

Risk Behavior and Reciprocity of Organ Donation Attitudes in Young Men

D.C.M. Vetterli^{a,b}, S.A.G. Lava^{a,c}, S. Essig^{d,e,f}, G. Milosevic^g, G. Cajöri^h, D.E. Uehlingerⁱ, and M.B. Moor^{a,j,*}

^aMedical School, University of Bern, Bern, Switzerland; ^bDepartment of Pediatrics, Cantonal Hospital Aarau, Aarau, Switzerland; ^cUniversity Children's Hospital, Inselspital, Bern and University of Bern, Bern, Switzerland; ^dInstitute of Social and Preventive Medicine, University of Bern, Bern, Switzerland; ^eInstitute of Primary and Community Care, Lucerne, Switzerland; ^fSwiss Paraplegic Research, Nottwil, Switzerland; ^gDivision of Radiology, Cantonal Hospital Baden, Baden, Switzerland; ^hDepartment of Internal Medicine, Spital Einsiedeln, Einsiedeln, Switzerland; ⁱDepartment of Nephrology and Hypertension, University Hospital of Bern, Bern, Switzerland; and ^jDepartment of Pharmacology and Toxicology, University of Lausanne, Lausanne, Switzerland

ABSTRACT

Background. Lack of donor organs remains a major obstacle in organ transplantation. Our aim was to evaluate (1) the association between engaging in high-risk recreational activities and attitudes toward organ donation and (2) the degree of reciprocity between organ acceptance and donation willingness in young men.

Methods. A 17-item, close-ended survey was offered to male conscripts ages 18 to 26 years in all Swiss military conscription centers. Predictors of organ donation attitudes were assessed in bivariate analyses and multiple logistic regression. Reciprocity of the intentions to accept and to donate organs was assessed by means of donor card status.

Results. In 1559 responses analyzed, neither motorcycling nor practicing extreme sports reached significant association with donor card holder status. Family communication about organ donation, student, or academic profession and living in a Latin linguistic region were predictors of positive organ donation attitudes, whereas residence in a German-speaking region and practicing any religion predicted reluctance. Significantly more respondents were willing to accept than to donate organs, especially among those without family communication concerning organ donation.

Conclusions. For the first time, it was shown that high-risk recreational activities do not influence organ donation attitudes. Second, a considerable discrepancy in organ donation reciprocity was identified. We propose that increasing this reciprocity could eventually increase organ donation rates.

DESPITE the success story of solid-organ transplantation regarding survival, quality of life, cost-effectiveness [1,2], and a wide public acceptance [3–6], the number of available donor organs meets less than 10% of global needs [7]. Annual organ donation rates diverge widely from Spain (35.3 donations per million people, pmp), Belgium (29.2 pmp), France (26.0 pmp), the United States (25.8 pmp) to considerably lower rates for the United Kingdom (21.0 pmp), the Netherlands (15.9 pmp), and Germany (10.7 pmp). Switzerland (13.6 pmp) has one of the lowest organ donation rates in Europe, with 3% to 4% of patients on the waiting list dying each year [8,9]. Refusal by the next-of-kin is a main reason that organs are not donated under both presumed and

explicit consent systems [10–13]. However, the Israeli parliament passed a law that prioritizes transplantation candidates who had already been registered as organ donors themselves or had previously given their consent for organ retrieval in a deceased family member [14]. Preliminary results showed an increase in national organ donation rates [15].

*Address correspondence to Matthias B. Moor, MD, Department of Pharmacology and Toxicology, University of Lausanne, Rue du Bugnon 27, CH-1005 Lausanne, Switzerland. E-mail: matthias.moor@unil.ch

Although most people approve organ donation on theoretical discussion, donor card holder rates remain low throughout all age groups [5,16–18], including young people [19–21]. This is to some extent surprising, because younger age has been identified as a predictor of positive attitudes toward organ donation [22].

Unintentional injury is the leading cause of death among young adults (ages 18–24 years) in the United States. Young American men are 3 times more likely to die of an injury than are women, whereas motor vehicle accidents cause roughly 70% of young adults' unintentional fatal injury [23]. Likewise, Swiss men "of age" 18 to 24 years are at highest risk for fatal motor vehicle accidents [24].

In general, (young) men are more likely to engage in risky behavior than are women [23,25]. Although regular engagement in physical activity shows a trend toward higher donor card holder rates [17], it is unknown whether pursuing high-risk recreational activities such as motorcycling and extreme sports is associated with specific organ donation attitudes. People engaging in risky behaviors tend to have a realistic perception of the risks they are taking [26]. We therefore aimed to investigate whether motorcycling and practicing extreme sports are associated with positive organ donation attitudes as the result of the possibility of raised awareness for potentially fatal accidents. Furthermore, we aimed to evaluate the degree of reciprocity between organ acceptance and donation among a relevant sample of young Swiss men.

METHODS

Study Design

A written cross-sectional questionnaire and a corresponding information sheet were offered to all conscripts being evaluated at the 6 conscription centers of Switzerland. The study was approved by the Swiss Armed Forces and was exempt from full ethics committee review by the head of the local ethics committee. All responses remained anonymous and were untraceable by any identifiers.

Questionnaire Development

A specific questionnaire was developed, pilot-tested among 20 subjects, and checked for internal reliability by means of Cronbach's α , according to guidelines [27,28]. The survey and the information sheet were translated from German to French and Italian by native-speaker medical professionals and back to German by professional translators (forward-and-back method [29]). A power analysis that used available effect sizes [30] estimated a sample size of 70 participants for reciprocity testing.

Questionnaire

The questionnaire contained 17 close-ended items: (Q1) age, (Q2) sex, (Q3) ZIP-Code of hometown, (Q4) highest completed level of education (secondary school, vocational baccalaureate, academic baccalaureate, college of higher education, university), (Q5) profession/occupational area (academic, student/apprentice, craftsman/agriculturalist, service occupation, office worker, unemployed, other), and (Q6) religion (Christianity, Islam, Judaism, Buddhism, Hinduism, other). We asked for personal opinion toward organ donation: (Q7) "In order to help others, I find postmortem organ donation to be legitimate" (yes, no), (Q8) "I own an organ donor card" (yes, no,

no—but I would like to have one), (Q9) "My religion has an influence on my willingness to donate organs" (yes, no), (Q10) "I know of at least one of my parents whether they wish to donate organs after they die" (yes, no), (Q11) "My parents know whether I wish to donate organs after I die" (yes, no), (Q12) "I would donate the organs of a next-of-kin or spouse who died, if he or she had not explicitly objected doing so" (yes, no), (Q13) "I pursue one or more of these recreational activities at least 5 times per year: outdoor climbing, glacier hiking, skydiving, canyoning, free-ride skiing/snowboarding" (yes, no), (Q14) "I am a motorcyclist" (yes, no), (Q15) "I would generally approve a next-of-kin's or my spouse's organ acceptance from a recently deceased person, if needed" (yes, no), (Q16) "I would generally accept an organ from a recently deceased person for myself, if needed" (yes, no), and (Q17) "I would generally accept an organ from a recently deceased person for my own child, if needed" (yes, no).

Data Analysis

Demographic data of conscription records of 2013 were obtained from the Swiss federal government. ZIP codes were recoded to language region and residency through the use of the MAT[CH]zip service available online at <http://www.post.ch> (accessed February 10, 2014). Full details of variable coding are shown in Table 1. Continuous variables were analyzed by means of *t*-test or Wilcoxon rank-sum test and categorical data by means of χ^2 or Fisher's exact test, as appropriate. Significance was assumed at $P < .05$ (2-tailed).

Prediction of having or wanting an organ donor card was tested in 16 univariate models for age and dichotomous coded variables (Table 1). All variables predicting "having or wanting an organ donor card" with $P < .1$ were retained for multivariate analysis. Variables without significance in an automated backward selected model were manually dropped. Odds ratios (OR) and 95% confidence intervals (CI) were calculated by likelihood-ratio test, and variables were tested for multicollinearity. To assess reciprocity of organ acceptance and donation, donor card status was assessed for participants who would accept organs for any of themselves, next-of-kin, or their child. All statistical calculations were performed with the use of R 3.0.2 software.

RESULTS

Data of 1576 participants were collected during 2013 over 1.9 ± 0.6 months (mean \pm SD per conscription center). A total of 17 responses were excluded because of age exceeding 25 years ($n = 5$), female sex ($n = 2$), and study site with very low participant number ($n = 10$). Participation at this site was considered too low to yield a representative sample. The response rate for the 6 sites was 24.9%.

Participants were compared with the national conscription records of 2013 (Table 2). The respondents were slightly younger, indicated student or academic as their occupation more frequently, and rather lived in the German-speaking region of Switzerland; 88.1% considered organ donation to be legitimate in order to help others, but only 6.3% had and 19.4% wanted to obtain an organ donor card; 53.6% would approve to donate their next-of-kin's organs; 19.8% knew their parents' wishes regarding post mortem organ donation, and 19.1% had communicated their own wishes to their parents; 84.8% would generally approve of their spouse or next-of-kin to accept a donor organ, whereas 84.3% would accept one for themselves. To save their own child, 91.8% would accept a donor organ.

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