saw economic improvement in their lives specially in the labourer group where some established businesses.

As most of the vendors work long hours in hard labour, majority felt that nephrectomy had compromised their general health and therefore found work difficult as many do jobs that require lifting of heavy loads or walk long distances as part of their daily work schedule. Only three of the young vendors felt no change in their health status while the older ones considered their health to have deteriorated. Our study did not include assessment of their renal function or other parameters such as hypertension and diabetes. Some of these postnephrectomy complications are reported specially in older donors [14]. Furthermore, there may also be psychological reasons as reported by others [20,21].

There are a number of reports in the literature on the fate of kidney vendors [4,20,21]. Our findings are similar to some of the studies in terms of debt being the major reason for vending, poor health and failed objectives of vending. In a study from India, Goyal [20] cited that majority of the vendors were females whereas in our study they were males. Although the position of women in Pakistan is generally similar to that in India, in agricultural and rural settings males are the decision makers and they hold the responsibility of providing for the family. This explains the good number of housewives who prefer to stay at home in the background of abject poverty. Large family size and the number of dependents, frequent pregnancies may add to the responsibilities of females in the household. Male paternalism is also reflected by refusal of husbands to allow females to be examined for nephrectomy scars. Female reluctance to show scars in less than ideal settings for privacy has cultural connotation.

The other difference between our study and those of Goyal and Zargooshi on vendors [20,21] was the question of future vending. Both studies report one third subjects saying that they will not consider this option and look for other alternatives, e.g. family help and begging. In our study, a third of all the vendors, and nearly half in the bonded labour group said they would encourage sale of kidneys in the family. In studies of Goyal and Zargooshi the study populations were mainly city dwellers with a higher level of education, Goyal, mean education 2.7 years [20] and Zargooshi, literacy rate only 71% [21]. These vendors could have had other options of income and livelihood. However, in our study population where majority were illiterate and many in bonded labour, opportunities were far less and rules that apply to normal societies did not exist. Therefore, despite their bad experience, they still preferred to vend in desperation to pay off debts, and/or to save another son or daughter from bondage.

Pakistan, is unfortunately deeply entrenched in a feudal system where respite from poverty forces the kidney vendors to sell kidneys is not round the corner. However, the success of micro credit financing in many developing countries [22], as a viable option holds hope for alleviation of poverty of the poor. Activism of nongovernmental organizations (NGO) in the field of human rights and social uplift of the poor can play a positive role to extricate these desperate poor out of their predicaments. However, NGOs will have to face the resistance of landlords and kiln factory owners as their source of cheap labour is threatened.

Of the 2000 kidney transplants done in Pakistan, two-third are for foreigners, the majority coming from neighbouring Middle East and South Asia besides Europe and North America. This spiraling activity fuels the unrelated donor source and the brunt is borne by the poorest. Presently, a comprehensive legislation on transplantation is on the anvil. Unfortunately, private transplantologists with vested interests, have yet again attempted to deface the legislation to serve their purpose by providing clauses permitting unrelated commercial transplantation. The law needs to be revised to permit genetically related intra familial donors as the primary source of living donors. However, it is the deceased donor source in the legislation, which will help more than 50 000 patients of end-stage organ failure per year in Pakistan. Public awareness activities will have to be carried out on a priority basis to focus on the success and benefits of not only renal but also nonrenal transplants.

The World Health Organization (WHO) and The Transplantation Society are playing an important role in guiding the efforts towards legislation as well as public awareness programme in developing countries through Global Alliance for Transplantation [23]. These august bodies can influence neighbouring and regional countries where transplant activities are either nonexistent or very low to be of use to the community. Eventually, the critical mass effect of these world bodies as well as the developing countries can forge ahead with a meaningful awareness programme, which will ultimately propel transplant activity.

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Authorship

SAAN: study design, development of questionnaire, data acquisition and analysis, drafting of manuscript, critical review and final approval; BA: study design, data acquisition and analysis, drafting of manuscript and critical review; FM: study design, data acquisition and analysis, drafting of manuscript and critical review; MNZ: study design, development of questionnaire, data acquisition and analysis, drafting of manuscript and critical review; SAHR: study design, development of questionnaire, drafting of manuscript and revision and final approval.

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References

1. Rizvi SAH, Naqvi SAA, Hussain Z, *et al.* Renal transplantation in developing countries. *Kidney Int* 2003; **63**: S96.
2. Rizvi SAH, Naqvi SAA, Hussain Z, *et al.* Factors influencing graft survival in living related donor kidney transplantation at a single center. *Transplant Proc* 1998; **30**: 712.
3. Shah MH, Bokhari MZ, Bokhari MT, *et al.* Safety and efficacy of Basiliximab for the prevention of acute rejection in kidney transplant recipients. *Transplant Proc* 2003; **35**: 2737.
4. Chugh KS, Vivekanand J. Commerce in transplantation in third world countries. *Kidney Int* 1996; **49**: 1181.
5. Rizvi SAH, Naqvi SAA, Zafar MN. Renal transplantation in Pakistan. In: Cecka MJ, Terasaki PI, eds. *Clinical Transplants*. Los Angels: UCLA Immonogenetics Center, 2002: 200.
6. Kishore RR. Organ donation: consanguinity vs universality – an analysis of Indian law. *Transplant Proc* 1996; **28**: 3603.
7. Kidney Transplant Associates Pakistan. Available at: http://www.kidney.com.pk/packages.htm (accessed on July 10, 2007).
8. Surraya Azeem Kidney Centre. Available at: http://www.lahorekidney.com/TRANSPLANT.html (accessed on April 10, 2007).
9. *Pakistan Being Dubbed Cheap Kidney Bazaar*. Available at: http://www.dailytimes.com.pk/default.asp?page=2006%5C04%5C16%5Cstory_16-4-2006_pg7_6 (accessed on April 10, 2007).
10. *Pakistan's Lucrative Kidney Trade*. Available at: http://edition.cnn.com/2004/WORLD/asiapcf/08/04/pakistan.organ (accessed on April 10, 2007).
11. Dogra CS. Inner wares. *Outlook* Nov 28, 2005. Available at: http://www.outlookindia.com/full.asp?fodname=20051128&fname=Kidney&sid=1 (accessed on April 10, 2007).
12. Inston NG, Gill D, Al-Hakim A, Ready AR. Living paid organ transplantation results is unacceptably high recipient morbidity and mortality. *Transplant Proc* 2005; **37**: 560.
13. Sever MS, Ecder T, Aydin AE, *et al.* Living unrelated (paid) kidney transplantation in third-world countries: High risk of complications besides the ethical problem. *Nephrol Dial Transplant* 1994; **9**: 350.
14. Rizvi SAH, Naqvi SAA, Jawad F, *et al.* Living kidney donor follow-up in a dedicated clinic. *Transplantation* 2005; **79**: 1247.
15. Human Development Report. *Human and income poverty: Developing countries United Nations Development Programme*. 1 UN Plaza, New York, NY, USA 2005: p. 228.
16. Hussain S. *Pakistan Site Selection for Case Study. Global Environmental Change and Food System (GECAFS Workshop)* 2005. Available at: http://www.gecafs.org/meetings_gecafs/2005_03_14/GECAFS%20Pakistan%20Presentation.ppt (accessed on April 10, 2007).
17. *Pakistan Integrated Household Survey* 2003. Available at: http://www.statpak.gov.pk/depts/fbs/statistics/pihs2000–2001/pihs2001–02_1.pdf (accessed on April 10, 2007).

18. Stuteville V. *Twenty-First Century Slavery*. Available at: http://commonlanguageproject.net/articles/BL_Stuteville.htm (accessed on April 4, 2007).
19. Bakshi R. *Bonded Labour*. Available at: http://www.the-south-asian.com/Nov2002/bonded_labour.html (accessed on April 4, 2007).
20. Goyal M, Mehta RL, Schneiderman LJ, *et al.* Economic and health consequences of selling a kidney in India. *JAMA* 2002; **288**: 1589.
21. Zargooshi J. Quality of life of Iranian kidney ''donors''. *J Urol* 2001; **166**: 1790.
22. Grameen Bank. Available at: http://www.grameen-info.org (accessed on April 10, 2007).
23. Groth GC, Chapman JR. The global alliance for transplantation. *Transplantation* 2005; **79**: 994.