

# The association between psychosocial care by physicians and patients' trust: a retrospective analysis of severely injured patients in surgical intensive care units

## Der Zusammenhang zwischen psychosozialer Versorgung und Vertrauen in die Ärzte: eine retrospektive Analyse schwerstverletzter Patienten auf chirurgischen Intensivstationen

### Abstract

**Aim:** Trust is an essential element in physician-patient interaction fostering in general adherence and improving patient- and physician-reported outcomes. Regarding severely injured patients, trust-building behaviour is important because of the severity of injuries and therefore potential associated physical and psychological consequences. The objective of this study was to identify significant and relevant determinants on trust of severely injured patients in their physicians in surgical intensive care units.

**Methods:** Ninety-one severely injured patients completed a self-administered questionnaire after being transferred from surgical intensive care unit to surgical unit. All patients were treated in four hospitals of maximal care in North Rhine-Westphalia between 2001 and 2005. To assess different aspects of trust the "trust in physician" scale of the Cologne Patient Questionnaire (CPQ) was used. "Psychosocial care by physicians" is measured through: support, devotion, information and shared-decision making provided by physicians. Patient- and trauma related control variables are also included in a logistic regression model.

**Results:** Stepwise logistic regression identified "psychosocial care provided by physicians" as a significant contributor to severely injured patients' trust (Nagelkerke's  $R^2$ : 41%). "Trust in physicians" is correlated with all four dimensions of "psychosocial care by physicians": support (0.546), devotion (0.443), information (0.396), and shared-decision making behaviour (0.342) provided by physicians in surgical intensive care units.

**Conclusions:** This finding confirms the importance of supportive communication style in physician-patient interaction concerning reported trust of severely injured patients on surgical intensive care units. Medical education should integrate sound knowledge about psychosocial aspects of interaction to provide effective emotional and informational support to build up and maintain patient trust.

**Keywords:** physician-patient interaction, trust, psychosocial care by physicians, support by physicians, severely injured patients

### Zusammenfassung

**Zielsetzung:** Vertrauen ist ein wesentlicher Bestandteil der Arzt-Patienten Interaktion und relevant um Adhärenz zu fördern und die „patient- and physician-reported outcomes“ (PROs) zu verbessern. Im Hinblick auf schwerstverletzte Patienten auf der Intensivstation ist der Aufbau einer vertrauensvollen Arzt-Patienten Beziehung wichtig, weil diese Patienten vielfältigen Stressoren ausgesetzt sind und häufig unter den physischen wie psychischen Folgen ihrer Verletzung in erheblichem Ausmaß leiden.

Sonja Thüm<sup>1</sup>  
Christian Janssen<sup>2</sup>  
Holger Pfaff<sup>1</sup>  
Rolf Lefering<sup>3</sup>  
Edmund A.  
Neugebauer<sup>3</sup>  
Oliver Ommen<sup>1</sup>

1 Institute for Medical Sociology, Health Services Research and Rehabilitation Science (IMVR), University of Cologne, Germany

2 Faculty of Applied Social Sciences, University of Applied Sciences Munich, Germany

3 Institute for Research in Operative Medicine, Faculty of Medicine, University of Witten/Herdecke, Campus Cologne-Merheim, Cologne, Germany

Das Ziel der vorliegenden Analyse ist es zu untersuchen, wovon das Vertrauen schwerstverletzter Patienten in die Ärzte von Intensivstationen determiniert ist.

**Methodik:** 91 schwerstverletzte Patienten wurden bei Verlegung von der chirurgischen Intensivstation auf die Normalstation, mittels eines standardisierten Fragebogens, schriftlich befragt. Alle Studienpatienten wurden in vier Krankenhäusern der Maximalversorgung in Nordrhein-Westfalen zwischen 2001 und 2005 behandelt. Die abhängige Variable „Vertrauen“, welche Aspekte der Einschätzung zu Fertigkeiten, Wissen und Ehrlichkeit des Arztes abbildet, wird mit dem Kölner Patientenfragebogen erhoben. Die Variable „Psychosoziale Versorgung durch die Ärzte“ umfasst Aspekte wie Zuwendung, Unterstützung, Informationsverhalten des Arztes und die Einbeziehung des Patienten in die Behandlung. Des Weiteren werden patienten- und traumabezogene Kontrollvariablen in ein logistisches Regressionsmodell eingeführt.

**Ergebnisse:** Die Variable „Psychosoziale Versorgung durch die Ärzte“ determiniert als einzige in signifikanter Weise die abhängige Variable „Vertrauen in die Ärzte“ der chirurgischen Intensivstation (Nagelkerke's  $R^2$ : 41%). Die Variable „Vertrauen in die Ärzte“ korreliert mit allen vier Dimensionen der „Psychosozialen Versorgung durch Ärzte der Intensivstation“: Unterstützung (0.546), Zuwendung (0.443), Informationsverhalten (0.396) und Shared-decision making Verhalten (0.342).

**Fazit:** Die vorliegende Analyse unterstreicht die Bedeutung eines unterstützenden Kommunikationsstils durch den Arzt auf der Intensivstation in Bezug auf die zu betreuenden schwerstverletzten Patienten. Somit wird die Relevanz der Vermittlung psychosozialer Aspekte in der medizinischen Aus- und Weiterbildung betont. Ärzte sollten durch verschiedene Maßnahmen dazu befähigt werden, ihre Patienten angemessen emotional wie informationell zu unterstützen um somit eine vertrauensvolle Arzt-Patientenbeziehung aufzubauen und zu erhalten.

**Schlüsselwörter:** Arzt-Patienten Interaktion, Vertrauen, psychosoziale Versorgung, Unterstützung, schwerstverletzte Patienten

## 1 Introduction

Trust is a central component of the physician-patient interaction [1], [2], [3]. It is forward directed and reflects a commitment to an ongoing relationship [4]. Consequently it is necessary that physicians know how trust can be established and maintained. Several scientific works have shown how patients can benefit from a trusting physician-patient interaction, e.g. in terms of satisfaction [5], [6] and improved health outcomes [7]. Trust in physicians can generally be divided into trust in competence, trust in agency, trust in control, trust in confidentiality and trust in disclosure. One of the essential elements of patients' trust in physicians, however, is the empathic interaction of physicians with their patients [8].

The hypothesis of the present study was based upon the idea that psychosocial care by physicians is a central concept with impact upon patients' trust in physicians. Recent studies have demonstrated that severely injured patients trusted their physicians significantly more when they felt emotionally and informationally adequately supported [9]. Emotional support contains empathy, care, and concern. Informational support provides assistance with knowledge, information, and skills that a person can

use to solve problems. By emerging and using these interpersonal skills – e.g. listening in an empathetic manner to patients views (emotional support) and answering their questions directly, explicit and honestly (informational support) – physicians can earn patients' trust so adherence to treatment can be increased [10], [11], [12], [13]. Some patients would like to gain detailed information about their illness and possible results of treatment, as well as realistic suggestions about what they can do for themselves [9], [14]. Physicians' support of patients' coping with illness is, e.g. after surgical cancer treatment, another significant aspect in medical encounters [15]. Attitudes and behaviours that have an adaptive purpose when dealing with a threatening situation characterize the concept of coping [16].

We suggest that all these aspects are relevant in the establishment of a trusting physician-patient relationship and a “therapeutic alliance” between them. When building up a trusting partnership to fight successfully against the illness together certain aspects seem to be essential: Patients' feeling to be able to rely on the physician if there are problems with the illness, that physicians will help patients to deal better with their illness and that physicians are willing to listen to illness-related problems.

Shared decision-making refers to the patients' opportunity to participate in the treatment process. Results of several studies show significant relations between trust and the patients' need to take part in medical decisions [17], [18]. The younger a patient is the more likely it is that his/her preference veers toward shared-decision making [19]. For severely injured patients, participation in both treatment and the decision-making process has proven to be important in terms of trust in physicians [2], [9]. Comprising the empirical findings, Ommen et al. assume that in particular four elements of physician-related psychosocial interaction have a positive impact on trust in physicians: (1) physicians' support of patients' coping with illness, (2) empathy of physicians, (3) clear and understandable medical information provided by physicians, and (4) shared decision-making behaviour by physicians. The superior construct which is best characterised as "psychosocial care by physicians" contains these four dimensions [20].

The development and validation of this instrument which evaluates these four theoretical dimensions was based on a structural equation modelling approach [20], [21]. Because of complex traumatic injuries, severely injured patients often undergo several surgeries to regain full or at least partial physical, social and mental functionality. Patients have to stay in hospital at least for months with unforeseeable complications and the potential threat of enduring physical and mental disturbances which can have remarkable impact on their occupational or social life [22], [23]. Therefore, we suggest that trust-building behaviour in terms of psychosocial care by critical care physicians is very important for severely injured patients and must be established at a very early stage – e.g. on Intensive Care Unit (ICU) – to ensure that these patients benefit from healing and other beneficial effects as soon as possible and to avoid, for example, chronification of pain.

Particularly in intensive care units (ICU) psychosocial care provided by physicians [1], [13] is an important element of physician-patient interaction. This is vividly and comprehensibly characterised by the statement of one intensive care patient: "Never forget I am a human being" [24]. Patients with acute respiratory distress syndrome (ARDS) who felt socially supported by the ICU team developed fewer symptoms of post-traumatic stress disorder and had a better health-related quality of life [25]. Critically-ill patients who felt socially supported by the ICU team experienced emotional relief and felt less distressed while staying on ICU [26]. Conversely, patients who felt inadequately supported by the ICU team expressed more negative feedback on treatment [27]. Insufficient information and communication is a real cause of concern for patients in ICUs [28], [29]. Communication and decision-making processes and issues are more difficult in ICUs than in a normal ward situation, because of endotracheal intubation, for instance, or the use of sedative agents. It is possible, however, to adapt to dynamic methods in communicating and decision-making processes with ICU patients [30], [31].

This analysis examines the relationship between psychosocial care by physicians and trust in physicians of severely injured patients in surgical intensive care units in terms of trauma-related, sociodemographic and -economic variables (e.g. gender, age, socioeconomic status, injury severity score, length of stay, injuries to extremities).

## 2 Materials and methods

### 2.1 Study design

The Department of Medical Sociology of the Institute for Occupational and Social Medicine at the University of Cologne (now: Institute for Medical Sociology, Health Services Research and Rehabilitation Science IMVR) conducted a controlled, randomised and prospective study entitled "Effects of psychosocial care, socioeconomic status, and health-related attitudes on health-related quality of life of severely injured patients". This study was funded by the German Research Foundation (DFG grant number PF 407/1-4) and carried out in cooperation with the Institute of Research in Operative Medicine (IFOM) of the University of Witten/Herdecke. It took place in four university hospitals in North Rhine-Westphalia (Germany) between 2001 and 2005.

Only trauma patients receiving acute inpatient treatment were considered for enrolment in the study. Inclusion criteria were defined as follows: victims of traffic- and work-related accidents with at least two injuries together equalling an abbreviated injury score (AIS)  $\geq 6$  (e.g. AIS Abdomen = 4, AIS extremity = 3, yielding a total degree of AIS-severity = 7), 18 to 65 years old and mentally oriented. The following exclusion criteria were applied: severe craniocerebral injury (AIS  $>3$  and coma  $>24$ h), attempted suicide, violent crime victim, previous mental disorder, insufficient German language skills or refusal to take part in the study. Patients were randomised in two groups. Half of the study patients obtained a long-term programme with cognitive behavioural interventions at the hospital and at home whereas the other half solely received a short-term programme while being inpatient.

### 2.2 Sample

All in all, 862 severely injured patients were screened and only 130 met the inclusion criteria. Main reasons for exclusion were: not within age range, insufficient injury severity or pattern and early transfer to another hospital. All reasons for exclusion and inclusion are shown in Figure 1.

Despite preliminary screening efforts, 17 escape patients had to be excluded after randomisation since they met one or more exclusion criteria (escape: shown in Figure 1), 20 patients did not take part in the survey (drop-out in the enquiry period: "At general ward") and two patients did not stay on ICU. In the end, the data of 91 patients were eligible for analysis.

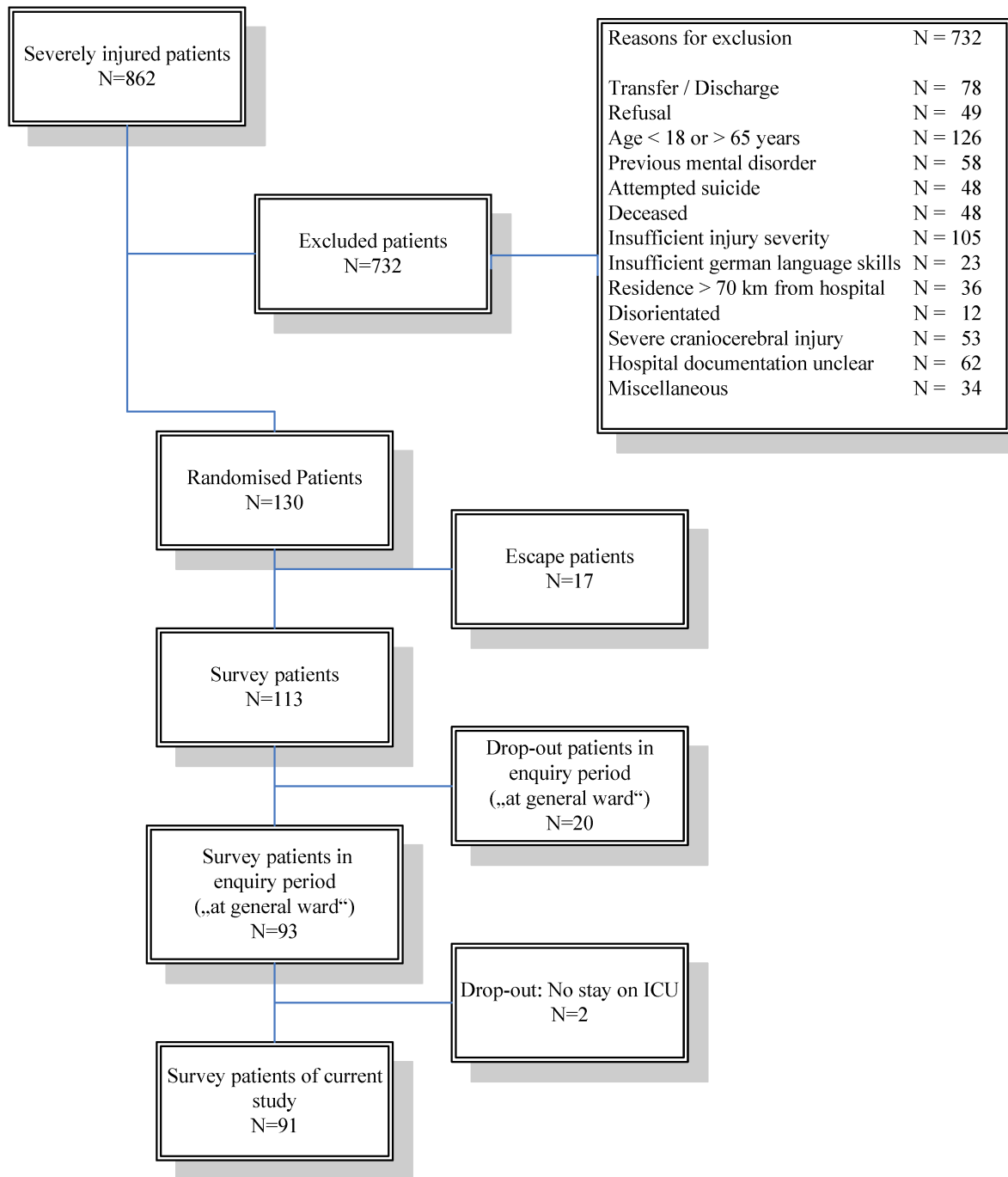


Figure 1: Flow diagram showing flow of participants through each stage of the randomised trial: Reasons for exclusion, escape, drop-out and number of survey patients in the current study

## 2.3 Measures and statistical analysis

Data were gathered with an instrument called the Cologne Patient Questionnaire (CPQ) [32] augmented by a section with sociodemographic and socioeconomic questions [33]. The CPQ questionnaire is based on two major theoretical concepts: “learning organization” [34] and “supportive care” [35]. The questionnaire was designed and validated by the Department of Medical Sociology of the University of Cologne, and generally covers all service aspects of acute hospital care. The complete CPQ in-

cludes 12 pages and consists of up to 95 modules with an all-integrating view on acute care in hospitals. The construct validity of the CPQ scales was checked with factor analyses. Internal consistency (Cronbach’s alpha) of a CPQ scale was examined with reliability analyses. Cronbach’s alpha ( $\alpha$ ) ranged between .69 and .96 on the CPQ scales which can be considered as a sufficient result. The CPQ-scales which were used in this survey, focused on physician-patient relationship and physician-patient communication with overall 83 items for the whole

questionnaire. In this analysis 5 CPQ-scales with 18 items were used.

The CPQ-scale “trust in physicians” [36] conceptualises the dependent variable in this analysis and measures certain facets of a trusting physician-patient interaction: general trust, patients’ view on competence of doctors, patients’ feeling of being in good hands and patients’ opinion that they would be pleased with an open, honest and caring communication from the intensivists. The five items of the scale were worded as follows: (1) “I completely trusted my doctors”, (2) “The doctors were open and honest with me”, (3) “The doctors gave me enough time to talk” (4) “I had the impression that the doctors are very competent”, (5) “With the doctors in this hospital one is in good hands”. The patients could choose between four answer categories, ranging from “do not agree at all” (1), “do not agree” (2), “rather agree” (3) to “completely agree” (4). Item values in brackets were added up and divided by the number of items.

Determinants of severely injured patients’ trust in physicians can be generally separated into three areas: (1) pre-traumatic determinants such as age, gender or socioeconomic status, (2) trauma-related factors like injury severity, injury to extremities or length of stay on ICU and (3) treatment-related determinants like psychosocial care by physicians.

Information regarding gender (GENDER) and age (AGE) was taken from the sociodemographic section of the survey instrument. Information about educational background, occupational status and household net income per capita was used to build up the variable “socioeconomic status” (SES) in accordance with German Epidemiological Working Group guidelines [33]. Length of stay on ICU (ICU) was taken from patient files at the hospitals. Injury severity was estimated with the “Abbreviated Injury Score” (AIS) (Association for the Advancement of Automotive Medicine (AAAM)) [37]. Values from AIS formed the basis for calculating the “Injury Severity Score” (ISS) [38]. Six regions of the body (head/neck, face, thorax, abdomen, extremities and soft tissues) are coded together with the relevant injury severity with each affected region receiving a score between 1 and 6. For the calculation of the ISS, scores for the three most seriously affected body regions were squared and then summed. With regard to trauma patients the ISS is a gold standard rating system which correlates strongly with mortality of this patient population. Scoring 16 or more on ISS is linked to a mortality of more than 10% [39]. Especially severe injuries of the extremities are a possible threat to recovery because they often lead to permanent disability or restriction [40]. Therefore the AIS extremity (EXTREMITIES) score was included with three categories: AIS score 0 = no injury to the extremities, AIS score = 1 or 2 minor injury of the extremities and AIS score  $\geq 3$  = severe injury to the extremities.

The Cologne Patient Questionnaire contains scales which assess patients’ evaluation of psychosocial care provided by physicians (PSC). To operationalise the above-described theoretical construct four of these scales were

used: (1) “Devotion of physicians”, consisting of five items which quantified patients’ subjective evaluation of physicians’ empathy and the establishment of a trusting relationship (e.g. “Physicians held conversations with me in a very empathic manner”); (2) “Support by physicians” consisting of three items which measured patients’ subjective evaluation of the supportive behaviour of physicians (e.g. “Physicians supported me so that it was easier to deal with my illness”); (3) “Information from physicians”, consisting of two items which measured patients’ subjective evaluation of the informational behaviour of physicians (e.g. “Physicians explained everything in a clear and understandable way”), and (4) “Shared-decision making (SDM)”, consisting of three items which quantified patients’ subjective evaluation with regard to shared-decision making behaviour of physicians (e.g. “Physicians wanted me to be actively involved in the treatment process”). Answer categories, in analogy with the former description of the dependent variable, ranged from “do not agree at all” (1) to “completely agree” (4). For each of the scales, item values (in brackets) were added up and then divided by the number of items, forming together a sumscore of all four CPQ scales. In a last step the sumscore is divided through number of scales.

The analysis started with an overview of descriptive values of all analysis variables concerning mean, standard deviation, minimum and maximum. An analysis of potential differences between the study population and the dropout population was performed with Chi-square test and Mann-Whitney-test.

The variable trust was divided into a group with lower and a group with higher trust in intensivists using a median split. To test whether bivariate relationships between determinants and dependent variable existed, Chi-square test and Mann-Whitney-test were conducted. Stepwise logistic regression models were developed to identify significant and relevant predictors for the dependent variable trust in intensivists. Finally, Pearson correlation coefficients for correlations between the four scales forming psychosocial care by physicians and trust in physicians was conducted. The analysis was performed with statistical software SPSS (Version 17). If fewer than 25% of the values of a variable were missing, imputation of mean values was used [41]; if more values were missing, the variable was excluded from analysis; however, no variable had to be terminated.

### 3 Results

The analysis sample consisted of 91 patients. A synopsis of descriptive statistics of all variables used in the analysis can be found in Table 1. Seventy-five per cent of severely injured patients were male and on average were 35 years old (standard deviation 10.39 years) at the time of the study. Patients stayed for six days (median) on ICU, and only 13% of them did not suffer from injuries to the extremities (Table 1). This population did not deviate in

**Table 1: Variable name, variable and value labels, number of cases (N), mean (MN) and standard deviation (SD), minimum (Min) and maximum (Max) for all metric variables and % for nominal and ordinal variables of analysis**

Variable	Variable and value label	N	MN/%	SD	Min	Max
AGE	Age at time of injury (in years)	91	35.3	10.4	18	59
SES	Socioeconomic status measured by Helmer Index	91	14.7	5.1	4	26
ICU	Length of stay on ICU in days	91	6.0 median	11.8	1	62
ISS	Injury severity score	91	19.3	8.8	9	50
PSC	"Psychosocial care by physicians": Sumscore of CPQ modules: "Devotion of Physicians", "Support by Physicians", "Information from Physicians", "Shared-Decision Making"	91	2.7	0.5	1.4	4.0
TRUST	CPQ index "trust in physicians"	91	3.4	0.5	2.0	4.0
GENDER	Female (0)	22	24.2%			
	Male (1)	69	75.8%			
	Total	91	100.0%			
EXTREMITIES	Abbr. Injury Severity Score of extremities					
	AIS = 0 (0)	12	13.2%			
	AIS = 1-2 (1)	32	35.2%			
	AIS ≥ 3 (2)	47	51.6%			
	total	91	100.0%			

**Table 2: Comparison and testing of "study population" (n=91) and "drop-out-population" (n=22) for significant differences using Chi-square test and Mann-Whitney-Test**

	Study-population (n=91)	Drop-Out population (n=22)			
$\chi^2$ -Test			Value	df	Asymptomatic significance (2-sided)
Male	69 (76%)	16 (72.7%)	} 0.091	1	0.763
Female	22 (24%)	6 (27.3%)			
Injury to extremities	79 (87%)	20 (91%)	} 0.274	1	0.601
No injury to extremities	12 (13%)	2 (9%)			
Mann-Whitney-Test					Significance
Mean of age [years] (SD)	35.29 (10.38)	34.55 (14.82)			0.438
Mean of injury severity score [ISS] (SD)	19.32 (8.82)	20.05 (7.24)			0.438
Mean of length of stay on ICU [days] (SD)	10.30 (11.85)	7.68 (7.21)			0.953

a significant way from the group of 22 drop-out patients concerning gender, age, ISS, pattern of injury of extremities, and length of stay on the ICU (Table 2).

The difference between the groups with higher trust and lower trust was analysed with Chi-square test as well as Mann-Whitney test. Groups did not differ in sociodemographic, socioeconomic, and trauma-related variables. There was only one significant group difference between the groups with regard to psychosocial care provided by physicians, as shown in Table 3. Greater psychosocial care of the intensive care physician is positively related to greater trust in physicians.

Sociodemographic and socioeconomic variables were initially introduced in a first logistic regression model with low versus high trust as dependent variable. In a second analysis trauma-related factors (length of stay on ICU,

injury severity score (ISS) and injury of extremities) were included. In both analyses no variable showed a significant influence on trust in intensivists. When in a third model psychosocial care by physicians was added, a significant influence ( $p < 0.001$ ) of this factor was found. Psychosocial care seems to have a positive influence on trust. As shown in Table 4, explained variance of the dependent variable trust accounts only for 1.4% in the first analysis and 3.7% in the second analysis. In the third model, where psychosocial care provided by intensive care physicians forms a significant and highly relevant predictor of trust of severely injured patients, the model accounts for 46.1% of Nagelkerke's Pseudo-R-Square. Psychosocial care by intensive care physicians accounts for 41% of explained variance.

**Table 3: Comparison and testing of groups “lower trust” and “higher trust” for significant differences using Mann-Whitney Test (M-W Test) and Chi-square Test ( $\chi^2$ -Test)**

	Method of analysis	Lower trust in intensivists (n=48)	Higher trust in intensivists (n=43)	Significance (p-value)
Age	M-W Test	35.1 (10.2)	35.5 (10.7)	0.921
Socio-economic status	M-W Test	15.1 (5.6)	14.3 (4.5)	0.604
Length of stay on ICU	M-W Test	9.8 (11.3)	10.8 (12.5)	0.636
Injury severity score	M-W Test	20.0 (8.7)	18.5 (8.99)	0.350
Psychosocial care by physicians	M-W Test	3.00 (0.28)	3.23 (0.40)	<0.001
Gender	$\chi^2$ -Test			0.767
Male		37 (53.6)	32 (46.4)	
Female		11 (50.0)	11 (50.0)	
Abbr. Injury Severity Score of extremities	$\chi^2$ -Test			0.382
No injury to extremities		6 (50.0)	6 (50.0)	
AIS $\leq$ 2		20 (62.5)	12 (37.5)	
AIS $\geq$ 3		22 (46.8)	25 (53.2)	

**Table 4: Results of stepwise logistic regression models on dependent variable “trust in physicians”, explained variance (Nagelkerke’s  $R^2$ ), regression coefficients (beta-values), standard error, significance (p values) and odds ratios**

Independent variable	Regression coefficient	Standard error	Significance (p values)	Odds ratios
<i>First logistic regression model</i>				
Age	0.008	0.021	0.721	1.008
Gender	0.203	0.500	0.685	1.225
Socio-economic status	-0.040	0.043	0.358	0.961
Nagelkerke’s $R^2$	0.014			
<i>Second logistic regression model</i>				
Age	0.002	0.022	0.937	1.002
Gender	0.263	0.519	0.612	1.301
Socio-economic status	-0.032	0.011	0.467	0.968
Injury severity score	-0.024	0.027	0.373	0.976
Abbr. injury severity score of extremities	0.239	0.314	0.446	1.270
Length of stay on ICU	0.018	0.021	0.400	1.018
Nagelkerke’s $R^2$	0.037			
<i>Third logistic regression model</i>				
Age	0.026	0.029	0.384	1.026
Gender	0.182	0.625	0.771	1.199
Socio-economic status	-0.049	0.056	0.384	0.952
Injury severity score	-0.056	0.035	0.116	0.946
Abbr. injury severity score of extremities	0.071	0.389	0.855	1.074
Length of stay on ICU	0.009	0.027	0.724	1.010
Psychosocial Care by Physicians	4.260	1.028	<0.001	70.786
Nagelkerke’s $R^2$	0.461			

Table 5 shows Pearson’s correlation coefficients of the four scales building the independent variable psychosocial care by physicians and the dependent variable trust in physicians. The variable support by physicians shows the highest correlation with trust in physicians at 0.546, fol-

lowed by devotion of physicians with 0.443, information from physicians with 0.396 and shared-decision making by physicians at 0.342.

**Table 5: Pearson's correlation coefficients for correlations between CPQ scales: "Trust in physicians"; devotion, support, information and shared decision-making behaviour of physician**

		Trust <sup>1</sup>	Devotion	Support	Information	Shared decision-making
Trust <sup>1</sup>	Pearson's Correlation	1	0.443**	0.546**	0.396**	0.342**
	Sig. (2-tailed)		<0.001	<0.001	<0.001	<0.001
Devotion	Pearson's Correlation	0.443**	1	0.530**	0.422**	0.394**
	Sig. (2-tailed)	<0.001		<0.001	<0.001	<0.001
Support	Pearson's Correlation	0.546**	0.530**	1	0.475**	0.437**
	Sig. (2-tailed)	<0.001	<0.001		<0.001	<0.001
Information	Pearson's Correlation	0.396**	0.422**	0.475**	1	0.314**
	Sig. (2-tailed)	<0.001	<0.001	<0.001		0.002
Shared decision-making	Pearson's Correlation	0.342**	0.394**	0.437**	0.314**	1
	Sig. (2-tailed)	<0.001	<0.001	<0.001	0.002	

\*\* Correlation is significant at the 0.01 level (2-tailed).

<sup>1</sup> Correlations are based on the original trust metric, no median split was applied for this analysis

## 4 Discussion

### 4.1 Discussion

Our analysis identified psychosocial care by intensive care physicians as the only significant determinant in terms of severely injured patients' trust. This variable accounts for 41% of the variance of trust in intensivists ( $p < 0.001$ ). All other variables which were included in the analysis failed to reach significance. Trust in physicians in an ICU does not seem to be related to age, gender, socioeconomic status of patient, length of stay on ICU, injury severity or injuries to the extremities.

A closer look at the construct psychosocial care by means of correlation analysis shows that supportive behaviour by intensive care physicians has the highest correlation with trust (0.546). The other three scales also correlate positively with severely injured patients' trust. This finding demonstrates the importance of empathy, shared-decision making and method of conveying information from intensive care physician to the severely injured patient.

The feeling to be able to rely on the physician if there are problems with the illness, that physicians will support and help patients to deal better with their illness and that physicians are willing to listen to illness-related problems are important factors of supportive behaviour in terms of severely injured patients' trust. This is especially important because there is empirical evidence that supportive relationships have an effect on patient adherence [42], health, and satisfaction with medical treatment [43], [44]. A trusting physician-patient interaction improves treatment success on a long term basis [45].

Severely injured patients have to deal with their sudden illness and being on ICU after surgery. These issues can best be described as coping with the situation on the ICU. Coping is defined as cognitive and behavioural efforts to manage specific external and/or internal demands that are seen as taxing or exceeding the resources of the

person [46]. Fear and strain provoked by the procedures and surroundings of the ICU on the one hand and emotional relief, support and help on the other hand are closely related to each other and deeply connected with the relational aspects between the ICU team and the patient [47], [48]. Given this, our results underline the special situation pertaining to the ICU. Supportive and empathic behaviour of the intensive care physician helps the patient to cope with the situation, and this is related to the trust of the patient. Methods of conveying information and shared-decision making should also be employed if circumstances make it possible. The above-mentioned results foster the assumption that psychosocial care by intensive care physicians helps in creating an atmosphere of trust with a severely injured patient.

### 4.2 Limitations of the study

The analysis of a local random sample with inclusion and exclusion criteria represents only a well-defined subgroup of severely injured patients. Transfer of these results to severely injured patients in general or indeed any patients in general needs to be critically discussed. We do not know whether, for instance, victims of crime need other aspects of psychosocial care in the surgical ICU.

The proportion of explained variance in this analysis is 46% and 54% of the variance of a trusting physician-patient relationship in a surgical intensive care unit remains unexplained. A possible explanation could be that the characteristics of the physicians providing care such as age, gender and experience were not collected. These characteristics of physicians and possibly other characteristics of patients (e.g. coping styles like "fighting spirit") should be included in further studies. It should also be taken into consideration that psychosocial care cannot only be provided by physicians but also by nurses of the ICU, family, relatives and friends visiting the severely injured patient.



There was no experimental study design with controlled test conditions. Given the fact that the presented study is a field study, which implicitly means a lack of possible explanations, internal validity seems to be reduced. To increase the internal validity, future studies should include prospective interventions and a larger number of study patients.

## 5 Conclusion

The results of this study have shown that caring and supportive behaviour by physicians can enhance the trust of a severely injured patient in surgical intensive care units as well as providing information and allowing joint decisions on treatment. A lack of trust can have negative consequences on the physician-patient interaction and on the further treatment and outcome of the patient, resulting in low adherence to treatment [49], [50] or low patient reported outcomes [51].

The importance of doctor-patient interaction is long known especially in specialities like oncology. Positive effects of communicational skills training for doctors treating oncology patients are shown through a higher amount of empathic expressions of doctors; patients' better remembering the content of the consultation and patients' having a higher amount of time talking in the consultation [52], [53], [54]. Furthermore a positive effect of a communication skills training for 155 skandinavian doctors working with cancer patients in different levels of education was shown by Finset et al. 2003 [55]. By optimizing their communicational skills, the doctors experienced themselves as more confident in encounters with the patients and had a higher satisfaction with the job.

Generally physicians should not only be educated and trained in technical skills but also in the use of communicational and relational skills. The results of this study emphasise the importance of psychosocial skills in medical education. The implementation of psychosocial aspects of interaction should be extended in the curricula of medical education and training.

## Notes

### Competing interests

The authors declare that they have no competing interests.

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**Corresponding author:**

Sonja Thüm  
Institute for Medical Sociology, Health Services Research and Rehabilitation Science (IMVR), University of Cologne, Eupener Straße 129, D-50933 Cologne, Germany, Phone: (+49/221) 478-97141, Fax: (+49/221)-478-97142  
[sthuem@smail.uni-koeln.de](mailto:sthuem@smail.uni-koeln.de)

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