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The Role of Specifically Tailored Communication Training Among Factors Influencing Consent for Cornea Donation Requested Via Telephone

Martin Hermel, FEBO,¹ Kathrin Monhof,¹ Andre Steinfeld,¹ Sabine Salla, BTA,¹ Nicole Hamsley, MTA,¹ Peter Walter,¹ and Stephanie Stiel^{1,2}

Background. Consent for cornea donation from non-heart-beating donors is often requested by means of telephone interviews with relatives of the deceased. The purpose of this study was to identify the effect of specifically tailored interviewer communications training among other factors related to obtaining consent. **Methods.** A retrospective analysis of consent requests made by the Aachen Cornea Bank was performed. Interviews were conducted via telephone by 26 ophthalmic residents or fellows in accordance with German and European laws and guidelines. Multiple logistic regression was used to identify factors related to the consent. Results were expressed as odds ratios (OR), 95% confidence interval (95% CI), and Wald *P* value. **Results.** In 1694 interviews, the overall consent rate was 50.12%. Multivariate analysis identified 4 significant factors associated with the donation decision. Completion of a specific communication training seminar increased odds of consent by 1.533 (95% CI, 1.250-1.880; *P* < 0.0001). The individual interviewer had an impact on the OR of up to 1.255 (95% CI, 1.113-1.417; *P* = 0.0002). The odds for consent were inversely correlated with the clinical experience of the interviewer (OR, 0.884; 95% CI, 0.831-0.938; *P* < 0.0001). The consulted family member was 0.894 times less likely to grant consent for donation with each increase in degree of blood relation (95% CI, 0.849-0.940; *P* < 0.0001). **Conclusions.** A telephone interview is effective for obtaining consent for cornea donation. The consent decision may be associated with factors relating to the interviewer as well as the consulted family member. Specific training for cornea bank staff may increase the odds of obtaining consent.

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Obtaining consent for cornea donation can be a major stumbling block for tissue banks in the procurement process in many countries. In Germany, consent for organ and tissue donation is regulated by the German Transplantation Act (*Transplantationsgesetz* [TPG] of 1997, revised 2007). According to the TPG, consent for donation must be

requested from the next of kin in the absence of a donor's written will, and even if such will exists, the next of kin must be informed about the planned organ or tissue procurement. Similar regulations are common throughout Europe.

Consent for cornea donation from non-heart-beating donors is often requested by means of a telephone interview.¹⁻⁹ In the Aachen cornea bank, this is almost exclusively the case. In our experience, the decisions whether to consent to cornea recovery seemed to be influenced by preexisting values and opinions as well as the momentary situation of the consulted family members in the bereavement process, but studies have reported that staff education and training may improve rates of solid organ donation consent¹⁰⁻¹³ among other modifiable factors related to the consent process.¹⁴ In particular, Siminoff et al¹³ reported increased solid organ donation rates from 46.3% to 55.5% after completion of a communication seminar by transplant coordinators.

Members of our medical staff had participated in communication workshops offered by the European Donor Hospital Education Program (EDHEP), initiated by Eurotransplant in 1991,¹⁵ focused on obtaining consent for solid organ donation in face-to-face interviews. After that program was discontinued, we developed our own training seminar which is based on an assessment of the needs of our medical staff,¹⁶ and specifically addresses the context of telephone interviews requesting consent for cornea donation.

Although some data were published regarding the impact of the EDHEP seminar on the perceptions and self-evaluation

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¹ Department of Ophthalmology, RWTH Aachen University, Germany.

² Department of Palliative Medicine, University Hospital Erlangen, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany.

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Correspondence: Martin Hermel, FEBO, RWTH Aachen University, Department of Ophthalmology, Pauwelsstrasse 30, 52057 Aachen, Germany. (mhermel@ukaachen.de).

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of participants,^{15,17-20} its efficacy in improving consent rates of organ donation has not been demonstrated. Also, we are not aware of a report in literature regarding the effectiveness of any training program on consent rates for cornea donation.

We have therefore performed a retrospective analysis of consent interviews to verify whether specific communication training may have a significant impact on consent rates. Because of the multifaceted nature of consent decisions, we used a multifactorial approach to identify, and adjust for, other potential factors.

MATERIALS AND METHODS

The study was conducted in agreement with the Declaration of Helsinki. Ethical Committee approval (EK054/11) was obtained.

Structure and Content of the Communication Seminars

The structure of the EDHEP Seminar was reported by Blok et al.¹⁵ The Aachen communication training for ophthalmologists is geared specifically towards gaining telephone consent for cornea donation from family members of deceased patients. It is mainly based on an empirical needs evaluation among out interviewers.¹⁶ According to the main results of our assessment, the 1-day seminar consists of four major parts:

- (1) Introduction
 - a. Assessing participants' expectations, motivation and aims for the training;
 - b. particularities of the consent request situation;
 - c. ethical and legal aspects of obtaining consent.
- (2) Providing foundational know-how in communication:
 - a. helpful theoretical models of communication and conversation;
 - b. sources of error in communication situations;
 - c. applying communication theory to interview strategies.
- (3) Application of theoretical knowledge in practical role plays:
 - a. to play the roles of the family member and the interviewer in different scenarios;
 - b. to practice strategies to stabilize relatives' emotional reactions and to activate their decision-making ability;
 - c. to give and receive feedback within the training group.
- (4) Emotional preparation for the specific task by
 - a. learning about the characteristics of mourning and grief and
 - b. about psychological methods for stress and burn-out prophylaxis;
 - c. establishing a trusted framework which offers individual psychological consultation for the interviewer if needed.

Study Design

All consent interviews were conducted via telephone. The interviews followed a standard protocol, the contents and minimal requirements of which were largely defined by the TPG; however, as the reactions of the relatives, their openness toward the request and their need for information varied, each interview took a slightly different course. No attempts were made to actively convince relatives to donate.

Consent included the donation of the whole eye or the corneoscleral disc for the purpose of corneal transplantation; in some instances, consent for sclera donation was requested after cornea donation was granted. Correct anatomic restoration of the donor was assured.²¹

Written protocols were filled out by the interviewing staff members and included statements regarding the presence of medical contraindications against donation, whether the next of kin had been reached by telephone, the date and (in most instances) time of the interview, the name of the next of kin, the degree of kinship to the deceased, the address and/or telephone number of the next of kin, further details of the interview regarding the course, emotional reactions of relatives, their specific questions, etc., and as appropriate, the consent decision and the signature of the interviewer.

Donor screening and consent protocols from the telephone interviews were included in the analysis performed here which were conducted by interviewers fulfilling all of the following criteria: the interviewer could be clearly identified by his or her signature; the interviewer begun his activity within the studied period and was affiliated with the Department of Ophthalmology, Aachen RWTH University and the cornea bank (this excludes, for instance, the heart-beating multiorgan donors, where the consent process was entirely different), the consent decision was yes or no. In some cases, when the next of kin requested time for consideration, promised to call back and failed to do so, the consent decision was defined as no.

Data Preparation and Statistical Analysis

The data were entered into Excel spreadsheets and cross-referenced with data from the donor database of the cornea bank. Analyses were performed in an anonymized fashion. From the database, variables were identified and created, which were expected to have potential impact on the consent decision or to contribute specifically to the understanding of a potential training effect (Table 1 and Table 3). Score variables (Table 2) were calculated as follows: the "type-of-care-unit score" categorized the type of care unit where the patient died as conservative, 0; interdisciplinary, 1; and operative, 2 (with categories 0 and 2 including their respective intensive care units, and category 1 including the emergency room and intermediate care units). For each type of next of kin, the "degree of blood relation versus donor" was expressed in numbers from 1 to 5, 1 meaning the closest blood relation (parent, child, sibling); 2 meaning uncle or grandchild, and so on; and 5 meaning unrelated. The "degree of blood and in-law relation versus donor" was similar, but recategorized in-laws as equal to a comparable blood relation (eg, 1 for spouse or son in law). The "generation relative to donor" expressed the generational span between donor and the next of kin (with in-laws considered equal, eg, -1 for parent or uncle, 0 for spouse or sibling, 2 for grandchild, and so on).

The study included protocols of 26 interviewers who conducted between 1 and 250 interviews, making a meaningful analysis of the impact of individual interviewers difficult. The interviewer variable was hence stratified by combining all male and all female interviewers with less than 51 interviews each into 1 level, respectively (to preserve possible sex relationships), resulting in 14 levels of the variable. To be able to analyze the influence of the individual interviewer, cluster

TABLE 1.**Quantitative variables investigated for inclusion in the multivariate logistic regression analysis of consent for cornea donation**

Quantitative variables	n	P	Odds ratio (95% CI) ^a
Donor-related factors			
Donor age	1694	0.27	1.004 (0.997-1.012)
Interviewer-related factors			
Interviewer age	1694	0.0025 ^b	0.939 (0.902-0.978)
Interviewer clinical experience, y	1694	<0.0001 ^b	0.88 (0.831-0.932)
Number of interviews to date	1694	0.0109 ^b	1.002 (1.000-1.004)
Days since first interview	1694	0.75	1 (0.999-1.000) ^c
Days since previous interview	1668	0.49	1.001 (0.998-1.003)
Number of interviews since first training seminar	1310	0.75	1 (0.999-1.000)
Days since last completed training seminar	884	0.44	1 (0.999-1.000)
Other interview-related factors			
Time death to interview, h	1168	0.28	0.996 (0.989-1.003)
Interview year	1694	<0.0001 ^b	1.105 (1.064-1.149)

^a Odds ratios were calculated per variable unit increment e.g. hour, day, year, or interview.^b Variables included in the multivariate model.^c Odds ratio = 1.005 per 100 days.

analysis was performed during the multivariate logistic regression analysis to identify whether any group of interviewers was more effective than the rest.

Logistic regression analysis was used to identify factors influencing the odds to grant or deny consent. Because of missing data in some variables, we chose a 2-step backward elimination approach. In the first step, univariate Wald tests (including intercept) were performed for each variable to identify its predictor characteristics regarding consent its respective data subset. The variables with univariate *P* less than 0.05 were included in the multivariate logistic analysis using the maximum-likelihood method with backward elimination and a significance level of *P* less than 0.05.

Cross-variable effects were included in the analyses if their *P* value was lower than 0.05 and their χ^2 value was higher than that of their constituent variables. Results were expressed as Wald odds ratios (OR) with 95% confidence interval, and *P* values. Data analysis was performed using the SAS V.9.2 and JMP software.

RESULTS

The overall consent rate of 1694 interview protocols was 50.12%. Table 1, Table 2, and Table 3 describe the results of univariate tests for each variable, and Figure 1 offers an overview of univariate ORs.

Donor-Related Variables

The mean age of the potential donors was 70.12 ± 12.37 years, with some male predominance (59.5%). The male donor candidates were slightly younger (69.6 ± 11.89 years; median, 71.65) than the females (70.88 ± 12.99 years, median, 73.12; *t* test *P* = 0.0394). Main causes of death were cardiocirculatory failure (35%) and neoplastic disease (35%). No donor-related variables including the type of medical care unit displayed a significant correlation with consent rates.

Donor Family-Related Variables

The “degree of blood relation versus donor” (3.4 ± 1.94) and the “compound degree of relation” (spouse = 55.2%, child = 30.4% of all consulted relatives) variables displayed

a significant univariate relationship with consent (56.3% consent by children vs 47.1% by spouses). The “degree of blood relation versus donor” displayed a significant multivariate relationship with consent (*P* < 0.0001). The result indicated a 0.894 times lower chance of consent pro increasing, that is, more distant degree of relation (Table 4).

Interview-Related Variables

The median and mean recorded death-to-interview times were 22.1 and 26.1 ± 16.2 hours, respectively; the variable not showing a significant correlation with the consent decision (Table 1). The year of the interview, univariately positively correlated with consent, failed to display significant multivariate predictor characteristics. The donor families requested additional time for consideration with the intent of communicating the decision in a subsequent interview in 252 cases (15.5%). In these cases, the resulting consent rate (54%) was slightly, but not significantly higher.

Interviewer -Related Variables

The study included 26 interviewers (14 of them women), who conducted between 1 and 250 interviews during the study period (average, 65.15 ± 69.09 ; median, 44). In univariate testing, the sex of the interviewer appeared related

TABLE 2.**Score variables investigated for inclusion in the multivariate logistic regression analysis of consent for cornea donation**

Score variables	n	P	Odds ratio (95% CI) ^a
Donor-related factors			
Type-of-care-unit score	1694	0.82	0.98 (0.87-1.12)
Donor family-related factors			
Degree of blood relation versus donor	1659	<0.0001 ^b	0.9 (0.85-0.94)
Degree of blood and in-law relation versus donor	1659	0.029	0.83 (0.7-0.98)
Generation relative to donor	1659	0.036	1.21 (1.01-1.45)

See Materials and Methods for variable definitions.

^a Odds ratios were calculated per variable unit increment.^b Variable included in the multivariate model.

TABLE 3.**Categorical variables investigated for inclusion in the multivariate logistic regression analysis of consent for cornea donation**

Categorical variables	Categories	n	Consent granted, %	Univariate statistic results	
				P	Odds ratio (95% CI)
Donor-related factors					
Sex of donor	Male	1008	50.30	0.86	1.02 (0.86-1.24)
	Female ^a	686	49.85		
Cause of death	Neoplasia ^a	586	47.27	0.23 ^b	1.17 (0.93-1.48)
	Cardiocirculatory	589	51.27		1.21 (0.96-1.53)
	Other	519	52.02		
Donor family-related factors					
Sex of family member	Male	590	52.71	0.18	1.15 (0.94-1.4)
	Female ^a	1073	49.30		
Compound degree of relation	Spouse/Partner ^a	915	47.10	0.0041 ^{b, c}	1.44 (1.16-1.8)
	Child	505	56.24		1.08 (0.82-1.41)
	Other	239	51.46		
Interviewer-related factors					
Interviewer ^d				<0.0001 ^{b, c}	
Interviewer sex	Male	1096	54.29	<0.0001 ^c	1.61 (1.32-1.97)
	Female ^a	598	42.47		
Completed training seminar	Yes	884	56.22	<0.0001 ^c	1.67 (1.38-2.03)
	No ^a	810	43.46		
Completed Aachen seminar	Yes	486	57.41	<0.0001 ^c	1.51 (1.22-1.87)
	No ^a	1208	47.19		
Completed EDHEP seminar	Yes	523	54.68	0.012 ^c	1.30 (1.06-1.60)
	No ^a	1171	48.08		
Seminar within past 30 days?	Yes	103	53.40	0.49	1.15 (0.77-1.71)
	No ^a	1591	49.91		
Seminar within past 90 days?	Yes	318	53.77	0.15	1.19 (0.94-1.53)
	No ^a	1376	49.27		
Interview-related factors					
Second interview (time for consideration) requested by family	Yes	252	53.97	0.41	1.12 (0.86-1.47)
	No/not offered ^a	1370	51.17		

^a Respective referent category for univariate tests.^b Multivariate results of the variable.^c Variables included in the final multivariate model.^d Cluster variable, see Materials and Methods.

EDHEP indicates European Donor Hospital Education Program.

to consent decisions, with 1096 interviews conducted by male interviewers (consent rate of 54.3%) as compared to female interviewers (42.5%, $r^2 = 0.0092$, $P < 0.0001$). The individual interviewer variable, when analyzed by clustering into more and less successful groups (see Materials and Methods), also appeared to be correlated with consent rates ($P < 0.0001$). The age of the interviewer at the time of the interview (29.69 ± 2.38 years) appeared inversely correlated with consent decisions (Table 1). The number of previous interviews, clinical experience and interviewer age correlated with consent. However, only the clinical experience (1.99 ± 1.76 years) maintained a significant correlation with consent in the multivariate approach.

Effects of Communication Training

Regarding training and clinical experience, the variables describing prior completion of the European Donor Hospital Education Program (EDHEP) seminar, of the Aachen seminar or of any these seminars, were all correlated with positive consent decisions (Table 3), although only the global seminar variable retained significance in multivariate testing. A bivariate analysis of just the 2 seminar types for their relationship

with consent revealed a higher OR for the Aachen seminar (OR 1.432, $P = 0.0015$) than for the EDHEP seminar (OR, 1.162; $P = 0.1784$).

Cross-Variable Effects

Potential interrelationships between various variables, with particular focus on the influences of sex, interviewer

FIGURE 1. Overview of predictors of consent for cornea donation. Results of univariate logistic regression analyses of all significant variables from Table 1, Table 2, and Table 3 (OR $\pm$ 95% CI, see Materials and Methods for variable definitions).

TABLE 4.

Predictors of consent for cornea donation, results of multivariate logistic regression analysis of all variables included from Table 1, Table 2, and Table 3

Variable	P	Adjusted odds ratio (95% CI)
Overall multivariate test statistic	<0.0001	
Degree of blood relation versus donor ^a ^b	<0.0001	0.894 (0.849-0.940)
Interviewer clinical experience, y ^b	<0.0001	0.884 (0.831-0.938)
Completed training seminar (yes vs no)	<0.0001	1.533 (1.250-1.880)
Interviewer ^a	0.0002	1.255 (1.113-1.417)

n = 1659.

^a See Materials and Methods for variable definition.

^b Odds ratios per variable unit, for example, degree of relation or year.

experience, next-of-kin generation, and blood relationship effects were also analyzed. Only the relationship between the sex of the donor and the interviewed next of kin displayed a trend that exceeded the effects of the individual constituent variables, but did not meet the inclusion criteria for the final model ($P = 0.08$).

Multivariate Analysis

Table 4 and Figure 2 delineate the results of the final multivariate logistic regression analysis. One thousand six hundred fifty-nine data sets were included in the final model ($r^2 = 0.0348$, $P < 0.0001$). Here, the completed training seminar and the interviewer variables displayed positive predictor characteristics with respect to consent ($P < 0.0001$; OR, 1.533; and $P = 0.0002$; OR, 1.255, respectively), whereas the degree of blood relation of the consulted family member toward the donor, as well as the clinical experience of the interviewer, displayed a negative relationship with consent decisions ($P < 0.0001$; OR, 0.894 per degree; and $P < 0.0001$; OR, 0.884 per year, respectively).

DISCUSSION

In our multivariate model, only factors related to the interviewed donor family member (closer blood relation with the donor) and to the interviewer and interview situation (interviewer person, completion of specific communication training, and less clinical experience) were significant predictors of granting consent (Table 4). The overall predictor characteristic of the model was modest, which is consistent with the notion that the decision to grant or refuse consent is a very personal and complex one, and external demographic and interviewer-related factors have limited value in predicting it. Nonetheless, the fact that such predictors exist demonstrates that measures can be taken to improve consent rates.

Our results indicate that factors related to both the consulted family member and the interviewer play a significant role in obtaining consent. In particular, the implementation of specifically tailored communication training for the interviewers may improve consent rates.

The Role of the Telephone Interview in Cornea Procurement

The telephone interview can be an effective method of obtaining consent for donation. Our overall success rate in

reaching donor families by telephone was 80%, similar to that reported by Geissler et al² who used both telephone and face-to-face interviews, and by Kriegelstein et al.³ The overall consent rate of our study was 50%, within the range of 15% to 82% reported by other authors.¹⁻⁹ It is known that consent rates for organ or tissue donation obtained by telephone are significantly lower than those gained during face-to-face interviews. Gain et al⁶ reported a consent rate 55.2% by telephone versus 81.6% face to face ($P < 0.001$), and Geissler et al² found 60% consent by telephone as compared to 72% face to face (calculated $P = 0.0396$). For donation of corneas among other tissue, Rodriguez-Villar⁸ observed 52.25% telephone acceptance versus 62.62% face to face (calculated $P = 0.0109$). Nonetheless, the use of telephone increased overall cornea donation rates,^{6,8} mainly because of logistic improvements.

Under ideal circumstances, face-to-face would be the preferred setting of requesting consent because it is not only likely to result in higher consent rates, but may also reduce distress of donor families during the vulnerable initial grieving period. However, as the cornea bank staff typically has no previous direct contact with the relatives, and also legal postmortem time constraints limit their ability to arrange face-to-face meetings, the overall tissue availability may decrease if consent requests for cornea were to be restricted to face-to-face interviews only.^{6,8,22}

Donor-Related Factors

No donor-related factors investigated in this study proved to be significant predictors of consent. In particular, we found no association with age of the deceased, in contrast to previous work,⁹ which postulated increased consent rates with higher age of the potential donor.

Donor Family-Related Factors

Of the factors related to the consulted donor family member, the “degree of blood relation versus donor” as well as the “compound degree of relation” variables displayed a significant influence on consent in their respective univariate analyses, the former being also multivariately significant. Because the children and spouses/partners of potential donors were the main groups of relatives investigated (30% and 52%, respectively, classified as degrees of blood relation of 1 and 5), the observed influence is likely due to the difference between the consent rates of children (56.3%) and spouses (47.1%). Indeed, a multivariate approach, in which only children and spouses were included, revealed a very similar prediction model. Accordingly, the variable “degree of blood and in-law relation versus donor,” which assigned the spouses a grade of 1, equivalent to that of close blood relatives, did not pose a significant predictor.

FIGURE 2. Overview of predictors of consent for cornea donation. Results of multivariate regression analyses of all significant variables from Table 1, Table 2, and Table 3 (OR $\pm$ 95% CI, see Materials and Methods for variable definitions).

Our observation that (adult) children of the deceased may be more likely to grant consent in telephone interviews is consistent with the findings of Lawlor et al⁹ observed in personal interviews (OR 1.3), albeit Kriegelstein et al³ failed to confirm a statistically significant difference in their small sample size of 214 telephone interviews (spouses, 71% consent; children, 62% consent).

The German Transplantation Act includes a priority list of next-of-kin who should be approached for donation: (1) spouse or legal partner, (2) (adult) children, (3) parents or legal guardians, (4) (adult) siblings, (5) grandparents. There are provisions that the highest priority next-of-kin who can be reached within a reasonable time can be consulted, and also that the person consulted must have been in a close personal relationship with the deceased within the past two years. So, the closest relatives, who are most likely to donate according to our data, are the top 2 of the priority list. The provisions offer thus some principal room for interpretation, but a systematic practice of consulting only the relatives with the highest statistical chance of consent (ie, children) might in many cases be both illegal and impractical because it is often difficult enough to establish contact with any one of the relatives.

Interviewer-Related Factors

Previously, consent rates for cornea donation obtained via telephone interview were reported to increase with the interviewers' experience expressed as the number of interviews performed.⁷ In our study, the "number of interviews to date" was significant in the univariate, but not multivariate analysis.

The clinical experience of the interviewer was inversely correlated with consent, an effect that may have masked the impact of interviewing experience. This finding is surprising, as Muraine reported a dramatic drop in face-to-face consent rates when an inexperienced ophthalmologist took part in their interviews,²¹ and one would expect increased consent rates achieved by more experienced doctors.¹¹ The following considerations may have played a role in the observed inverse relationship between consent and clinical experience.

Our interviewers were ophthalmic residents or fellows. A survey conducted among them¹⁶ revealed high levels of stress caused by their cornea bank activity, in particular by the daily confrontation with death, visits to the mortuary, and the telephone requests for donation. As donor screening and interviews were performed in addition to their clinical workload, there was a necessity to balance the conflicting obligations. With increasing clinical competence and interview experience, doctors typically tried to balance their obligations more effectively and often conducted telephone interviews between patient visits. This setting was likely suboptimal for the interview, potentially worsening the outcomes, as well as possibly diminishing the number of call attempts. Unfortunately, the precise circumstances of each interview were not recorded, and therefore elude a more in-depth assessment. Moreover, the doctors' motivation, essential for successful consent requests,²¹ may have been adversely influenced by the perceived stress because their average estimated willingness to continue to work for the cornea bank was below the middle of the estimation scale.¹⁶

Also, the more experienced interviewers typically filled in for the ones currently on rotation and their overall interview

frequency was thus reduced during the later stages of their activity, but this was not a measurable effect as the variable "days since previous interview" was not a significant predictor. In addition, with longer experience there might have been a tendency toward (unperceived) stereotypization of the interviews, as the perception of compassion by the relatives correlated with higher organ donation rates.²³ This effect may be more pronounced in telephone than face-to-face contexts.

This highlights the fact that the consent request is a delicate and multifaceted issue. Ideally, all interviews would be performed by professional full-time interviewers, who might also conduct more face-to-face interviews which may increase consent rates. However, under the currently increasing economic pressures, this may not be feasible for most eye banks. Also, German legislation requires the interview to be conducted by a doctor, and the local government has rejected our request to include a psychologist in the interview process. The other factor with significant predictor characteristics was the person of the interviewer. Interestingly, clustering into more and less successful groups showed a strong correlation to the sex of the interviewers, with male interviewers being more successful. This is surprising, as female doctors were reported to spend more time on patient visits and create a stronger emotional rapport with their patients,²⁴⁻²⁶ but perhaps the telephone interview is a different context, highlighting other aspects of communication.²⁷ There does not seem to be a uniform sex preference from the perspective of patients.²⁸⁻³⁰ Also, our female interviewers reported higher stress levels and lower willingness to continue their work in cornea procurement than their male colleagues,¹⁶ which may have been related to their success in obtaining consent. The traditionally higher sociocultural status of male doctors, particularly predominant among older generations,³¹ may also have had a higher impact in telephone interviews than in face-to-face contact.

Effect of Interviewer Training Seminars

The effect of training was the primary focus of our study. The completion of a specific training seminar was a positive univariate and multivariate predictor, meaning that interviews were 1.5 times more likely to result in a positive consent decision if the interviewer had previously participated in a training seminar. We found no evidence for a reduction of the seminar effect over time because the variables ("number of interviews since first training seminar," "days since last completed training seminar," seminar within the previous 30 or 90 days) were not significant predictors. The overall seminar effect offered the highest increase in odds of consent of all variables investigated. Specific communication training for the interviewers may thus be the most effective among possible interventions to increase procurement rates, and also the easiest to implement. In a bivariate comparison, the Aachen seminar was related with higher odds of consent than the EDHEP seminar, suggesting that it may be more effective to specifically address the telephone request situation in a training workshop for cornea donation.

Interview-Related Factors

The delay from death to the interview, previously postulated to be relevant for consent,²¹ was not a significant predictor in our study, although many of the interviewed

family members were unaware of the possibility of postmortem cornea donation, and their initial reactions were often characterized by surprise and emotional response. In such situations, granting more time for consideration may be helpful to obtain consent,³² but in our study, a second interview (time for consideration) was not a significant univariate predictor. Consent for organ donation was strongly related to the spontaneous reaction of the relatives,³³ but consent decisions regarding eye or cornea donation appear to differ from those about organ or other tissue donation.³⁴ Communication training should therefore place particular focus on the initial phases of the interview.

Study Limitations

Our study is limited by its retrospective nature, and any correlations found do not prove causality. The multivariate framework provides control for many confounding variables, but it is possible that effects of some potentially significant variables were masked by others.

CONCLUSIONS

In our study of obtaining consent for cornea donation by means of telephone interviews, factors related to the interviewed donor family member (closer blood relation with the donor) and to the interviewer (interviewer as a person, completion of a specific communication training and less clinical experience) were predictors of obtaining consent. Our findings highlight the complex nature of the consent interview and emphasize the need for specific training of the interviewers involved in the process of cornea procurement.

REFERENCES

1. Diamond GA, Campion M, Mussoline JF, D'Amico RA. Obtaining consent for eye donation. *Am J Ophthalmol*. 1987;103(2):198–203.
2. Geissler A, Paoli K, Maitrejean C, Durand-Gasselin J. Rates of potential and actual cornea donation in a general hospital: impact of exhaustive death screening and surrogate phone consent. *Transplant Proc*. 2004;36(10):2894–2895.
3. Kriegelstein TR, Welge-Lüssen UC, Priglinger S, et al. Consenting to cornea donation: influencing factors. *Graefes Arch Clin Exp Ophthalmol*. 2002;240(10):816–821.
4. Williams KA, White MA, Badenoch PR, et al. Donor cornea procurement: six-year review of the role of the eye bank in South Australia. *Aust N Z J Ophthalmol*. 1990;18(1):77–89.
5. Hudde T, Reinhard T, Moller M, et al. [Corneoscleral transplant excision in the cadaver. Experiences of the North Rhine Westphalia Lions Cornea Bank 1995 and 1996. *Der Ophthalmologe : Zeitschrift der Deutschen Ophthalmologischen Gesellschaft*. 1997;94(11):780–784.
6. Gain P, Thuret G, Loup PJ, et al. Obtaining cornea donation consent by telephone. *Transplantation*. 2002;73(6):926–929.
7. Geissler A, Gerbeaux PR, Maitrejean C, Durand-Gasselin J. Cornea donation: evaluation of a training session to obtain consent by telephone. *Transplant Proc*. 2005;37(10):4634–4636.
8. Rodriguez-Villar C, Ruiz-Jaramillo MC, Paredes D, et al. Telephone consent in tissue donation: effectiveness and efficiency in postmortem tissue generation. *Transplant Proc*. 2007;39(7):2072–2075.
9. Lawlor M, Dobbins T, Thomas KA, Billson F. Consent for corneal donation: the effect of age of the deceased, registered intent and which family member is asked about donation. *Br J Ophthalmol*. 2006;90(11):1383–1385.
10. Gortmaker SL, Beasley CL, Sheehy E, et al. Improving the request process to increase family consent for organ donation. *J Transpl Coord*. 1998;8(4):210–217.
11. Linyear AS, Tartaglia A. Family communication coordination: a program to increase organ donation. *J Transpl Coord*. 1999;9(3):165–174.
12. Riker RR, White BW. The effect of physician education on the rates of donation request and tissue donation. *Transplantation*. 1995;59(6):880–884.
13. Siminoff LA, Marshall HM, Dumenci L, Bowen G, Swaminathan A, Gordon N. Communicating effectively about donation: an educational intervention to increase consent to donation. *Prog Transplant*. 2009;19(1):35–43.
14. Simpkin AL, Robertson LC, Barber VS, Young JD. Modifiable factors influencing relatives' decision to offer organ donation: systematic review. *BMJ*. 2009;338:b991.
15. Blok GA, van Dalen J, Jager KJ, et al. The European Donor Hospital Education Programme (EDHEP): addressing the training needs of doctors and nurses who break bad news, care for the bereaved, and request donation. *Transpl Int*. 1999;12(3):161–167.
16. Stiel S, Salla S, Steinfeld A, Radbruch L, Walter P, Hermel M. [Evaluation of the need for communication training of ophthalmologists for gaining telephone consent for cornea donation]. *Der Ophthalmologe: Zeitschrift der Deutschen Ophthalmologischen Gesellschaft*. 2011;108(2):151–155.
17. van Dalen J, Blok GA, Morley MJ, et al. Participants' judgements of the European Donor Hospital Education Programme (EDHEP): an international comparison. *Transpl Int*. 1999;12(3):182–187.
18. Morton J, Blok GA, Reid C, van Dalen J, Morley M. The European Donor Hospital Education Programme (EDHEP): enhancing communication skills with bereaved relatives. *Anaesth Intensive Care*. 2000;28(2):184–190.
19. Blok GA, Morton J, Morley M, Kerckhoffs CC, Kootstra G, van der Vleuten CP. Requesting organ donation: the case of self-efficacy—effects of the European Donor Hospital Education Programme (EDHEP). *Adv Health Sci Educ*. 2004;9(4):261–282.
20. Muthny FA, Wiedebusch S, Blok GA, van Dalen J. Training for doctors and nurses to deal with bereaved relatives after a sudden death: evaluation of the European Donor Hospital Education Programme (EDHEP) in Germany. *Transplant Proc*. 2006;38(9):2751–2755.
21. Muraine M, Menguy E, Martin J, Sabatier P, Watt L, Brasseur G. The interview with the donor's family before postmortem cornea procurement. *Cornea*. 2000;19(1):12–16.
22. Geissler A, Sion S, Toulisse A, Maitrejean C, Paoli K, Durand-Gasselin J. [Cornea donation: improving hospital coordination]. *J Fr Ophtalmol*. 2005;28(3):252–256.
23. Rodrigue JR, Cornell DL, Howard RJ. Organ donation decision: comparison of donor and nondonor families. *Am J Transplant*. 2006;6(1):190–198.
24. Bertakis KD. The influence of gender on the doctor-patient interaction. *Patient Educ Couns*. 2009;76(3):356–360.
25. Roter DL, Hall JA. Physician gender and patient-centered communication: a critical review of empirical research. *Annu Rev Public Health*. 2004;25:497–519.
26. Bylund CL, Makoul G. Empathic communication and gender in the physician-patient encounter. *Patient Educ Couns*. 2002;48(3):207–216.
27. Mast MS, Hall JA, Kockner C, Choi E. Physician gender affects how physician nonverbal behavior is related to patient satisfaction. *Med Care*. 2008;46(12):1212–1218.
28. Mavis B, Vasilenko P, Schnuth R, Marshall J, Jeffs MC. Female patients' preferences related to interpersonal communications, clinical competence, and gender when selecting a physician. *Acad Med*. 2005;80(12):1159–1165.
29. Wolosin RJ, Gesell SB. Physician gender and primary care patient satisfaction: no evidence of "feminization". *Quality management in health care*. 2006;15(2):96–103.
30. Cousin G, Schmid Mast M, Jaunin-Stalder N. When physician-expressed uncertainty leads to patient dissatisfaction: a gender study. *Med Educ*. 2013;47(9):923–931.
31. Horman DJ, Campbell JD, DeGregory JL. Gender and the attribution of the nurse practitioner and physician status. *Med Care*. 1987;25(9):847–855.
32. Tymstra T, Heyink JW, Pruim J, Slooff MJ. Experience of bereaved relatives who granted or refused permission for organ donation. *Fam Pract*. 1992;9(2):141–144.
33. Siminoff LA, Arnold RM, Hewlett J. The process of organ donation and its effect on consent. *Clin Transplant*. 2001;15(1):39–47.
34. Lawlor M, Kerridge I, Ankeny R, Dobbins TA, Billson F. Specific unwillingness to donate eyes: the impact of disfigurement, knowledge and procurement on corneal donation. *Am J Transplant*. 2010;10(3):657–663.