



Article

Emotional management and quality of life in mother living versus multi-organ donor renal transplant recipients

Journal of Health Psychology
1–8

© The Author(s) 2015

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/1359105315604378

hpq.sagepub.com

Rosaria Calia¹, Carlo Lai², Paola Aceto¹,
Giovanna Pascolo², Silvia Lai²,
Jacopo Romagnoli¹ and Franco Citterio¹

Abstract

The aim of this study was to evaluate psychological differences and quality of life between kidney recipients from living (mother) and multi-organ donor. Overall, 40 patients who had undergone both living (mother) and multi-organ kidney transplantation 3–6 months before were asked to complete four self-report instruments: Toronto Alexithymia Scale, Short Form Health Survey, Regulatory Emotional Self-efficacy, and Attachment Style Questionnaire. A greater difficulty in emotional, social, and mental health functioning was found in recipients receiving kidney from mother living donor. Moreover, in these patients, higher levels of avoidant attachment dimensions were associated with a worse quality of life.

Keywords

alexithymia, avoidant attachment dimensions, emotional management, living donor, quality of life, renal transplant

Introduction

Recent studies showed that donation from multi-organ or living donor is associated with different consequences on biological (Guimarães et al., 2015; Guirado et al., 2008), ethical (Delmonico et al., 2015; Panocchia et al., 2013), and psychological (Branco et al., 2013; Cabral et al., 2015) outcomes.

The transplant from living donor offers numerous advantages, such as the possibility to reduce the distressing transplantation waiting list time and to increase the biological matching (Ponticelli, 2003). Previous studies showed that transplant from multi-organ source reduced by

11 percent long-term survival rate, within 5-year follow-up, compared to transplant from living donor with human leukocyte antigen (HLA) compatibility (Lindahl et al., 2014; Opelz et al., 1999). Moreover, HLA matching decreased the

¹Catholic University of Sacred Heart, Italy

²Sapienza University of Rome, Italy

Corresponding author:

Paola Aceto, Department of Anaesthesiology and Intensive Care, Catholic University of Sacred Heart, Largo F. Vito, 1-00168 Rome, Italy.

Email: pa.aceto@gmail.com

risk of graft failure of about 40 percent (Foster et al., 2013; Legendre et al., 2014; Ponticelli, 2003; Takemoto et al., 2004). For these reasons, in the last years, living donor kidney transplantation has progressively grown up (Foster et al., 2013; Kikuchi et al., 2000; Legendre et al., 2014; Miura et al., 2001; Takemoto et al., 2004).

Despite living donor transplantation increases the chance of finding a great HLA match, it could be associated with a psychological impairment, due to the fact that almost always the graft comes from a person belonging to the patient's family (Fukunishi et al., 2003; Griva et al., 2002). This situation could have an impact on recipient's quality of life (QoL) because of the relationship with the donor is affected by recipient's relevant feelings of guilt or helplessness due to the physical consequences for the donor and to the inability reciprocate the donation (Hanson et al., 2015; Ummel and Achille, 2015; Ummel et al., 2011).

Studies on living donor renal transplant recipients showed contrasting results. Some studies emphasized the association between the living kidney donation, an higher survival rates (98% and 86% at 1 and 5 years vs 95% and 77% at 1 and 5 years) (Collins et al., 2009; Lindahl et al., 2014) and an improved QoL of the recipients (Álvarez-Rangel et al., 2015; Mokarram Hossain et al., 2014; Parsaei Mehr et al., 2011; Russcher et al., 2015) compared to multi-organ donation. On the other hand, a poorer QoL due to a relevant feeling of guilty toward the donor has been showed (Fukunishi et al., 2003; Griva et al., 2002). Multi-organ donor kidney recipients often refuse the possibility of receiving the organ from the potential available living donor because of their concern about the donor's health and for their expectation about negative relationship changes. On the contrary, living donor kidney recipients do not show those concerns (De Groot et al., 2012, 2013).

Fukunishi et al. proposed a possible psychopathological outcome defined "paradoxical psychiatric syndrome (PPS)" in recipients and donors after living transplantation. PPS refers to a psychopathological disease which occurs despite successful transplantation, absence of graft rejection, or other medical complications

(Fukunishi et al., 2003). Depression, somatization, and conversion are the symptoms reported for the proposed PPS (Fukunishi et al., 2003).

Aim of this study was to investigate QoL, attachment style dimensions, and emotional management in patients who underwent living (mother) and multi-organ donor transplantation. The hypothesis was that the patients who underwent transplant from a living (mother) donor may show a greater difficulty in managing emotions and a poorer QoL compared to multi-organ donor renal transplant recipients; and that, in patients who underwent transplant from a living (mother) donor, the lower levels of secure attachment may be associated with lower levels of QoL.

Materials and methods

Subjects

After local Ethical Committee approval, 40 consecutive patients (24 males and 16 females) who underwent living (mother) or multi-organ kidney transplantation were enrolled from 1 January 2013 to 30 April 2013, during a follow-up visit (3–6 months after transplant), at A. Gemelli Hospital in Rome. The inclusion criteria were as follows: to be recipients of kidney transplantation from living mother or multi-organ donor, time distance from the transplant at least 3 months and no more than 6 months, Italian nationality, age > 18 years, at least primary school, and absence of psychopathological diagnoses. All the patients who came at the follow-up visit in the hospital during the period between 3 and 6 months after kidney transplantation were identified as possible participants. Patients were recruited if all inclusion criteria were satisfied and they were then instructed on the study design. After informed consent, four self-report questionnaires were administered to the patients in a quiet room of the hospital.

Procedure

The Toronto Alexithymia Scale (TAS-20) is the most commonly used self-report measurement of alexithymia (Bagby et al., 1994; De Gucht

and Heiser, 2003). It is a 20-item self-report scale with three factors: F1 (difficulty in identifying feelings); F2 (difficulty in describing feelings); and F3 (externally oriented thinking) (Bagby et al., 1994). The internal consistency of TAS-20 scores was good: Cronbach's alpha of the total score was 0.88; of the F1 subscale was 0.86; of the F2 subscale was 0.80; and of the F3 subscale was 0.58 (Leising et al., 2009).

The Regulatory Emotional Self-efficacy (RESE) measures the ability to regulate positive (five items) and negative (nine items) emotions within a range from 1 (not well at all) to 5 (very well). The internal consistency was Cronbach's alpha=0.82 for positive and negative emotions (Caprara and Gerbino, 2001).

The 40 items Attachment Style Questionnaire (ASQ) measures the internal representations of the interpersonal distance, which come out when the subjects are requested to describe themselves. It consists of five quantitative dimensions related to the attachment styles (on a continuum secure vs insecure): confidence, need for approval, preoccupation with relationships, relationships as secondary, and discomfort with closeness. Confidence, need for approval, and preoccupation with relationships are associated with the anxious attachment style, whereas confidence, relationships as secondary, and discomfort with closeness with the avoidant attachment style. The 40 items are rated on a 6-point Likert-type scale (Feeney et al., 1994). A previous study (Fraleigh and Waller, 1998) suggested the use of the scores on dimensional scales rather than discrete categorizations. Internal consistency coefficients of the five dimensions in both clinical and nonclinical samples were acceptable ($0.64 < \text{Cronbach's alpha} < 0.74$) (Fossati et al., 2003).

The Short Form Health Survey (SF-36) contains 36 questions (with a score from 0 to 100) that assess eight aspects of QoL: physical functioning, role-physical functioning, bodily pain, general health, vitality, social functioning, role-emotional functioning, and mental health (Ware and Sherbourne, 1992).

The SF-36 is the most widely employed and has been used across a number of patient

populations (Apolone and Mosconi, 1998; Ware, 2000). A systematic review identified 13 studies reporting on short form (SF-36) scores in surgical patients (Parikh et al., 2010). Internal consistency coefficients of the scales in a normative sample were excellent ($0.77 < \text{Cronbach's alpha} < 0.93$) (Apolone and Mosconi, 1998; Mingardi et al., 1999).

Creatinine and blood urea nitrogen were also assessed at the time of the follow-up visit in all the patients.

Statistical analyses

Analyses of variance (ANOVA; Fisher's *F*) (Ercolani et al., 2002) were performed in order to verify the presence of significant differences between living and multi-organ renal transplant recipients on age, RESE, TAS-20, ASQ, SF-36, creatinine, and blood urea nitrogen.

Correlation analyses (Pearson's *r*) were performed between subscales of ASQ-40 and determinants of QoL in living donor renal transplant recipients.

Statistical analyses were performed using Statistica Version 8.0 software (StatSoft, Tulsa, OK, USA).

Results

Overall, 31 (19 males and 12 females) received a kidney transplant from a multi-organ donor and nine (five sons and four daughters) from a living donor (mothers) as reported in Figure 1. As shown in Table 1, ANOVA revealed that living renal transplant recipients, compared to multi-organ renal transplant recipients, were younger ($p=0.009$) and showed significantly higher levels of alexithymia ($p=0.004$), especially for difficulty in identifying feelings (F1) ($p=0.0008$) and for difficulty in describing feelings (F2) ($p=0.02$), as well as lower levels of social functioning ($p=0.04$), and mental health ($p=0.002$).

The alexithymia scores were significantly and inversely correlated with QoL aspects (role-physical functioning: $r=-0.32$; $p=0.044$, general health: $r=-0.41$; $p=0.009$, role-emotional

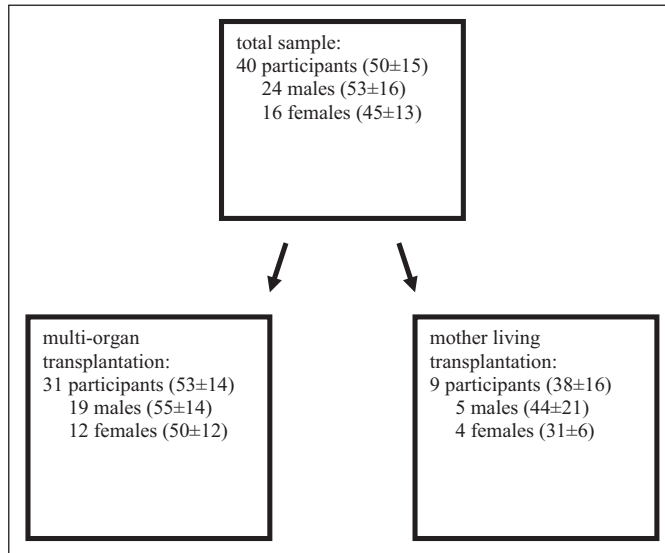


Figure 1. Demographic characteristics of the sample (mean \pm standard deviation of age).

functioning: $r=-0.44$; $p=0.004$, and mental health: $r=-0.41$; $p=0.008$).

Moreover, in the nine mother living renal transplant recipients ($n=9$), the relationships as secondary were significantly and inversely correlated with the vitality ($r=-0.67$; $p=0.047$) and mental health ($r=-0.67$; $p=0.048$); moreover, discomfort with closeness was significantly and inversely correlated with mental health ($r=-0.73$; $p=0.026$).

Discussion

The main finding of this study was that living donor renal transplant recipients showed a significantly greater impairment in emotional management and lower QoL compared to multi-organ donor renal transplant recipients at 3- to 6-month follow-up. Moreover, the emotional impairment was significantly and negatively correlated with QoL, showing the important role of the ability to manage emotions on post-transplantation outcome. In previous studies, we demonstrated that there are psychological risk factors for graft rejection in patients undergoing kidney (Calia et al., 2011a) and liver transplantation (Calia et al., 2011b) and that specific attachment style

dimensions, together with alexithymia, were able to predict non-compliance to immunosuppressant treatment, poor QoL, and reduced renal function after multi-organ kidney transplantation (Calia et al., 2015a).

In this study, living donor renal transplant recipients showed a greater difficulty in managing emotions compared to multi-organ donor renal transplant recipients. Coherently, living donor renal transplant recipients showed a worse QoL in terms of significantly higher mental and physical health compared to multi-organ donor renal transplant recipients. On the nine mother living donor renal transplant recipients, a more insecure attachment style (relationships as secondary and discomfort with closeness) was significantly associated with worse QoL (vitality and mental health). It was interesting that the two dimensions associated with the poorer QoL, relationships as secondary and discomfort with closeness, belong to avoidant attachment style and not to anxious attachment, showing that a more avoidant relationship with the mother can negatively affect the post-transplant outcome.

A possible explanation of our findings is that donating a kidney to a member of own family

Table 1. ANOVA between mother living and multi-organ renal transplant recipients on age, emotional management, attachment dimensions, alexithymia, quality of life, and biological parameters.

	Multi-organ donor renal transplant recipients (N:31)	Mother living donor renal transplant recipients (N:9)	F (1,38)	p value
Age	53.3 ± 13.6	37.5 ± 16.9	7.7	0.009
Emotional management				
Negative emotions	27.3 ± 5.5	25.1 ± 4.1	1.2	0.28
Positive emotions	28.5 ± 5.5	32.7 ± 2.9	1.3	0.26
Attachment style dimensions				
Confidence	31.0 ± 6.6	32.6 ± 6.8	0.0	0.83
Need for approval	25.8 ± 9.5	30.0 ± 8.8	0.6	0.43
Preoccupation with relationships	22.0 ± 8.1	29.1 ± 13.5	2.2	0.15
Relationships as secondary	17.5 ± 7.8	18.6 ± 7.0	0.0	0.92
Discomfort with closeness	31.0 ± 10.2	42.0 ± 11.0	3	0.09
Alexithymia				
Total TAS-20	46.4 ± 10.8	59.3 ± 14.5	9.2	0.004
Difficulty in identifying feelings F1	14.9 ± 6.1	23.3 ± 7.4	13.1	0.0008
Difficulty in describing feelings F2	13.0 ± 4.4	17.3 ± 5.5	6.4	0.02
Externally oriented thinking F3	19.1 ± 4.0	19.1 ± 5.3	0.0	0.99
Quality of life				
Physical functioning	71.7 ± 29.6	75 ± 20.4	0.4	0.53
Role-physical functioning	56.4 ± 43.3	28.6 ± 36.6	2	0.16
Bodily pain	68.3 ± 25.0	68.3 ± 27.6	0.3	0.59
General health	53.8 ± 20.6	49.1 ± 18.6	0.1	0.71
Vitality	57.7 ± 21.6	44.3 ± 27.4	1.8	0.19
Social functioning	75.7 ± 22.9	51.7 ± 25.4	4.5	0.04
Role-emotional functioning	67.6 ± 38	19.0 ± 37.8	4	0.05
Mental health	69.6 ± 17.9	41.7 ± 13.2	11	0.002
Biological parameters				
Creatinine	1.5 ± 0.6	1.7 ± 0.9	0.9	0.35
Blood urea nitrogen	36.9 ± 26.8	42.6 ± 35.2	0.1	0.81

ANOVA: analysis of variance; TAS-20: Toronto Alexithymia Scale.

can deeply affect the relationships inside the family with important consequences on the recipient's QoL due to the fact that donation could evoke ambivalent feelings of gratitude, guilt, or anger toward parents (Hanson et al., 2015; Ummel et al., 2011).

Based on these results, it seems important to plan a pre- and postoperative psychological support in order to improve the relationship between donor and recipient inside the family. The results highlight that the representation of the organ and the expectations associated with the mother living donor transplantation could affect the

outcome in terms of QoL. For this reason, mother living donor recipients need not only a psychological support focused on increasing compliance to treatment, as well as recipients of multi-organ donor (Calia et al., 2015b), but also require a more complex approach based on the family environment.

Limitations of this study are the small sample of mother living donor renal transplantation recipients. This was due to the limited number of living kidney donations in the hospital where the study was conducted. Despite this limitation, the findings of this study provide interesting insights

for further studies. As the relationship between living donor and recipient was only mother versus son/daughter and this could have affected the results, it seems also necessary in future studies to investigate other types of living donation relationship. Moreover, the psychological evaluation was performed only in the early post-transplantation period.

In conclusion, this study showed a significantly greater difficulty in emotional, social, and mental health functioning in recipients receiving kidney from mother living donor compared to multi-organ donor renal transplant recipients. Moreover, higher levels of avoidant attachment dimensions are significantly associated with worse QoL in patients receiving kidney from the mother living donor. It could be useful, in further studies, to test differences between the two groups at a later follow-up (1–2 years). Future research should be planned in order to investigate whether a preventive psychological intervention on the mother donor/son or daughter recipient could improve the long-term QoL of living donor renal transplant recipients.

Acknowledgements

Rosaria Calia and Carlo Lai equally contributed to this study.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

- Álvarez-Rangel LE, Cruz-Santiago J, Meza-Jiménez G, et al. (2015) Modification of health-related quality of life in kidney transplant recipients. *Revista Medica del Instituto Medico del Seguro Social* 53(Suppl. 1): S66–S73.
- Apolone G and Mosconi P (1998) The Italian SF-36 health survey: Translation, validation and norming. *Journal of Clinical Epidemiology* 51: 1025–1036.
- Bagby RM, Parker JD and Taylor GJ (1994) The twenty-item Toronto Alexithymia Scale: I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research* 38: 23–32.
- Branco F, Cavadas V, Rocha A, et al. (2013) Living versus cadaveric-donor renal transplant recipients: A comparison on sexual function. *Transplantation Proceedings* 45: 1066–1069.
- Cabral JF, Cavadas V, Silva Ramos M, et al. (2015) Female sexual function and depression after kidney transplantation: Comparison between deceased- and living-donor recipients. *Transplantation Proceedings* 47: 989–991.
- Calia R, Lai C, Aceto P, et al. (2011a) Preoperative psychological factors predicting graft rejection in patients undergoing kidney transplant: A pilot study. *Transplantation Proceedings* 43: 1006–1009.
- Calia R, Lai C, Aceto P, et al. (2011b) Psychological risk factors for graft rejection among liver transplant recipients. *Transplantation Proceedings* 43: 1123–1127.
- Calia R, Lai C, Aceto P, et al. (2015a) Attachment style predict compliance, quality of life and renal function in adult patients after kidney transplant: Preliminary results. *Renal Failure* 37: 678–680.
- Calia R, Lai C, Aceto P, et al. (2015b) Emotional self-efficacy and alexithymia may affect compliance, renal function and quality of life in kidney transplant recipients: Results from a preliminary cross-sectional study. *Physiology & Behaviour* 142: 152–154.
- Caprara GV and Gerbino M (2001) Affective perceived self-efficacy: The capacity to regulate negative affect and to express positive affect. In: Caprara GV (ed.) *Self-Efficacy Assessment*. Trento: Erickson Edition, pp. 35–50.
- Collins MG, Chang SH, Russ GR, et al. (2009) Outcomes of transplantation using kidneys from donors meeting expanded criteria in Australia and New Zealand, 1991 to 2005. *Transplantation* 87: 1201–1209.
- De Groot IB, Schipper K, van Dijk S, et al. (2012) Decision making around living and deceased donor kidney transplantation: A qualitative study exploring the importance of expected relationship changes. *BMC Nephrology* 13: 103.
- De Groot IB, Veen JI, van der Boog PJ, et al. (2013) Difference in quality of life, fatigue and societal participation between living and deceased donor kidney transplant recipients. *Clinical Transplantation* 27: E415–E423.

- De Gucht V and Heiser W (2003) Alexithymia and somatisation. *Journal of Psychosomatic Research* 54: 425–434.
- Delmonico FL, Martin D, Domínguez-Gil B, et al. (2015) Living and deceased organ donation should be financially neutral acts. *American Journal of Transplantation* 15: 1187–1191.
- Ercolani AP, Areni A and Leone L (2002) *Statistica per la psicologia: Volume II. Statistica inferenziale e analisi dei dati*. Bologna: Il Mulino.
- Feeney J, Noller P and Hanrahan M (1994) Assessing adult attachment. In: Sperling MB and Berman WH (eds) *Attachment in Adults: Clinical and Developmental Perspectives*. New York: Guilford Press, pp. 128–154.
- Fossati A, Feeney JA, Donati D, et al. (2003) On the dimensionality of the Attachment Style Questionnaire in Italian clinical and nonclinical participants. *Journal of Social and Personal Relationships* 20: 55–79.
- Foster BJ, Dahhou M, Zhang X, et al. (2013) Relative importance of HLA mismatch and donor age to graft survival in young kidney transplant recipients. *Transplantation* 96: 469–475.
- Fraley RC and Waller NG (1998) Adult attachment patterns: A test of the typological model. In: Simpson JA and Rholes WS (eds) *Attachment Theory and Close Relationships*. New York: Guilford Press, pp. 77–114.
- Fukunishi I, Kita Y, Sugawara Y, et al. (2003) Paradoxical psychiatric syndrome and DSM-IV psychiatric disorders in recipients after living donor transplantation. *Transplantation Proceedings* 35: 293–294.
- Griva K, Ziegelmann JP, Thompson D, et al. (2002) Quality of life and emotional responses in cadaver and living related renal transplant recipients. *Nephrology, Dialysis, Transplantation* 17: 2204–2211.
- Guimarães J, Araújo AM, Santos F, et al. (2015) Living-donor and deceased-donor renal transplantation: Differences in early outcome—a single-center experience. *Transplantation Proceedings* 47: 958–962.
- Guirado L, Vallespín EV, Clèries M, et al. (2008) Why living-donor renal transplant yields better outcomes than cadaver renal transplant? *Nefrologia* 28: 159–167.
- Hanson CS, Chadban SJ, Chapman JR, et al. (2015) The expectations and attitudes of patients with chronic kidney disease toward living kidney donor transplantation: A thematic synthesis of qualitative studies. *Transplantation* 99: 540–554.
- Kikuchi K, Narumi Y, Hama K, et al. (2000) Kidney transplantation from spousal donors. *Transplantation Proceedings* 32: 1817–1818.
- Legendre C, Canaud G and Martínez F (2014) Factors influencing long-term outcome after kidney transplantation. *Transplant International* 27: 19–27.
- Leising D, Grande T and Faber R (2009) The Toronto Alexithymia Scale (TAS-20): A measure of general psychological distress. *Journal of Research in Personality* 43: 707–710.
- Lindahl JP, Jenssen T and Hartmann A (2014) Long-term outcomes after organ transplantation in diabetic end-stage renal disease. *Diabetes Research and Clinical Practice* 105: 14–21.
- Mingardi G, Cornalba L, Cortinovia E, et al. (1999) Health-related quality of life in dialysis patients. A report from an Italian study using the SF-36 Health Survey. DIA-QOL Group. *Nephrology, Dialysis, Transplantation* 14: 1503–1510.
- Miura S, Okazaki H, Sato T, et al. (2001) Long-term results of spousal renal donor transplants with donor-specific blood transfusions. *Transplantation Proceedings* 33: 3417–3419.
- Mokarram Hossain R, Masud Iqbal M, Rafiqul Alam M, et al. (2014) Quality of life in renal transplant recipient and donor. *Transplantation Proceedings* 47: 1128–1130.
- Opelz G, Wujciak T, Döhler B, et al. (1999) HLA compatibility and organ transplant survival. Collaborative transplant study. *Reviews in Immunogenetics* 1: 334–342.
- Panocchia N, Bossola M, Silvestri P, et al. (2013) Ethical evaluation of risks related to living donor transplantation programs. *Transplantation Proceedings* 45: 2601–2603.
- Parikh ND, Ladner D, Abecassis M, et al. (2010) Quality of life for donors after living donor liver transplantation: A review of the literature. *Liver Transplantation* 16: 1352–1358.
- Parsaei Mehr Z, Hami M and Moshtagh Eshgh Z (2011) Anxiety and depression: A comparison between living and cadaveric renal transplant recipients. *International Journal of Organ Transplantation Medicine* 2: 178–183.
- Ponticelli G (2003) Altruistic living renal transplantation. *Journal of Nephrology* 16: S6–S9.
- Russcher M, Nagtegaal JE, Nurmohamed SA, et al. (2015) The effects of kidney transplantation on sleep, melatonin, circadian rhythm and quality

- of life in kidney transplant recipients and living donors. *Nephron* 129: 6–15.
- Takemoto S, Port FK, Claas FH, et al. (2004) HLA matching for kidney transplantation. *Human Immunology* 65: 1489–1505.
- Ummel D and Achille M (2015) Transplant trajectory and relational experience within living kidney dyads. *Qualitative Health Research*. Epub ahead of print 19 February. DOI: 10.1177/1049732315570128.
- Ummel D, Achille M and Mekkelholt J (2011) Donors and recipients of living kidney donation: A qualitative metasummary of their experiences. *Journal of Transplantation* 2011: 626501.
- Ware JE Jr (2000) SF-36 health survey update. *Spine* 25: 3130–3139.
- Ware JE Jr and Sherbourne CD (1992) The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. *Medical Care* 30: 473–483.