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Prediction of PTSD in Police Officers after Six Months - a Prospective Study

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The aim of this prospective study was to explore the predictors for the development of PTSD in police officers six months after encountering situations of a potentially traumatic nature. Fifty-nine police officers were studied immediately after the event (T1) and six months later (T2). At T2 PTSD was assessed using the Structured Clinical Interview for DSM-IV (SCID-I). PTSD was predicted by intrusions (Impact of Event Scale-Revised; IES-R), the impairment scale (is), global assessment of functioning scale (GAF), gender, age and sense of coherence scale (SOC). The diagnosis of an acute stress disorder (ASD) at T1 had a high specificity for identifying PTSD at T2. The strongest predictor for the development of PTSD was found to be the factor intrusions. Contrary to our expectations, age was not a significant predictive factor for PTSD. Thus, acute stress disorder (ASD) and a high degree of intrusions experienced immediately after a traumatic incident helped to identify early police officers at risk of developing chronic PTSD.

Keywords: trauma, police, post-traumatic stress disorder.

Este estudio prospectivo pretendía determinar las predicciones del trastorno por estrés postraumático (TEPT) para agentes de policía pasados seis meses de un evento potencialmente traumático. Se evaluó a 59 agentes de policía directamente después del incidente (T1) y seis meses después (T2). En la segunda fase de evaluación (T2), TEPT se medía mediante entrevista semiestructurada (Structured Clinical Interview for DSM-IV; SCID-I), esto permitía identificar a los participantes que cumplían con los criterios DSM-IV para el diagnóstico de este trastorno. Además, TEPT se evaluó midiendo las intrusiones (con la Escala revisada del impacto de los eventos; -Impact of Event Scale Revised; IES-R), el deterioro de salud (con la Escala de deterioro -Impairment scale -IS-), la evaluación global del funcionamiento (global assessment of functioning -GAF-), género, edad y escala de coherencia (sense of coherence, -SOC-). Los resultados mostraron que el diagnóstico de trastorno de estrés agudo (en T1) estaba estrechamente relacionado con la identificación posterior del TEPT (en T2). Siendo las intrusiones el mejor predictor. En contra de las expectativas, la edad no fue un buen predictor del TEPT. Asimismo, el desorden de estrés agudo y el alto grado de intrusiones vividas inmediatamente después del incidente traumático ayudaron a la identificación temprana de agentes de policía susceptibles de padecer un TEPT crónico.

Palabras clave: TEPT, evento traumático, policía, trastorno por estrés postraumático.

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Police officers are repeatedly exposed to critical incident stressors placing them at risk of developing Post-Traumatic Stress Disorder (PTSD). The identification of predictors of PTSD is of particular importance for this group at high risk of trauma exposure (Carlier, Lamberts, & Gerson, 1997; McCaslin et al., 2006). A German study of the short-term consequences of traumatic incidents reported that 50.8 % of the 649 police officers had developed an acute stress reaction (according to the criteria of ICD-10; time-frame from the incident to the assessment was "a few hours") (Bär, Pahlke, Dahm, Weiss, & Heuft, 2004). Teegen, Domnick, and Heerdegen (1997) diagnosed 32% German police officers of a police station in Hamburg with Acute Stress Diagnosis (ASD) within the first few weeks after encountering traumatic events in the line of duty. One of the core symptoms in ASD are intense recollections of the trauma, and these are considered to be the result of inadequate information processing (Ehlers & Clark, 2000). The sense of reliving with a "here-and-now" quality is associated with the extent of PTSD severity later on (Michael, Ehlers, Halligan, & Clark, 2005).

With time, trauma-induced symptomatology becomes less intense and severe (Blanchard et al., 1996; Ehlers, Mayou, & Bryant, 1998). The development of PTSD in the general population after an event of a potentially traumatic nature is found to be an exception rather than the rule. The National Comorbidity Survey in the United States found a life-time prevalence of 7.8 % (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). In a replication of the NCS, the 12-month prevalence was 3.5 % (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Maercker, Forstmeier, Wagner, Glaesmer, and Brähler (2008) reported a similar low life-time prevalence PTSD rate of 2.5 % in the German general population.

The incidence rate of current duty-related PTSD in American police officers has been found to vary between 7 % and 19 % (Carlier et al., 1997; Robinson, Sigman, & Wilson, 1997). A recent cross-sectional study of 912 police officers of the New Orleans Police Department (NOPD) eight weeks after hurricane Katrina using a self-administered anonymous questionnaire showed a PTSD rate of 19 % (West et al., 2008). The prevalence rate of PTSD after six months among German police officers was reported by Teegen (2001) to be 9 %. For Austrian police officers on duty at the site of the glacier train tragedy in Kaprun/Austria, the PTSD rate determined by means of a self-assessment questionnaire was 9.4 % six months after the tragedy (Brauchle, 2005).

Since not all police officers develop PTSD after exposure to a potentially traumatic incident, it is important to determine predictors that help identify early those likely to develop PTSD. Reinecke et al. (2007) established a taxonomy for police officers which distinguishes between five sources of strain: (a) the task itself; (b) the organization and structure of work; (c) pressures from outside the police

force (e.g. critical press statement); (d) the social conditions and (e) other conditions. Factor (a) "the task itself" includes demands made on the officers while on patrol duties, e.g., approaching a home where domestic violence has been reported, securing a violent crime scene, dealing with the carnage of motor vehicle accidents or gathering evidence after homicide or suicide. The top five stressors of potentially traumatic nature in police work are reported to be (a) killing someone in the line of duty, (b) a fellow officer getting killed, (c) being physically attacked, (d) working with a battered child and (e) high-speed chases (Violanti & Aron, 1994). To identify predictors for these low-frequency but high-intensity traumatic exposures, it is necessary to study a high-risk group of police officers. A potentially traumatic incident is a condition *sine qua non* for the development of PTSD. Siol, Flatten, and Wöller (2004) found the main objective risk factors to be type, intensity and duration of the traumatic event. However, besides the characteristics of the traumatic event itself, other factors have to be taken into account, because not every police officer encountering one of the above-mentioned top five stressors develops PTSD. In their investigation of gulf war veterans, Orcutt, Erickson, and Wolfe (2004) focused on socio-demographic factors besides combat exposure and found the variables gender (non-male), race (non-white) and education (less education) to be good predictors of combat-related PTSD. Siol, Flatten, and Wöller (2004) reported as further individual risk factors age (being older), low socio-economic status and low social support as also the extent of the physical injury.

On the other hand, previous studies have also investigated protective factors. Social support was found to lower the risk of developing PTSD (McCaslin, Metzler et al., 2006). Coping strategies generally have a protective effect against the development of psychiatric disorders (Hill, Niven, & Knussen, 1995; Dunn, 1996). In particular, coping mechanisms are a strong predictor for the non-development of PTSD (Malt, 1992; Schnyder & Malt, 1998).

Apart from personality factors/individual factors and social factors, initial reactions have been taken into account when identifying predictors for the development of PTSD. Filipp (1990) found that it is not the objective characteristics of a potentially traumatic situation that are decisive, but subjective perception of and the meaning given to the event by the affected person. The degree of adaptation after exposure to an event of a potentially traumatic nature does not parallel the objective severity of the traumatic event, but primarily with the psychological variables of the victim. The subjective perception of the potential traumatic event as being life-threatening is a good predictor for the development of PTSD symptoms, whereas the objective degree of harm experienced is not a very strong predictor (Dahlmann, 1993; Green, McFarlane, Hunter, & Griggs, 1993; Malt & Olafsen, 1992). Brauchle (2006), who examined German police officers, suggests that the diagnosis

of an Acute Stress Disorder (measured with the Acute Stress Disorder Scale, ASDS) immediately after a traumatic incident is a strong predictor of PTSD. Classen, Koopman, Hales, and Spiegel (1998), investigating employees working in an office building in San Francisco in which eight people were killed by a gunman, also found that the diagnosis of an acute stress disorder (assessed by means of the Stanford Acute Stress Questionnaire) predicted PTSD. However, the limitation of these two studies is the fact that PTSD symptoms were assessed by means of a questionnaire and not diagnosed by means of a structured diagnostic interview. Wittmann, Moergeli, Martin-Soelch, Znoj, and Schnyder (2008) used a structural equation modelling approach in a prospective study of motor vehicle accident victims and found that Acute Stress Disorder (ASD) proved to be the strongest single predictor of further psychiatric disorders 6 months post-accident (explained variance of 31 %).

Some studies, however, suggest that not all symptoms of PTSD (i.e. intrusions, avoidance and hyperarousal), develop equally from the Acute Stress Disorder. According to Kraaij and Garnefski (2006), who investigated German subjects 50 years after World War II that had experienced war-related traumatic experiences during childhood, reported that mainly intrusive thoughts were an important factor in long-term maladjustment. In a path analysis of the variables involved in the development of PTSD in firemen 42 months after exposure to traumatic events, McFarlane (1992) concluded that only intrusions could be interpreted as being causally related to the development of psychiatric disorders, especially PTSD. Teegen, Domnick, and Heerdegen (1997) reported that in 40 % of the police officers of a German police department in Hamburg ($n = 155$), intrusions dominated the clinical symptoms of PTSD after events of potentially traumatic nature.

In this prospective study, we examined the variables described in the literature to be predictive of PTSD to identify those which are applicable to police officers from a high-risk group. We hypothesized that intrusions occurring immediately after the traumatic incident and age (being older) would be good predictors for the development of PTSD six months later on.

Method

Participants

The sample consisted of 59 consecutively recruited police officers from North Rhine-Westphalia/Germany, who had been contacted by specialised crisis intervention teams, consisting of a police physician and a leading police officer, after an event of a potentially traumatic nature (T1). All participants had experienced a traumatic incident in the line of duty within the past few days (time elapsed from the encounter with the potentially traumatic event and the first

contact: mean duration $M = 60.23$ hours). Participants were personally invited to participate in the study by the police physician and after obtaining written informed consent, they were examined prospectively over a period of six months. Of the 87 police officers who had been contacted by the crisis intervention teams, 28 refused to participate in the study ($N_1 = 59$). Forty-three of the 59 police officers participating were males (73 %). The age of the participants ranged between 22 and 49 years ($M = 36.61$ years; $SD = 8.05$), with the age group 40 to 49 years being the largest. The majority of the police officers were married, followed by the category single. Contact with the crisis intervention teams had been arranged by the state office of criminal investigation in 59 % of the cases and in 22 % of the cases by the local authorities. According to rules and regulations, crisis intervention teams can be called only in severe cases so that the police officers contacting them belong to a high risk group. The main events of potential traumatic nature were "use of firearms" and "severe motor vehicle accident". During the interview by the crisis intervention teams the 59 police officers were rated by the police physician according to the "impairment scale" (is) and the "global assessment of functioning scale" (GAF). Immediately thereafter, the 59 police officers completed anonymously the self-administered questionnaires "Impact of Event Scale – Revised" (IES-R) and the "Sense of Coherence" (SOC) along with a questionnaire concerning socio-demographic data, which were returned by the participants themselves to the researchers in a self-addressed and postage-paid envelope. Due to the fact that the crisis intervention teams had sent in expert ratings on 19 police officers, but the police officers had not sent in their self-assessment questionnaires, it was possible to make comparisons between the participants and non-participants. The participants did not differ significantly from the non-participants in gender and age. The crisis intervention teams were sent to nearly all police officers (81 %) by the state office of criminal investigation or the local authority in charge, so no self-selection effect could be encountered (Tab. 1).

Procedure

Prior to the start of the project, police physicians were trained to identify all symptoms according to the classification of the Acute Stress Disorder (ASD, DSM-IV). They were then asked to decide whether or not the police officers who are the subjects of this study met the criteria for the diagnosis of ASD.

After six months (T2) the police officers were contacted again. Presence of PTSD was assessed using the PTSD module of the German version of the Structured Clinical Interview for DSM-IV (SCID I; First, Spitzer, & Gibbon, 1996; German version: Wittchen, Wunderlich, Gruschwitz, & Zaudig, 1997). DSM-IV trauma criteria (A1 and A2) were also assessed using the SCID and had to be fulfilled

Table 1

Baseline demographic characteristics of the participating police officers in comparison to the non-participants at T1 (immediately after the traumatic incident)

Category	Subcategory	Participants <i>n</i> = 59		Non-Participants <i>n</i> = 19	
Gender	female	16	(27.1 %)	3	(15.8 %)
	male	43	(72.9 %)	16	(84.2 %)
Age	20 to 29 years	14	(23.7 %)	8	(42.1 %)
	30 to 39 years	19	(32.2 %)	7	(36.8 %)
	40 to 49 years	26	(44.1 %)	2	(10.5 %)
	50 to 59 years	0		1	(5.3 %)
	no information given	0		1	(5.3 %)
Marital status	single	15	(25.4 %)	no data	
	married	36	(61.0 %)	no data	
	living apart	1	(1.7 %)	no data	
	divorced	7	(11.9 %)	no data	
Highest level of education	junior high school certificate	29	(49.2 %)	no data	
	secondary school-leaving examination certificate	30	(50.8 %)	no data	
Contact to the crisis intervention teams	state office of criminal investigation	36	(61.0 %)	8	(42.1 %)
	local authority in charge	14	(23.7 %)	8	(42.1 %)
	police officers themselves	4	(6.8 %)	1	(5.3 %)
	other	3	(5.1 %)	1	(5.3 %)
	no information given	2	(3.4 %)	1	(5.3 %)

for a diagnosis of PTSD. The police officers were instructed to answer the questions of the SCID in relation to the particular traumatic incident. In an effort to achieve further reliability, the above mentioned process was supervised by a senior researcher. All assessments at T2 were conducted by the first author. At T2, 50 police officers participated (9 police officers declined to take part in the follow-up). Of these ($N_2 = 50$), 35 were male (70 %). The age of the participants at T2 ranged from 22 to 49 years and the majority were from the age group 40 to 49 years ($M = 37.1$ years; $SD = 8.4$).

Intrusions (INTR) of the PTSD syndrome were assessed by the subscale intrusions of the Impact of Event Scale – Revised (IES-R; Horowitz, Wilner, & Alvarez, 1979; Weiss & Marmer, 1996; German version Maercker & Schützwohl, 1998). This 22-item questionnaire assesses different aspects of traumatic symptoms using a 4-point scale from 0 to 3 (0: “never”, 1: “seldom”, 2: “sometimes”, 3: “frequently”). It can be subdivided into the three dimensions of PTSD: intrusion (INTR, 7 items), avoidance (AVOI, 8 items) and hyperarousal (HYPE, 7 items). The internal consistency, Cronbach’s alpha of the German version was found to be ($\alpha = .90$) for the subscale intrusion, for the subscale avoidance ($\alpha = .79$) and for the subscale hyperarousal ($\alpha = .90$). The test-retest reliability was reported to be $r_{tt} = .80$ (intrusion), $r_{tt} = .66$ (avoidance) and $r_{tt} = .79$ (hyperarousal) (Ferring & Filipp, 1994).

The impairment scale (is) enables an expert to make a global assessment of the severity of impairment caused by a person’s symptoms (Schepank, 1995). The subscales “somatic impairment (som)”, “psychiatric impairment (psy)” and “social communicative impairment (soco)” are assigned values ranging from 0 (“no impairment”) to 4 (“extreme impairment”). In the literature, the interclass correlations of (ICC) $ICC-som = .70$, $ICC-psy = .79$ and $ICC-soco = .81$ are considered to demonstrate reliability (Schepank, 1995). The score of the impairment scale (is) can be dichotomized by defining that values above four are to be considered as representing a clinically significant impairment (Schepank, 1995):

a) $is \leq 4$: *Impairment Index* = 0

b) $is > 4$: *Impairment Index* = 1 (clinically significant impairment).

For this study the impairment was rated for the time frame of the “past seven days”. Impairment according to the impairment scale (is) was assessed by the police physician of the crisis intervention team at T1.

By means of the Global Assessment of Functioning scale (GAF; axis V of the DSM-IV; American Psychiatric Association, 2000), the global level of functioning was rated on a scale from 1 (“Persistent risk that the person harms himself or others”) to 100 (“High achievement in a wide range of activities”). Rating according to GAF was done by the police physician of the crisis intervention team

at T1 with a time frame of "last seven days". To establish whether the current GAF was altered by the incident another time frame of "last 12 months" was also assessed.

The questionnaire Sense of Coherence Scale (SOC) with 13 items was developed by Antonovsky (1993) based on the model of salutogenesis. Sense of coherence is defined as a global orientation encompassing a feeling of trust - generalized, dynamic and of long duration - that the inner and the outer world is predictable and that the circumstances will develop as one could expect them to develop (Antonovsky, 1993). The subscales of the Sense of Coherence (SOC) are "comprehensibility", "manageability" and "meaningfulness". The internal consistency, Cronbach's alpha, was found to be .84 for the SOC-13-version (Rimann & Udris, 1998).

For the logistic regression analysis, two groups were defined: the PTSD group consisted only of the police officers with PTSD whilst the non-PTSD group consisted mainly of participants without this diagnosis (2 participants showed mild depressive symptoms without PTSD and 2 participants had obsessive-compulsive symptoms without PTSD). Based on the literature, as predictors at T1 (immediately after the traumatic incident), the psychosocial characteristics of the participants were assessed on the basis of the following instruments and questionnaires: (a) intrusions (INTR: subdimension of the IES-R), (b) Impairment Scale Index (is-Index), (c) Global Assessment of Functioning Scale (GAF; axis V of the DSM-IV; American Psychiatric Association, 2000) (d) age, (e) sex (females were coded with zero, males with one) and (f) Sense of Coherence (SOC).

Results

Categories of Traumatic Incidents

The most frequent incidents of a potentially traumatic impact that the police officers were exposed to in the line of duty were the use of firearms and severe motor vehicle accidents (frequencies of the incident categories: use of firearms: $n = 16$, severe motor vehicle accident: $n = 17$, being taken hostage: $n = 2$, suicide: $n = 7$, brawl: $n = 6$, other hostilities: $n = 9$, no information available: $n = 2$). The number of occasions when firearms are used by German police officers is generally low. Therefore, the present study, where police officers used firearms in a relatively large number of cases (16 of 59 cases), focuses on a sample of high- risk police officers.

Acute Stress Disorder (ASD)

The physicians of the crisis intervention teams made the diagnosis of an Acute Stress Disorder (ASD) in 25 participants (42 %).

Post-Traumatic Stress Disorder (PTSD)

According to the SCID-I used in the interview at T2, 14 police officers (28 %) met criteria for PTSD. PTSD was coded as a dichotomous variable (PTSD vs. non-PTSD). At T2, the police officers were asked whether they were able to work or not. Three police officers stated that they were not able to work and had been signed off from work. Ten police officers had started an outpatient psychotherapeutic treatment for their PTSD symptoms. All 10 police officers were still working although the flashbacks and other PTSD-related symptoms occurred frequently during work shifts.

Sensitivity and Specificity of the Acute Stress Disorder Diagnosis in relation to the Post-Traumatic Stress Disorder Diagnosis

Of the 25 police officers who had been diagnosed with an Acute Stress Disorder (ASD) at T1, 10 were diagnosed with a PTSD six months later (T2). Therefore, the police physicians identified 10 police officers as true positive (10 ($TP = 10$)). On the other hand, the police physicians identified at T1 that 34 police officers ($59 - 25 = 34$) did not show symptoms of the ASD. Of these 34 police officers who had not been diagnosed with ASD at T1, 25 were not diagnosed with a PTSD six months later (T2). Thus, the police physicians identified 25 police officers as true negative (25 ($TN = 25$)). The positive predictive value index was $PP = .71$ and the negative predictive was $PN = .69$. These data yielded quite a good specificity of $SPE = .86$ (values above .75 can be considered as quite good, see also Brewin, 2005) but a low sensitivity of only $SEN = .47$ (again, values above .75 can be considered as quite good). Specificity means the probability that someone without a PTSD diagnosis will test negative on the screener, i.e. that all police officers without PTSD will be identified by the police physicians. Sensitivity means the probability that someone with PTSD diagnosis will test positive on the screener, i.e., that in this study many police with PTSD are not identified by the police physicians. Due to this fact many police officers would be viewed as being healthy although they were at risk of developing PTSD. Therefore, a new approach was sought employing the questionnaires used at T1 and using those variables which have been used in the literature to identify factors that help predict PTSD at T2. To get valid results, it must be established that the global functioning level between the groups at T1 did not differ, so as to show that the ASD vs. non-ASD group did not differ in terms of their functioning before the critical event.

Preliminary Analysis

Prior to the potentially traumatic event, analysis of the level of functioning (Global Assessment of Functioning, GAF) showed for all participating police officers a high level

Table 2

Logistic regression analysis for the prediction of the PTSD vs. non-PTSD group six months after exposure to a potentially traumatic incident. Predictors: (1) intrusions, (2) impairment-index, (3) functioning, (4) age, (5) gender and (6) sense of coherence

Predictors	Regression coefficient <i>B</i>	Standard error <i>SE</i>	Wald	Significance level <i>p</i>
Intrusions	+ 0.12	0.06	3.93	.05*
Impairment-Index	- 0.55	1.28	0.19	.66
Functioning	- 0.07	0.04	2.35	.13
Age	+ 0.04	0.08	0.23	.63
Gender (male participant)	+ 0.25	1.29	0.04	.85
Sense of coherence	+ 0.04	0.04	0.71	.40

Note. * = $p \leq .05$

of functioning without any differences between the groups (ASD vs. non-ASD: $t = 0.80$; $p = .43$). Due to the incident, a significant fall in the level of functioning for all participating police officers occurred, with the level being significantly lower ($t = 2.70$; $p = .01$) for those police with an ASD.

Prediction of PTSD

For the prediction of PTSD (regression coefficient *B*, all variables simultaneously regressed) after six months, the logistic regression analysis yielded the following values (Table 2):

For those falling into the PTSD group: 0.12 * Intrusions; - 0.55 * Impairment Scale Index; - 0.07 * Global Assessment of Functioning; + 0.04 * Age; + 0.25 * Male participant; + 0.04 * Sense of Coherence.

Results indicated that the impairment index, the global assessment of functioning and age were not significant predictors of PTSD. The predictor "Intrusions" with a significant regression coefficient of 0.12 (Standard error *SE* = 0.06; $p = .05$) had the highest influence onto PTSD. The explained variance of the model containing the whole set of variables was $R^2 = .42$ (Nagelkerkes R-squared; Nagelkerke, 1991), and the significance value of the overall fit of the regression equation was $\chi^2 = 15.96$ ($df = 6$; $p = .01^*$).

Receiver Operating Characteristics of the Acute Stress Disorder Diagnosis and the Level of Intrusions of the Police Officers at T1 in Relation to the Post-Traumatic Stress Disorder Diagnosis at T2

To be able to compare the predictive values of Acute Stress Disorder (ASD) and intrusions (INTR), a receiver operating characteristics (ROC) analysis was carried out. The area under the curve (AUC) for intrusions (INTR) was larger ($AUC = 0.76$, $p < .01$) than for ASD ($AUC = 0.70$, $p = .02$) (Fig. 1). Based on these results, it is recommended that the level of intrusions be used for predicting PTSD six months later rather than just ASD.

Discussion

The aim of this study was to identify predictors for the development of PTSD six months after encountering a potentially traumatic event or situation. A prospective design was used to minimize retrospective memory distortions. It should be pointed out that the participants of this study comprise a high-risk group of police officers. To our knowledge this is the first prospective study examining German police officers soon after a traumatic encounter and again six months thereafter using a structured interview (SCID-I).

The ROC analysed the relationship between ASD at T1 and PTSD at T2 to establish whether, as suggested by Brauchle (2006), the diagnosis of an Acute Stress Disorder (measured with the Acute Stress Disorder Scale, ASDS) is a good predictor of PTSD at T2. The specificity was good; however, the sensitivity was of poor quality, as too many police officers at risk of developing PTSD were missed by this screening method.

When other variables, which had been found in the literature concerning PTSD development, were taken into account, intrusions at T1 were the only significant predictor of PTSD at T2. Age could not be identified as a significant predictor for this high-risk police officer sample. Therefore, a combination of the ASD diagnosis at T1 and the intensity of intrusive memories could be seen as a useful strategy to identify police officers at risk of developing chronic PTSD.

As predictors at T1, the following variables were selected: (a) intrusions, (b) impairment-index, (c) functioning, (d) age, (e) gender and (f) sense of coherence. According to Frommberger, Angenendt, and Berger, (1998), the risk of developing PTSD was two-fold in female as compared to male victims of motor vehicle accidents. Therefore gender was taken as a predictor into the regression analysis of the present study. However, it had low predictive power. This is in agreement with the findings of Teegen, Domnick, and Heerdegen (1997) who also did not find gender to be a risk factor. This finding might be attributed to a self-selection process during police training. Those who join the police

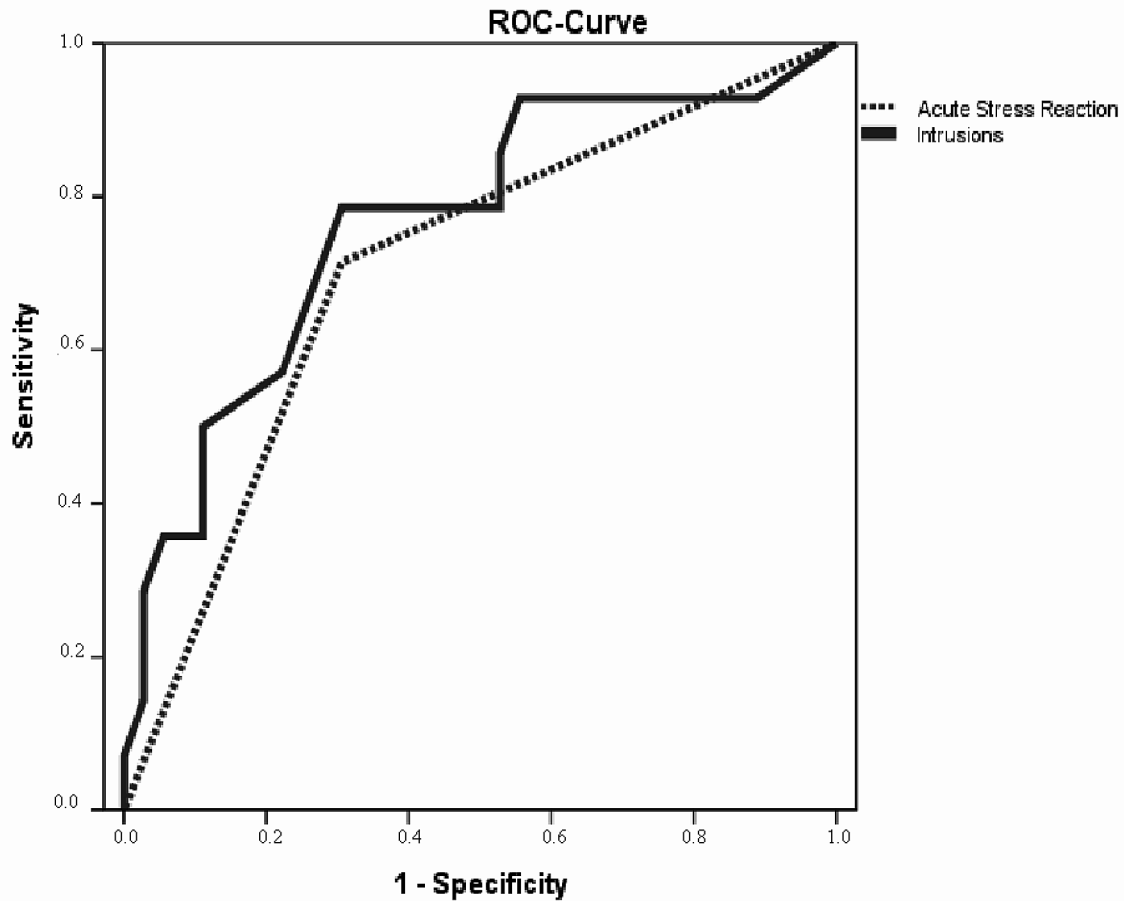


Figure 1. Receiver Operating Characteristics (ROC-Curve) of the Acute Stress Disorder Diagnosis (ASD) at T1 and the level of intrusions (Impact of Event Scale – Revised IES-R) with respect to a diagnosis of Posttraumatic Stress Disorder (PTSD) at T2.

force become aware during the training period of the stressful nature of their future tasks and drop out if they find they cannot handle these tasks. Due to this self-selection process both male and female police officers should have a similar risk potential to develop PTSD during their career. Siol, Flatten, and Wöller (2004) reported that age (being older) can be seen as a risk factor to develop PTSD. Fischer and Riedesser (2003) posit in their model of the development of PTSD through cumulative exposure that one event of potentially traumatic nature can trigger PTSD. However, they argue that the process of cumulative exposure seems to be of more importance to understand late-onset PTSD. Therefore, older police officers, that is, those who have been in the police force for a longer time, should have a higher risk of developing PTSD. However, in the present study, age (being of older age) did not function as a predictor of the level of PTSD. This is in agreement with the results of Teegen, Domnick, and Heerdegen (1997) who also found no differences regarding the risk of PTSD between police officers of different ages.

Some variables which are mentioned in the literature were not tested by this study. Besides the variable gender

(non-male), Orcutt, Erickson, and Wolfe (2004) found also race (non-white) and education (less education) to be good predictors of PTSD. In the present study, race (non-white) played no role because all participants were Caucasian. Furthermore, education could not be tested due to the fact that police officers in Germany have similar levels of education. The differences between the level of PTSD measured by the Impact of Event Scale – Revised (IES-R) in relationship to the education level was minimal and not significant. Siol, Flatten, and Wöller (2004) reported besides age (being older), low socio-economic status and low social support to be risk factors. The socio-economic status was not taken into account in our study since police officers in Germany are all civil servants, with similar pay scales so that differences between status levels can be neglected.

In the present study, based on the classification of stress factors impacting on police officers (Reinecke et al., 2007), a distinction was made between factor (2) “the organisation and structure of work” covering organisational limitations (e.g. work load, excessive paperwork, lack of recognition, negative public image, long work shifts or social conflicts within the department) and factor (1) “the task itself”. In

our study, the focus was exclusively on factor (1) and especially on events of traumatic nature. However, in future research, a different approach to the identification of predictors could be of interest: Maguen et al. (2009) found in a path model predicting PTSD of police officers, using among others, the work environment as predictor and PTSD symptoms as criterion that the work environment seems to have a strong impact on the development of PTSD as well as a moderating effect for variables such as prior trauma experience. Due to the fact that significant stress symptoms (Lipp, 2009) as well as burnout syndromes (Beltrán, Moreno, Estrada, López, & Rodríguez, 2009) seem to play a vital role in work-related stress of police officer, these too could enhance PTSD symptoms as work environment variables.

Engelhard, van den Hout, Weerts, Hox, and van Doornen (2009) examined Dutch soldiers in a prospective, longitudinal study before they were deployed to Iraq, as well as 5 and 15 months later. They reported that symptoms of PTSD assessed at the first follow-up (5 months after the initial screening) predicted physical symptoms at the second follow-up 10 months later, which at that late stage was often considered to be “medically unexplained”. They concluded that clinicians should be attentive to PTSD at an early stage to avoid the development of physical symptoms in the long term.

One main limitation of this study is that the sample consisted only of police officers. Whether the results obtained can be generalized to other groups who have also experienced trauma needs to be investigated in further studies. Furthermore, the study focussed on a subgroup of police officers, namely those belonging to a high-risk group. In addition, the number of subjects studied is small. However, the specific strength of this study lies in its prospective design which enables a more causal interpretation of the results. Furthermore, the structured diagnostic interview used here made it possible to assign subjects to the group of those likely to develop PTSD at a later time point.

In conclusion, the present study provides evidence that besides using expert ratings of ASD immediately after a potentially traumatic incident, the scores for “intrusions” in the Impact of Event Scale – Revised should be assessed in order to identify police officers at risk of developing PTSD in the future.

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