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‘Learning how to ask’: Effectiveness of a training for trauma inquiry and response in substance  
use disorder healthcare professionals

### Abstract

Context: Exposure to traumatic events should be systematically assessed in healthcare services so that trauma-related treatment can be offered when appropriate. However, professionals often lack expertise in trauma inquiry and response, and therefore require training in this field. Objective: We aimed to determine whether the ‘Learning how to ask’ training for trauma inquiry and response (Read, Hammersley, & Rudegeair, 2007) is effective in increasing healthcare professionals’ trauma inquiry behavior. Method: 148 professionals working in outpatient substance use disorder services were cluster-randomized into an intervention or a waiting control group. The intervention group received a one-day training and a refresher session 3 months later, while the control group received no training. The primary outcome was the change from baseline in the frequency of asking clients about traumatic events. Secondary outcomes were professionals’ evaluation of the training, knowledge, attitudes towards and confidence in trauma inquiry and response. Results: Change from baseline in the frequency of asking clients about traumatic events was significantly greater at 3-month and 6-month follow-up in the intervention group compared to the control group ( $b = 0.43$ , 95% CI [0.27, 0.59],  $p < .001$ ). The training was positively evaluated by the participants. Knowledge, positive attitudes towards and confidence in trauma inquiry and response all showed significantly greater increases in the intervention group than in the control group. Conclusions: These findings suggest that healthcare professionals can acquire skills in trauma inquiry and response from short trainings, which may enhance systematic assessment of traumatic events.

*Keywords:* abuse, neglect, maltreatment, trauma-informed care, addiction, substance abuse, counseling, screening

### **Introduction**

Exposure to traumatic events in childhood increases the risk for developing mental disorders in adulthood (Kendler et al., 2000; Norman et al., 2012; Varese et al., 2012). The link between trauma exposure and later substance use disorder (SUD) is particularly well established (Kendler et al., 2000; Norman et al., 2012). For example, childhood sexual abuse increases the risk of alcohol use, illicit drug use, and injecting drug use in adulthood by five, seven-, and eleven-fold, respectively (Kendler et al., 2000).

Given that trauma survivors carry a high risk for developing SUD, traumatic events are highly prevalent in clients accessing SUD services. Huang et al. (2012) reported that one out of two men and three out of four women with alcohol dependence had been exposed to traumatic events in childhood. One third of the clients with alcohol dependence reported emotional abuse; one third reported physical abuse; and one fourth reported sexual abuse (Huang et al., 2012).

SUD clients that had been exposed to traumatic events present a greater addiction severity (Greenfield et al., 2002; Lown, Nayak, Korcha, & Greenfield, 2011; Rosenkranz, Muller, & Henderson, 2014), more comorbid mental disorders (Evren, Kural, & Cakmak, 2006; Kessler et al., 1997) and greater somatic health problems (Kang, Deren, & Goldstein, 2002; Ouimette, Moos, & Finney, 2000) than SUD clients without trauma exposure. As a result, SUD clients exposed to traumatic events relapse earlier (Farley, Golding, Young, Mulligan, & Minkoff, 2004; Greenfield et al., 2002; Walitzer & Dearing, 2006) and have a higher risk of dropout from treatment (Hien & Levin, 1994; Jaycox, Ebener, Damesek, & Becker, 2004; Thompson & Kingree, 1998). Given the complex problems of clients exposed to traumatic events, detection of these events is essential to be able to offer appropriate responses, including: information about trauma, trauma-related support, referral to trauma-related counselling or therapy, as well as consideration of the advantages and disadvantages of reporting to legal or protection authorities (Cavanagh, New, & Read, 2004). In contrast, undetected

trauma-related needs of clients may negatively affect the professional-client relationship, the client's engagement in treatment and the clients' treatment outcomes (Read, McGregor, Coggan, & Thomas, 2006).

Traumatic events should be systematically inquired about by healthcare professionals, as many clients are reluctant to spontaneously report these events (Read & Fraser, 1998a; John Read et al., 2006; Wurr & Partridge, 1996), particularly if the traumatic events are related to interpersonal abuse by a caregiver (Marriott, Lewis, & Gobin, 2016; Read et al., 2006). Although many professionals believe that systematic screening for traumatic events is important (Lee, Coles, Lee, & Kulkarni, 2012; Lee, Lee, Coles, & Kulkarni, 2012), they often hesitate to routinely ask their clients about traumatic events in daily practice (Agar, Read, & Bush, 2002; Ilnyckyj & Bernstein, 2002; Read et al., 2006). Studies also find that response by mental healthcare professionals to disclosures of child abuse is frequently inadequate (Agar & Read, 2002; Read & Fraser, 1998b).

One main reason why healthcare professionals hesitate to ask their clients about traumatic events is insufficient training (Courtois & Gold, 2009). Healthcare professionals report that they lack knowledge about trauma inquiry and response (Salyers, Evans, Bond, & Meyer, 2004; Warne & McAndrew, 2005) and fear they might offend or destabilize clients (Sugg & Inui, 1992; Young, Read, Barker-Collo, & Harrison, 2001). Simply including a question related to traumatic events in an admission form does not increase trauma inquiry rates (Read & Fraser, 1998a). Instead, specific training for trauma inquiry may be more effective (Currier, Barthauer, Begier, & Bruce, 1996; Tilden et al., 1994).

However, such trainings are rare (Courtois & Gold, 2009). Read and colleagues (Read et al., 2007) developed a one-day 'Learning how to ask' training, which can be used in different healthcare settings. Participants are trained in the inquiry of traumatic events and adequate response strategies to the clients' reports of such events. The training was developed at Auckland University in New Zealand

following Auckland District Health Board's (2000) new Mental Health Service Policy guideline, stating that all health professionals should be trained in trauma inquiry and response. In this 'Learning how to ask' training, basic guidelines on how to ask about, and respond to reports of, traumatic events are presented, and practiced in role plays (see Method section).

The training was provided at least once a year for ten years. Recent comparisons of audits of medical files prior to and after this period of time revealed significant improvement in both inquiry rates (Sampson & Read) and adequacy of response (Read, Sampson, & Critchley, 2016); but it remains unclear whether these changes were due to the training. The first administrations of the 'Learning how to ask' training had been evaluated in a pilot study (Cavanagh et al., 2004). The 82 healthcare professionals involved in the study, predominantly nurses, evaluated the training very positively (Cavanagh et al., 2004). Twenty of the thirty who were followed up after 6 weeks reported that the training had improved their clinical practice, and ten (33%) provided specific behavioral examples (Cavanagh et al., 2004). Although these first results are encouraging, they need to be confirmed by a further study with a more rigorous design, a larger sample size and, as suggested by Cavanagh and colleagues (2004), a longer follow-up time.

In this cluster-randomized controlled trial, we evaluated the effectiveness of the 'Learning how to ask' training with healthcare professionals working with clients in German outpatient SUD centers. We hypothesized that professionals of the intervention group would show a greater change from baseline in the frequency of asking about traumatic events at 6-month follow-up compared to an untrained control group.

## **Methods**

### **Participants**

Participants were recruited from 27 SUD counseling centers in the German federal states of Hamburg and Schleswig-Holstein. Healthcare professionals from the centers were included in the study

if they were providing counseling or outpatient therapy for SUD clients, i.e. if they were in direct contact with clients. The professionals' age ranged between 21 and 65 years (Supplement 1); the professionals of the intervention group were significantly younger than the professionals of the control group. About two third of the professionals were social pedagogues (German university education similar to social work in the United States). On average, both groups were in contact with 32 clients per month. More than half of the professionals had been working for more than five years in the SUD center.

### **Design**

This study was designed as a cluster-randomized trial with two groups. Eleven SUD service providers (which included 27 SUD counseling centers) were randomized to either the intervention or the control group. Participants of the intervention group received the 'Learning how to ask' training (Read et al., 2007) that had been adapted to a German audience (e.g., adaptation of the resources in the manual). Participants in the control group received no training in the data assessment period, but were offered the opportunity to receive the same training after the follow-ups had been completed. The study was approved by the local ethics committee (Ethikkommission der Ärztekammer Hamburg) and conducted in accordance with the Declaration of Helsinki (World Medical Association, 2013).

#### **The 'Learning how to ask' training.**

In the training, the different types of traumatic events are described and empirical findings on the prevalence of traumatic events in the general population and in clinical samples are presented (Figure 1). The significance of traumatic events as risk factors for the development of mental disorders are explained. The symptoms of post-traumatic stress disorder are described. Empirically identified reasons for not asking about traumatic events are presented and discussed, e.g., the concern that asking about traumatic events may cause symptom deterioration (Cavanagh et al., 2004). Knowledge about asking about traumatic events and responding to the clients' reports of traumatic events are conveyed

and practiced in role plays. The documentation of traumatic events is described and available resources for clients exposed to traumatic events are presented.

The Learning how to ask training is currently offered by the Center of Psychotraumatology Hamburg in Germany (Zentrum für Psychotraumatologie Hamburg, [www.zep-hh.de](http://www.zep-hh.de)) as on-site or inhouse-training. More information on the availability and costs of the training can be achieved from the corresponding author.

### **Outcomes**

Based on Kirkpatrick's (2008) evaluation model, we measured the effectiveness of the training on three outcome levels: immediate evaluation of the training; learning, i.e., improvement in knowledge, attitudes towards and perceived confidence in trauma inquiry and response; and behavior, i.e., behavior change in the frequency of asking about traumatic events in daily work practice. The primary outcome was change in the frequency of asking about traumatic events. All other outcomes were secondary outcomes.

#### **Evaluation of the training.**

The immediate reaction towards the training was measured directly after the professionals underwent the training. The professionals evaluated ten aspects of the training (see results section) on four-point rating scales (1 = 'I strongly agree', 2 = 'I somewhat agree', 3 = 'I somewhat disagree', 4 = 'I strongly disagree') and judged how helpful they perceived the content of the training modules (1 = 'very helpful', 2 = 'somewhat helpful', 3 = 'little helpful', 4 = 'not at all helpful'). Additionally, the professionals assigned an overall grade to the training (1 = 'very good', 2 = 'good', 3 = 'satisfactory', 4 = 'acceptable', 5 = 'deficient', 6 = 'inadequate').

#### **Learning.**

Knowledge, attitudes towards and perceived confidence in trauma inquiry and response were assessed at baseline, at 3-month follow-up and at 6-month follow-up. To assess knowledge in trauma

inquiry and response, eight multiple choice items were constructed that assessed knowledge about the methods of trauma inquiry and response taught during the training. To penalize guessing, multiple choice items were designed in a four-choice format with varying numbers of correct answers. A test score was derived by summing all correct answers, subtracting all wrong answers and calculating the percentage of the maximum score (24 points).

Attitudes towards trauma inquiry and response were measured by eight four-point scales (0 = 'completely disagree', 1 = 'somewhat disagree', 2 = 'somewhat agree', 3 = 'completely agree'). The items were summed to obtain a total score ranging from 0 to 24. Higher values indicate a more positive attitude towards trauma inquiry and response. Internal consistency was acceptable (Cronbach's  $\alpha = .73$ ).

Confidence in trauma inquiry and response was measured using two four-point scaled questions ('How confident do you feel to ask your clients about traumatic events?'; 'How confident do you feel in responding to reports of traumatic events?'; 0 = 'very unconfident', 1 = 'somewhat unconfident', 2 = 'somewhat confident', 3 = 'very confident').

### **Behavior Change.**

The frequency of asking about traumatic events was assessed by questionnaires at baseline (prior to the training), at 3-month follow-up (prior to the refresher training) and at 6-month follow-up. The professionals rated on five four-point Likert scales (0 = 'never', 1 = 'sometimes', 2 = 'often', 3 = 'always') how often they asked their clients about lifetime experiences with sexual, physical and emotional abuse, or physical and emotional neglect.

### **Procedure**

Recruitment took place from July 2013 until December 2013. Study staff contacted the SUD counseling centers and informed the professionals about the study. If the head of the SUD center and their employees agreed to participate, the center was included in the study. Randomization was



conducted at the level of the SUD service providers, each of which operated different counseling centers. This randomization level was chosen because professionals often worked in more than one counseling center of a provider; randomizing on the level of the centers would have introduced bias caused by contamination. The allocation schedule for the random assignment of the service providers to the intervention or control group was generated by the randomization software DatInf RandList Version 1.2.

The baseline assessment, the training and the follow-up assessments were conducted between June 2014 and February 2015. The SUD professionals of the intervention group were invited to participate in the 'Learning how to ask' training (Read et al., 2007) and a short refresher session 3 months later. One experienced psychiatrist (last author) and/or one graduated psychologist (first author) trained the SUD professionals in groups ranging from five to sixteen professionals. The training took place at the university medical center at which the study was conducted or at the counseling center if on-site training was preferred. The refresher training included the discussion of experiences of trauma inquiry and response and the rehearsal of the basic rules of trauma inquiry and response. The professionals in the control group received the training after the data assessment period of this study.

## **Statistical Analysis**

### **Estimation of Sample Size.**

On the basis of an a priori power analysis, using a repeated-measures F-Test with a .05  $\alpha$ -level of significance and assuming a moderate effect size of 0.60 for self-report criteria of training programs (Arthur, Bennett, Edens, & Bell, 2003), we estimated a sample size of 74 professionals to achieve 80% power to detect a medium effect size of  $\eta^2 = .059$  (Cohen, 1988). Assuming an attrition rate of 40% at 6-month follow-up, we aimed to include 120 professionals in our study.

Sample characteristics and the evaluation of the training were reported by means and standard deviations of absolute and relative frequencies. Drop-out analysis was conducted using independent  $t$ -

test statistics. Data on all randomized study participants were analyzed on an intention to treat basis (data of participants randomized to the intervention group that missed the training remained in the data of the intervention group).

**Primary outcome.**

The primary outcome *change from baseline* in the frequency of asking about traumatic events was analyzed with a linear mixed model (LMM). The intervention group was compared to the control group in the change from baseline at 3-month and 6-month follow-up.

In the LMM predicting change from baseline in the frequency of asking about traumatic events, the group (training vs. control), the time point of the follow-up assessment (3 months vs. 6 months), the type of traumatic event (sexual, physical and emotional abuse, physical and emotional neglect) and all possible interactions between these three variables were included as fixed effects. We fitted a model that included three random effects for the intercept (service providers, professionals, counseling centers). The providers were included in the model as random effects to control for the randomization on the level of the providers. The professionals were considered in the model as random effects to control for repeated measurement within a professional; the centers were included in the model as random effects to control for the clustering of data within centers. To simplify the model, a random effect as well as an interaction term was removed from the model when it explained no significant additional variance in the outcome, compared with the model without the respective term, using the Likelihood Ratio test.

Baseline scores of the frequency of asking about traumatic events were included in the model to account for potential imbalances at baseline between the intervention and control group. To control for potential confounding, the following variables that are likely to be related to the outcome (Verthein et al., 2013) were included in the model: professionals' age, gender, migration background ('yes' or 'no'), professional group ('social pedagogue', 'pedagogue', 'psychologist', 'other profession' or 'trainee'),

duration working in the SUD center ('0 to < 2 years', '2 to < 5 years', '5 to < 10 years' or 'more than 10 years'), previous trauma training within the last 3 years ('yes' or 'no') and type of substance use of clients ('predominantly legal substances', 'predominantly illegal substances' or 'legal and illegal substances balance each other').

### **Secondary outcomes.**

The secondary outcomes change from baseline in knowledge, change from baseline in attitudes towards trauma inquiry and response, and change from baseline in confidence in trauma inquiry and response were analyzed with separate LMMs. The intervention group was compared to the control group in the changes from baseline at 3-month and 6-month follow-up. We included the group, the time point of the follow-up assessment, and the interaction between these two variables as fixed effects in the LMMs.

The models included three random effects for the intercept (service providers, professionals, counseling centers, see primary outcome). To simplify the LMMs, random effects and interaction terms were removed from the models when they explained no significant additional variance in the outcome using the Likelihood Ratio test. Baseline scores of the primary outcome were included in the LMMS to account for potential imbalances at baseline between the groups. The identical potentially confounding variables included in the model for the primary outcome were added to all additional LMMs.

The estimated effects of the LMMs or the marginal means (the mean response for each variable, adjusted for any other variables in the model) with corresponding 95% confidence intervals were reported in tables or visualized by figures. All statistical analyses were conducted with STATA (Version 14.0, Stata Corp, College Station, Texas, USA).

### **Results**

Figure 2 shows the participant procedure through the study. We contacted 33 SUD counseling centers; 27 centers of 11 different service providers with 148 professionals were willing to participate

in the study and were cluster-randomized on the level of the service providers. 132 professionals completed the baseline assessment, 104 professionals completed the 3-month follow-up and 74 professionals completed the 6-month follow-up.

### **Drop-out analysis.**

Drop-out analysis indicated that the professionals that completed the 6-month follow-up (intervention group 43.1% vs. control group 56.6%) might be representative of the full sample: Comparing the professionals who did with those who did not provide data for the 6-month follow-up on the primary outcome, they did not significantly differ in their frequency of asking about traumatic events at baseline or at 3-month follow-up assessment.

### **Evaluation of the training.**

On average, the 57 professionals in the intervention group strongly agreed that ‘the training was useful’ and that they ‘had a personal benefit from the training’ (Supplement 2). They strongly agreed that ‘the subject matter is useful for [their] daily job practice’. ‘Learning basic rules of asking about traumatic events’ was perceived as the most helpful content of the training, followed by ‘practicing asking about traumatic events in role plays’. Even the mean for the least helpful factor - ‘sufficient professional knowledge was conveyed’ was to the positive side of ‘agreed’. Overall, the participants graded the training as ‘good’.

### **Learning.**

At baseline, the professionals of the intervention and control group reached about 60 percent of the knowledge test, on average (Supplement 3). Compared to the professionals of the control group, the professionals of the intervention group showed a significantly higher increase from baseline in knowledge at 3-month and at 6-month follow-up (Figure 3). A significant group by time interaction effect ( $p = .011$ ) was found for the change from baseline in knowledge about trauma inquiry and response: Whereas the change from baseline in knowledge remained stable from 3-month to 6-month

follow-up in the intervention group ( $b = 1.39$ , 95% CI [-0.37, 3.15],  $p = .121$ ), change from baseline in knowledge was significantly greater at 6-month follow-up compared with 3-month follow-up in the control group ( $b = 4.42$ , 95% CI [2.88, 5.96],  $p < .001$ ). None of the potential confounders showed a significant effect on the change from baseline in knowledge about trauma inquiry and response.

Compared with the control group, the intervention group showed a significantly higher increase from baseline in positive attitudes at 3-month and at 6-month follow-up (Figure 3). A significant group by time interaction effect was found for the change from baseline in the professionals' attitudes towards trauma inquiry and response ( $p < .001$ ). Whereas change from baseline towards a more positive attitude remained stable between 3-month to 6-month follow-up in the intervention group ( $b = 0.01$ , 95% CI [-0.03, 0.05],  $p = .608$ ), change from baseline was significantly greater at 6-month compared with the 3-month follow-up in the control group ( $b = 0.13$ , 95% CI [0.09, 0.16],  $p < .001$ ). None of the potential confounders showed an effect on the change from baseline in the professionals' attitudes towards trauma inquiry and response.

The intervention group improved significantly greater in confidence in asking about traumatic events at 3-month and 6-month follow-up, as compared with the professionals from the control group ( $b = 0.53$ , 95% CI [0.35, 0.70],  $p < .001$ ). The professionals with working experience of two to five years at baseline showed a higher increase from baseline in their confidence in asking about traumatic events, compared with the professionals with working experience of less than two years ( $b = 0.44$ , 95% CI [0.13, 0.75],  $p = .005$ ). All other potential confounders had no significant impact on the outcome.

The professionals from the intervention group improved their confidence in responding to their clients' reports of traumatic events greater at 3-month and at 6-month follow-up than the professionals from the control group ( $b = 0.42$ , 95% CI [0.23, 0.60],  $p < .001$ ). All confounders were unrelated to the professionals' confidence in responding to reports of traumatic events.

**Behavior change.**

In terms of reported frequency of asking about traumatic events at baseline, the intervention group produced means for the five types of traumatic events ranging from 0.72 (sexual abuse) to 1.46 (physical abuse) on a scale where 0 = ‘never’ and 3 = ‘always’ (Supplement 3). The control group means varied from 0.95 (sexual abuse) to 1.63 (emotional neglect).

As hypothesized, we found a significant intervention effect ( $b = 0.43$ , 95% CI [0.27, 0.59],  $p < .001$ , Figure 4, Table 1). Change from baseline in the frequency of asking about traumatic events was significantly greater at 3-month and at 6-month follow-up in the professionals of the intervention group than in the professionals of the control group. The change from baseline at 3-month and 6-month follow-up did not differ significantly ( $b = 0.02$ , 95% CI [-0.05, 0.10],  $p = .518$ ), indicating that the training effect remained stable.

There was no significant group by trauma type interaction effect, indicating that the intervention effect was not moderated by trauma type. The trauma type significantly predicted the change from baseline in the frequency of asking about traumatic events in the intervention and control groups ( $p < .001$ , Figure 4, Table 1). Sexual abuse changed significantly less than all other trauma types. The professionals’ age was significantly positively associated with the change from baseline in the frequency of asking about traumatic events ( $p = .002$ ). The remaining potential confounders were unrelated to the outcome.

**Discussion**

This cluster-randomized trial examined the effectiveness of the ‘Learning how to ask’ training to enhance skills in trauma inquiry and response in healthcare professionals working in outpatient SUD services.

**Evaluation of the training.**

The immediate response to the training was very positive. The professionals strongly agreed that the training was useful and that they personally benefitted from the training. Learning basic rules of asking about traumatic events and practicing asking about traumatic events in role plays was perceived as most helpful, indicating that these modules might be important pillars of the training.

**Learning.**

Before being trained, the professionals of the intervention group had correctly answered about 60 percent of the questions of a multiple-choice test of knowledge about trauma inquiry and response, on average. After the training, their knowledge had significantly increased up to about 75 percent, on average. The provision of knowledge may reduce false beliefs and may increase positive attitudes towards trauma inquiry and response (Salyers et al., 2004). Surprisingly, the professionals of the control group also improved their knowledge about trauma inquiry and response at the 6-month follow-up. Given that the professionals of the (waiting) control group received the training shortly after the 6-month follow-up, some of them might have sought out information about trauma inquiry to prepare for the announced training. Alternatively, professionals of the control group might have had contact with professionals of the intervention group prior to the training. While this is a potential limitation of the current study, it suggests, if true, that some staff who receive and value training share their new knowledge and skills with colleagues.

The trained (but not the untrained) professionals shifted their attitudes in the direction of a more positive attitude towards trauma inquiry from baseline to the 3-month and the 6-month follow-up. Confidence in trauma inquiry and response also increased in the trained professionals. Shifting attitudes towards and confidence in trauma inquiry and response may play an important role whether or not healthcare professionals ask about traumatic events (Rose et al., 2011).

**Behavior change.**

As hypothesized, we found a significant intervention effect: professionals of the intervention group showed a greater change from baseline in the frequency of asking about traumatic events at 3 months and at 6 months after being trained. These findings suggest that mental healthcare professionals' trauma inquiry behavior in daily practice may have been modified by the provided one-day training. Enhancing professionals' trauma inquiry behavior is important, because trauma exposure is high among SUD clients (Kendler et al., 2000; Simpson & Miller, 2002). Our results expand the findings of a pilot study of the 'Learning how to ask' training (Cavanagh et al., 2004) that indicated that the training may improve professionals' trauma inquiry behavior.

The behavioral change in trauma inquiry remained stable between 3-month and 6-month follow-up. The maintenance of a behavioral change in trauma inquiry after training is critical; professionals often leave a training highly motivated, but when returning to their daily job routine other issues may take precedence and their work culture may be unsupportive of trauma-informed practice (Brown, Harris, & Falot, 2013). In our study, the short refresher session 3 months after the initial training might have helped to maintain the newly acquired trauma inquiry skills. Additional refresher sessions, supervision or on-the-job training might further enhance proficiency in trauma inquiry and response.

Consistent with earlier reports (Friedman, Samet, Roberts, Hudlin, & Hans, 1992; Ilnyckyj & Bernstein, 2002; Read et al., 2006), professionals least often asked their clients about sexual abuse. Unfortunately, victims of sexual abuse are unlikely to spontaneously report such traumatic experiences (Friedman et al., 1992; Read et al., 2006), and therefore particularly need to be asked (Friedman et al., 1992). Our study results indicated that inquiry about sexual abuse significantly increased for the professionals in the intervention group. However, the increase was lower compared with the increase of



inquiry about other trauma types. Consequently, sexual abuse inquiry should receive more attention in further trainings.

**Strengths and limitations.**

A strength of our study is that we evaluated the effectiveness of the training in a sufficiently sized sample using a cluster-randomized controlled trial, which should have minimized bias. We assessed our primary outcome 3 months after the training and reassessed the stability of the training effects over a 6-months period. We also reached a sample of SUD outpatient healthcare professionals that might be considered as representative of SUD healthcare professionals in Northern Germany, because we found a similar distribution of age, gender and professional experience as reported for a representative sample of SUD healthcare professionals in Northern Germany (Verthein et al., 2013).

Besides these strengths, several limitations need to be kept in mind when interpreting our results. Our results are limited by our reliance on self-report measures as a method of measuring the effectiveness of the training. Self-reported clinical proficiency may deviate from actual observed proficiency (Levin, Owen, Stinchfield, Rabinowitz, & Pace, 1999), due to bias caused by socially desirable responses (Van de Mortel, 2008). However, follow-up data were filled out by the professionals anonymously without personal contact with the study team, which might have reduced socially desirable responses. Nevertheless, further studies would benefit from complementing trials with more objective assessments, such as external behavioral observations by trained observers. Another limitation of our study is that the existing case documentation software of all included SUD centers were completed with questions about whether professionals asked their clients about abuse and neglect 6 months prior to this study; this intervention might have raised professionals' awareness for clients' traumatic events in the intervention and control group before the baseline assessment. Our study results might also be biased by randomizing the SUD healthcare professionals on the level of the service providers: SUD service providers might differ in their working cultures regarding trauma

inquiry, their working settings, and the proportion of clients exposed to traumatic events, which might be related to different training outcomes. However, data analysis revealed that the effect of the SUD providers explained no variance of the outcome. An additional shortcoming of our study is that the professionals in the intervention group were younger than the professionals in the control group. Younger professionals might be more likely to inquire traumatic events without the training than older professionals, or might be less rigid in changing their inquiry behavior than older professionals.

Future research might link the training to outpatient center-level outcomes, i.e., number of detected cases, number of referrals to trauma counseling centers, or number of provision of trauma-related interventions. A further critical step is to consider client-level outcomes, i.e., number of clients that have been asked about traumatic events. It might be valuable to understand what elements of the training are effective in more depth (Flay et al., 2005) and how the training could be implemented in other mental healthcare settings (Fixsen, Blase, Naoom, & Wallace, 2009; Glisson et al., 2008; Weaver, Salas, & King, 2011).

### **Conclusion.**

Systematic assessment of the clients' trauma exposure in healthcare is the prerequisite for appropriate response to the clients' needs; yet healthcare professionals are often insufficiently trained about how to inquire traumatic events and how to cope with reports of traumatic events (Lothian & Read, 2002; Salyers et al., 2004; Tilden et al., 1994; Warne & McAndrew, 2005). This cluster-randomized trial demonstrated that a one-day 'Learning how to ask' training, combined with a refresher session, increased SUD healthcare practitioners' knowledge, attitudes towards and confidence in trauma inquiry and response 3 and 6 months after the training had been carried out. Furthermore, changes in their trauma inquiry behavior also improved in their daily practice. Our findings provide evidence that substance use disorder healthcare professionals can acquire competence in trauma inquiry

and response after a cost-effective one-day training, which may help to improve the assessment of traumatic events.

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## LEARNING HOW TO ASK

1

**Figures and Tables****Training content**

- Types and prevalence of traumatic events
- Effects of traumatic events on mental health
- Symptoms characterizing post-traumatic stress disorders
- Reasons for not asking about traumatic events
- Learning how to ask about traumatic events
- Learning how to respond to reports of traumatic events
- Documentation of traumatic events
- Trauma-related resources available in the community

*Figure 1.* Content covered by the ‘Learning how to ask’ training.

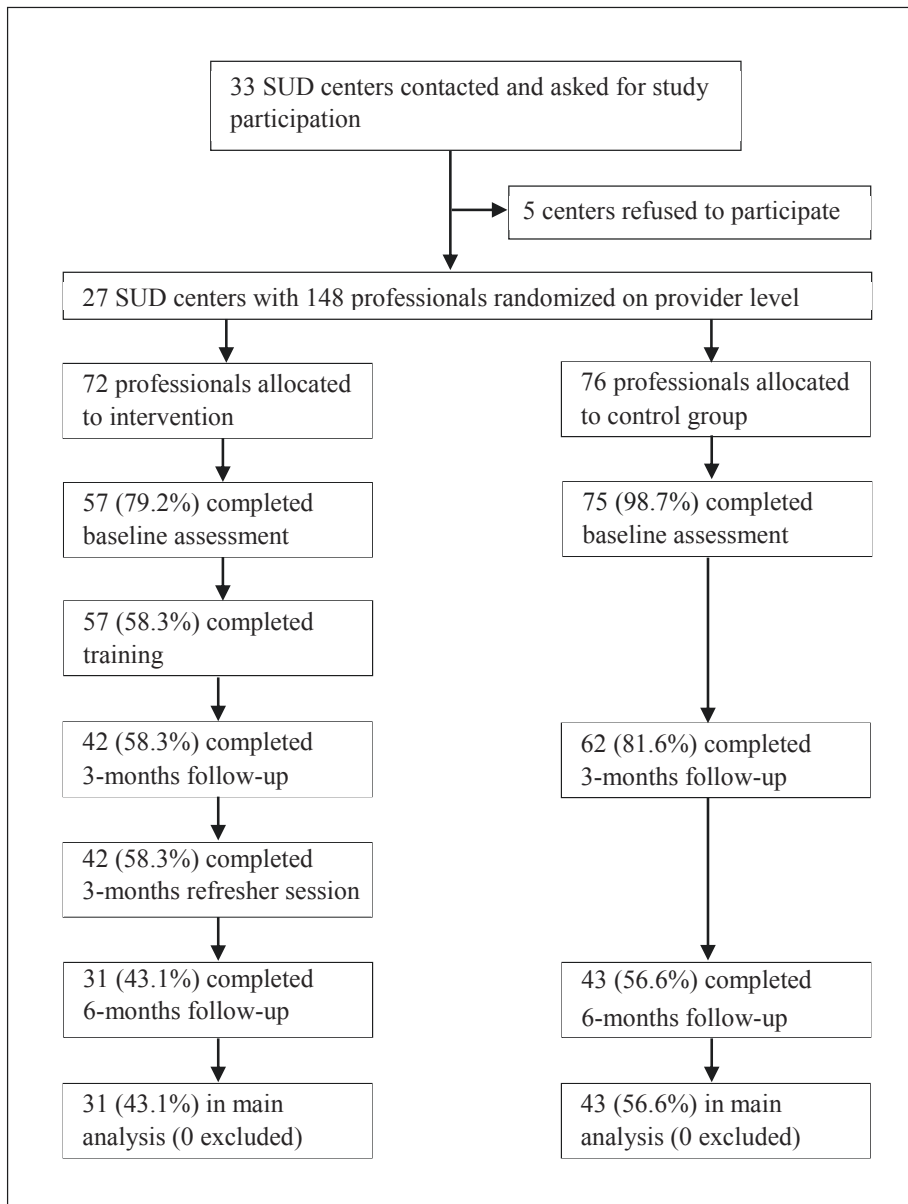
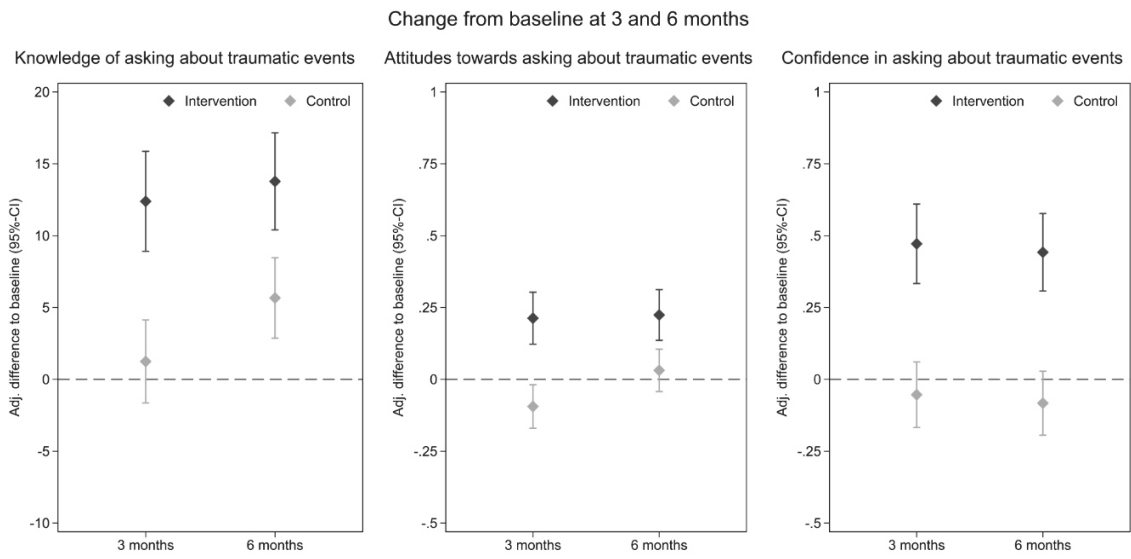


Figure 2. Flow of participants through the trial.



*Figure 3.* Change from baseline in knowledge, attitudes towards and confidence in trauma inquiry and response at 3 and 6 months. Knowledge: change from baseline in the percentage of the maximum score. Attitudes: change from baseline on the scale 0 = ‘completely disagree’ to 3 = ‘completely agree’. Confidence: change from baseline on the scale 0 = ‘very unconfident’ to 3 = ‘very confident’.

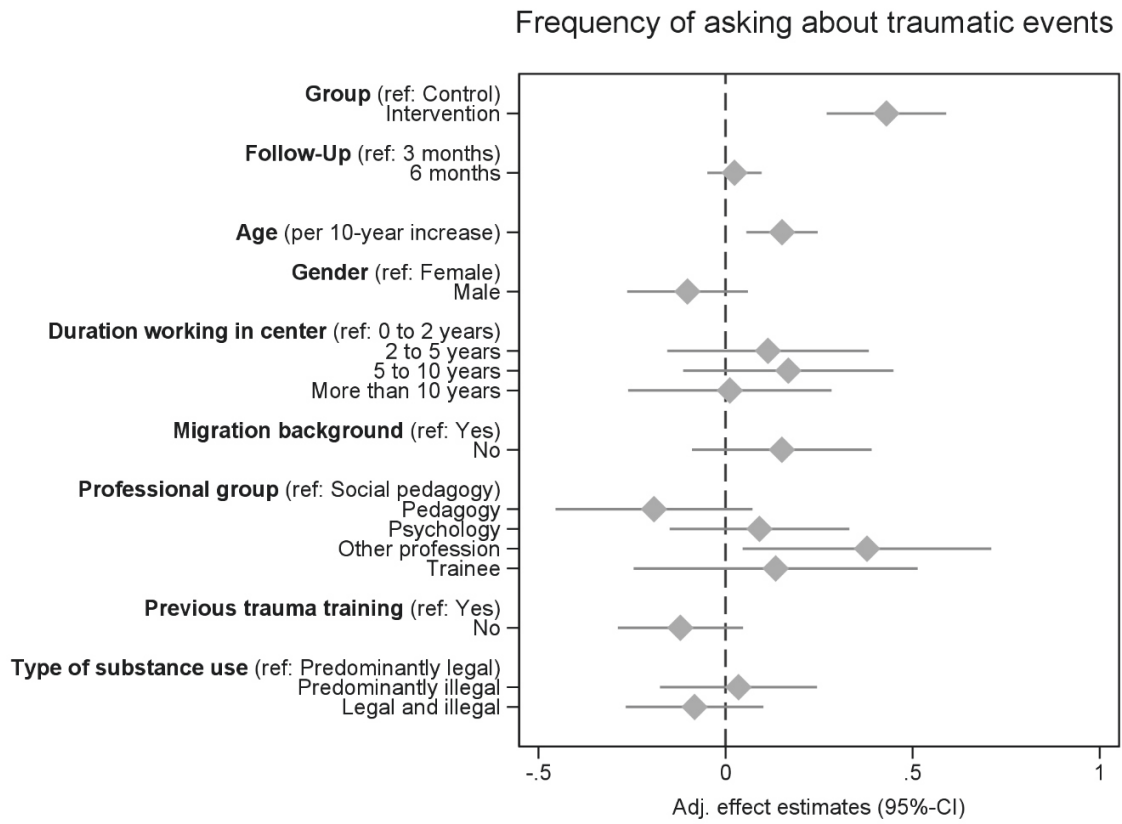


Figure 4. Change from baseline in the frequency of asking about traumatic events

**Tables***Table 1.* Effects estimates for predicting change from baseline in the frequency of asking about traumatic events (n = 112)

	<i>b</i>	95%-CI	<i>p</i>	<i>p</i> <sub>global</sub>
Group (ref: Control)				
Intervention	0.43	0.27, 0.59	< .001	
Type of trauma (ref: Sexual abuse)				< .001
Physical abuse	0.32	0.21, 0.43	< .001	
Emotional abuse	0.23	0.12, 0.34	< .001	
Physical neglect	0.14	0.04, 0.24	.007	
Emotional neglect	0.23	0.12, 0.34	< .001	
Follow-Up (ref: 3 months)				
6 months	0.02	-0.05, 0.10	.518	
Baseline	-0.61	-0.67, -0.55	< .001	
Age (per 10-year increase)	0.15	0.06, 0.25	.002	
Gender (ref: Female)				
Male	-0.10	-0.26, 0.06	.215	
Duration working in center (ref: 0 to 2 years)				.422
2 to 5 years	0.11	-0.16, 0.38	.410	
5 to 10 years	0.17	-0.11, 0.45	.242	
More than 10 years	0.01	-0.26, 0.28	.935	
Migration background (ref: Yes)				
No	0.15	-0.09, 0.39	.220	
Professional group (ref: Social pedagogue)				.089
Pedagogue	-0.19	-0.45, 0.07	.154	
Psychologist	0.09	-0.15, 0.33	.459	
Other profession	0.38	0.05, 0.71	.026	
Trainee	0.13	-0.25, 0.51	.490	
Previous trauma training (ref: Yes)				
No	-0.12	-0.29, 0.05	.157	
Substance use of clients (ref: Predominantly legal substances)				.533
Predominantly illegal substances	0.03	-0.18, 0.24	.747	
Legal and illegal substances	-0.08	-0.27, 0.10	.376	



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