



Prevalence and risk factors for developing posttraumatic stress disorder in a general intensive care population - a literature review

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Title

Prevalence and risk factors for developing posttraumatic stress syndrome or symptoms of posttraumatic stress in a general intensive care population

ABSTRACT:

Aim: 1) To investigate prevalence of posttraumatic stress disorder (PTSD) and symptoms of posttraumatic stress (PTSS) in a general intensive care patient population, and risk factors for post ICU-PTSD/PTSS. 2) To investigate how instruments and loss to follow-up could influence the prevalence of PTSD/PTSS in this patient population.

Background: Studies have found a wide variance of PTSD/PTSS in this patient population. A number of risk factors were associated with developing post-ICU PTSD/PTSS, but the literature was inconclusive when it came to risk factors for developing this condition.

Design: Literature review

Results: Prevalence of PTSD/PTSS was over all high and consistent with the literature.

Demographic variables, a prior psychiatric history, memories and treatment in the ICU were all factors linked to developing these conditions. The use of diagnostic instruments resulted in the identification of fewer cases. A high loss to follow-up rate could influence the prevalence of PTSD/PTSS.

Conclusion: PTSS was found to be common in general ICU-survivors. Due to methodological limitations, exact prevalence of post-ICU PTSD/PTSS could not be determined. Risk factors for developing post-ICU PTSD/PTSS were multifactorial and future studies on PTSD/PTSS should be more methodological rigorous, use larger samples and employ diagnostic as opposed to screening instruments.

Key words:

Posttraumatic stress disorder, posttraumatic stress symptoms, intensive care patient, intensive care unit, risk factors.

Tittel

Prevalens og risikofaktorer for å utvikle posttraumatisk stress syndrom eller symptomer på posttraumatisk stress i populasjonen generelle intensivpasienter.

ABSTRAKT

Mål: 1) Å undersøke prevalens og risikofaktorer for å utvikle posttraumatisk stress syndrom (PTSD), og symptomer på posttraumatisk stress (PTSS) i en populasjon generelle intensivpasienter. 2) Å undersøke hvordan bruk av ulike instrumenter og frafall i studier kan påvirke forekomsten av PTSD/PTSS i denne pasientgruppen.

Bakgrunn: Studier har funnet en stor variasjon av PTSD/PTSS hos intensivpasienter. En rekke risikofaktorer ble assosiert med å utvikle PTSD/PTSS etter intensivopphold, men litteraturen var ikke konsistent når det kom til hvilke faktorer som økte denne risikoen.

Design: Litteraturstudie

Resultat: Prevalens av PTSD/PTSS var overveiende høy og konsistent med litteraturen.

Demografiske variabler, tidligere psykiske lidelser, opplevelser og minner knyttet til intensivbehandlingen var alle faktorer assosiert med faren for å utvikle PTSD/PTSS. Bruk av diagnostiske instrumenter resulterte i at færre tilfeller ble påvist. Stort frafall i studier kunne også påvirke prevalens av PTSD/PTSS.

Konklusjon: PTSS var vanlig hos pasienter som overlever intensivbehandling. På grunn av metodologiske begrensninger kunne ikke eksakt prevalens av PTSD/PTSS fastslås. Det ble identifisert mange ulike risikofaktorer som kunne føre til PTSD/PTSS etter intensivopphold. Fremtidige studier på området burde være metodologisk strenge, utføres på store grupper og innefatte bruk av diagnostiske istedenfor screeninginstrumenter.

Nøkkelord:

Posttraumatisk stress syndrom, posttraumatisk stress symptom, intensivpasient, intensivavdeling, risikofaktorer

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Prevalence and Risk Factors for Developing Posttraumatic Stress Syndrome or Symptoms of Posttraumatic Stress in a General intensive Care Population – a Literature Review.

Abstract

Aim: The aim of this literature review was to investigate the prevalence of posttraumatic stress disorder (PTSD) and posttraumatic stress symptoms (PTSS) in a general intensive care patient population, and risk factors for post ICU-PTSD/PTSS.

Background: Studies have found a wide variance of PTSD/PTSS in this patient population. A number of risk factors were associated with developing post-ICU PTSD/PTSS, but the literature was inconclusive when it came to risk factors for developing these conditions.

Design: Literature review.

Data Sources: Quantitative studies published between 2007-2014.

Review Methods: A literature review was conducted using the Medline, Cinahl, Psyk. Info, Cinahl and Svemed databases.

Results: Prevalence of PTSD/PTSS was over all high and consistent with previous studies. Demographic variables, a prior psychiatric history, memories and treatment in the ICU were all factors linked to developing these conditions.

Conclusion: PTSS were found to be common in general ICU-survivors. Due to methodological limitations, exact prevalence of post-ICU PTSD/PTSS could not be determined. Risk factors for developing post-ICU PTSD/PTSS were multifactorial and future studies on PTSD should be more methodological rigorous, use larger samples and employ diagnostic as opposed to screening instruments.

INTRODUCTION

Millions of patients survive critical illness each year due to improvements in medical research and technological advances in the intensive care units (Davydow et al. 2013). Critical illness could expose patients to traumatic stressors caused by both intensive care treatment and life-threatening experiences. The last decade there has been an increasing interest and attention regarding psychological sequelae related to surviving critical illness. Both PTSD and PTSS were found to be a concern in this patient population (Davydow et al. 2008). PTSD could be a potentially serious psychiatric disorder that could have an added impact on recovery and result in reduced quality of life (Rattary and Hull 2007).

Background

PTSD is an anxiety disorder. The essential feature of PTSD is the developing of characteristic symptoms following exposure to at least one traumatic event. The disorder has three symptom groups: re-experiencing, avoidance and hyperarousal. Duration of the disturbance must be more than one month, and cause significantly distress or impairment in social, occupational or other important areas of functioning (American psychiatric association 2013).

Patients with PTSS were found to have symptoms of PTSD, but they did not meet all the criteria for making the complex diagnosis of PTSD (Jackson et al. 2007).

The literature reported that most of the studies relied exclusively on questionnaires to estimate the degree of PTSS, and also to set the diagnosis of PTSD in this patient population (Davydow 2008, Jackson et al. 2007). A wide variance of questionnaires was used to assess patients for PTSD/PTSS, but most of them were not validated against clinician diagnoses in the post-ICU setting (Davydow 2008).

A number of risk factors for post-ICU PTSD/PTSS were identified in the literature. Some of these factors were demographic such as age, sex and level of education (Myhren et al. 2010, Hatchett et al. 2010, Samuelson et al. 2007). Others were associated with memories and experiences in the ICU, and how patients were cared for during the ICU-stay (Samuelson et al. 2007, Granja et al. 2008, Weinert and Sprengle 2008). The literature was inconclusive both when it came to prevalence and risk factors for developing post-ICU PTSD/PTSS. A review of the literature investigating both prevalence and risk factors for developing these conditions was considered useful.

Aim

The aim of this literature review was to investigate the prevalence of PTSD/PTSS in a general intensive care patient population over the age of 18 years, and risk factors for post ICU-PTSD/PTSS

Design

Literature review

Search methods

Search strategy:

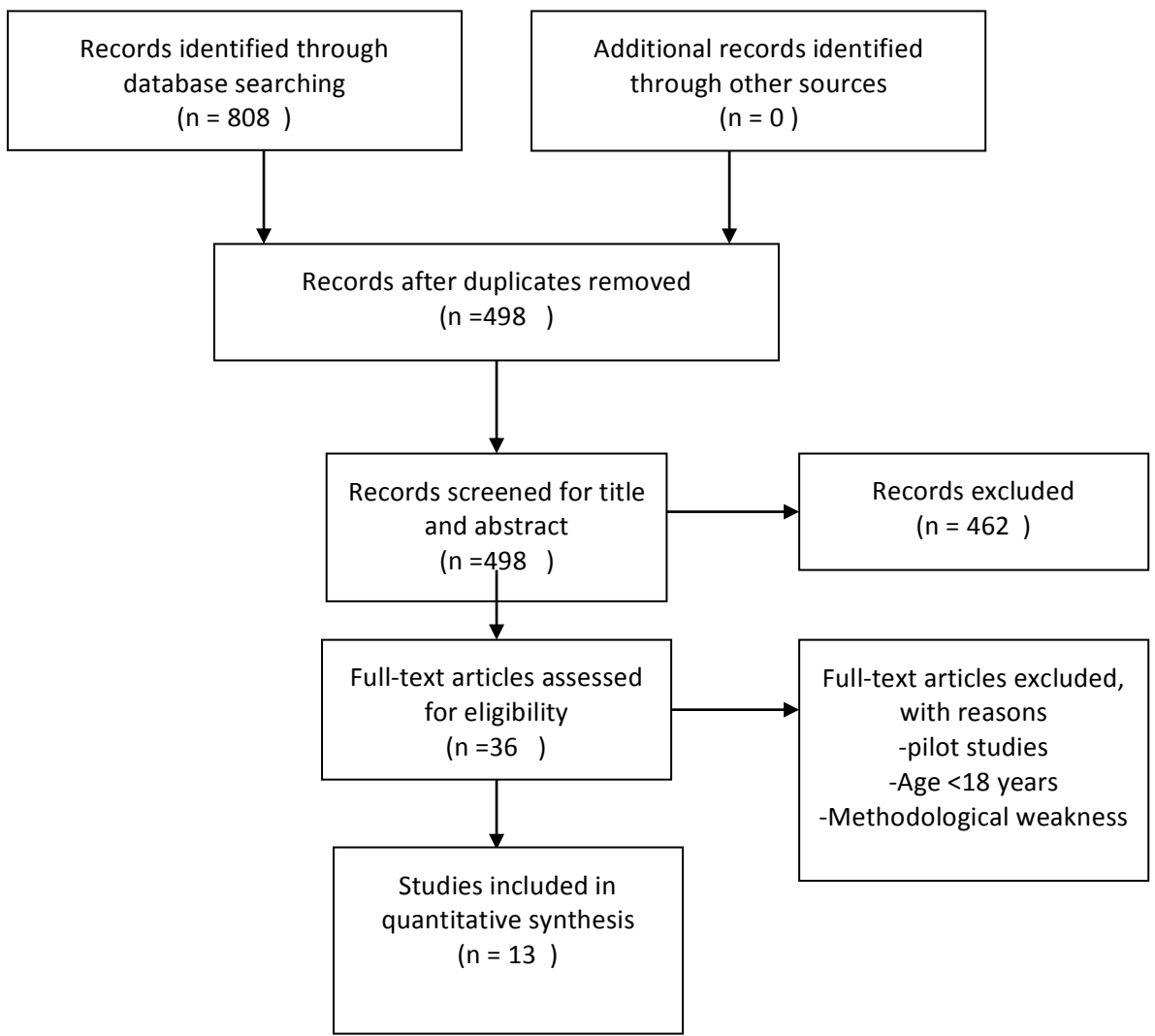
The Mesh words “PTSD“, “intensive care”, “critical care” and the text words “posttraumatic stress disorder”, “posttraumatic stress syndrome”, “posttraumatic stress symptom“ intensive care unit”,” intensive care patient“, “critical care” were entered into the Medline, Cinahl, Psyk Info, Embase and Svemed databases with limits set to papers written in English, Swedish, Danish or Norwegian between the years 2007-2014. These terms were combined with “or”/”and”. The search was conducted in February 2014.

Figure 1



PRISMA 2009 Flow Diagram

Identification
Screening
Eligibility
Included



A total of 498 articles were identified and potential relevance was examined by the author. 462 citations were excluded as irrelevant. The remaining 36 quantitative articles were undertaken in a full review. Overall, a total of 13 studies met the inclusion criteria, and these were used in this review.

Study selection and quality appraisal

Articles who met the following criteria were selected for review: 1) Study population was comprised by medical, surgical or a mixed ICU population over the age of 18 years. PTSD/PTSS assessment was conducted by the use of a validated screening tool, and measured at > 1 month following ICU discharge. 2) Included studies investigated risk factor of post-ICU PTSD/PTSS and had a quantitative design. Studies focusing on survivors of specialty ICU, i.e. trauma, coronary or neurological ICUs were excluded. Conference abstracts, case reports, conference editorials - and publications were also excluded.

Table 1

Author and year	Study design	Population Sample/completed	Prevalence/ Risk factors	Quality appraisal
Davydow et al. 2013	Longitudinal investigation study	Medical ICU patients n=150/120	PTSS 16% at 3 months, 17% at 12 months Stress symptoms, major depression and ICU memories, greater prior trauma exposure	Moderate quality
Granja et al. 2008	Multicenter observational cohort study	ICU patients n= 599/313	PTSS 18% at 6 months Amnesia for the early period of critical illness "adverse" experiences	Moderate quality
Hatchett et al. 2010	Prospective, quantitative, cross sectional, descriptive study	Mixed ICU-population n= 98 (total study sample)	PTSS 32% at 3 months Physical restraining female sex, younger age	Low quality
Jackson et al. 2010	Prior planned substudy of a multicenter randomized, controlled trial	Medical ICU patients n= 187/180	PTSS 14% at 3 months 24% at 12 months Wake up and breathe protocol resulted in similar psychological outcome Improved 1-year survival	High quality

Jackson et al. 2007	Literature review	Medical ICU patients n= approximatly 920	PTSD/PTSS 5-63% patients evaluated within 2 months up to 8 years Age, female sex, prior mental history, delusional, traumatic and factual memories,	Moderate quality
Jones et al. 2007	Prospective observational study	Mixed general ICU patients n= 304/238	PTSD 9,2% at 3 months Prolonged sedation, delusional memories, physical restraining without sedation female sex	Moderate quality
Jubran et al. 2010	Prospective, longitudinal	Patients weaning from mechanical ventilation n= 72/41	PTSD 12% at 3 months Prior psychiatric history	Low quality
Myhren et al. 2010	Prospective cohort	Mixed ICU population n= 255/194	PTSS 27% 4-6 weeks, 3 and 12 months Age, female sex, education level, ICU-memories	Moderate quality
O'Connor et al. 2008	Literature review	Mixed ICU population n= approximatly 490	PTSD/PTSS 15-62% Daily sedation interruption improves patients physiological and psychological	Moderate quality

			health compared with routine sedation	
Samuelson et al. 2007	Prospective cohort study	General ICU patients n= 313/226	PTSS 8,4% at 2 months Female sex, agitation and extreme fear during ICU-stay	Moderate quality
Wade et al. 2012	Prospective cohort	Mixed ICU population n= 157/100	PTSS 27,1% at 3 months Acute psychological reaktionen in the ICU, psychological history	Moderate quality
Wallen et al. 2008	Prospective cohort study	n= 137/114 Mixed ICU population	PTSS 13% at 1 month Age > 65 years	Moderate quality
Weinert and Sprenkle 2008	Prospective observational study	Medical and surgical ICU patients n= 277/149	PTSS 17% at 2 months and 15% at 6 months Wakefulness during mechanical ventilation female sex, delirious memories	Moderate quality

A critical review of the included articles was undertaken. Quality appraisal of studies was done using a quality appraisal tool from the Norwegian Knowledge Center for the Health Services. The tool consists of checklist with criteria and questions for assessing the quality of research studies, and checklist for both cohort studies, literature reviews and randomized controlled trials were used.

The cohort studies were assessed by the following criteria: Appropriate study design to answer the question(s) up for research, cohort selection, sample size, loss to follow-up, danger of selection bias and quality of the statistical analysis. Two of the included studies were literature reviews. These were assessed by study design, sample size, inclusion criteria for single-studies, quality of the research strategy, risk of bias in included studies and quality of the statistical analysis. The randomized, controlled trial was also assessed for an appropriate study design, sample size, randomization, intervention, risk for bias and quality of the statistical analysis.

The checklists had two to four questions for each criterion to complement them. Possible answers were “yes”, “can’t tell” and “no”. Studies for which the answers to most or all of these questions were “yes” were rated to be of high quality. If the answers to some of the questions were “no” or the criteria were not described in an appropriate way, the studies were rated to be of moderate quality. It was not likely that the conclusions in these studies were affected. Studies were rated to be of weak quality if the answers were “no” for most or all the question, the criteria were not appropriate described, or if it was likely that the conclusions in the studies were affected (Nasjonalt kunnskapssenter for helsetjenesten 2011).

One of the included studies was rated to be of high quality. This was a prior planned substudy of a multicentre randomized, controlled trial (Jackson et al. 2010). The strengths to this study included the randomized study design, sample size, breadth of outcome assessed, a high follow-up rate and blinding of the investigator who conducted all follow-up evaluations.

Ten studies were rated to be at moderate quality. Important limitations to these studies were small sample sizes, low respondent rate, a high loss to follow-up rate and failure to measure prior psychological symptoms. One of the symptoms of PTSD is avoidance. Patients who were loss to follow-up or declined to participate might suffer from significant symptoms of PTSD (Granja et al. 2008, Wallen et al. 2008, Jackson et al. 2007).

Although the study conducted by Granja et al. were completed by only 52% of the study population, this study was rated to be of moderate quality. The sample size was large, and no significant differences between respondents and no-respondents were found (2008). This could however not completely rule out the possibilities of bias. None of the studies screened patients for PTSD prior to ICU-admission, and only one study investigated prior traumatic event exposure (Davydow et al. 2013). A prior psychiatric history was identified as a significant risk factor for developing post-ICU PTSD/PTSS (Davydow et al. 2013, Jubran et al. 2010, Jackson et al. 2007, Wade et al. 2012).

Two studies were rated to be at low quality. Jubran et al. included a small sample size, and only 41 of 72 patients completed the study (2010). A high percentage of the patients did not complete the study or were loss to follow-up. This can limit the generalizability of this study. Although the baseline characteristics of these patients and patients evaluated after 3 months were similar, it does not rule out the possibilities of bias (Jubran et al. 2010). This study was however one of only two studies eligible for inclusion in this review that explicitly investigates the prevalence of PTSD and not PTSS in this patient population. A structured interview was used as diagnostic instrument, and this allowed the diagnosis of PTSD to be made. The use of a diagnostic tool was a considerable strength to this study, and it was therefor included in this review.

Hatchett et al. investigated 98 general ICU patients in South Africa (2010). This was also a small sample size that could limit the generalizability of the study. Inclusion of patients was done when they came back to the hospital for their first post-ICU discharge visit. The researcher gave a brief presentation about the research that was being conducted and asked all patients who were willing to participate in the study to make them selves known to the researcher. Baseline characteristics of the patients who refused to participate were not conducted, and the possibility of selection bias could therefor not be investigated. This study did however find an unexpected and very strong correlation between physical restraining patients and the high level of PTSS. It was therefor considered to be of interest to include this study despite of the methodological limitations.

Data abstraction

Information regarding characteristics of the study cohort, prevalence of PTSD/PTSS, PTSD/PTSS measures and potential risk factors for PTSD/PTSS were abstracted from the article.

RESULTS

13 articles were eligible for inclusion, 4 prospective cohort studies, 2 literature reviews, 1 prospective, quantitative, cross-sectional, descriptive study, 1 multicenter observational cohort study, 1 longitudinal investigation study, 1 prospective multicentre study, 1 prospective, observational study, 1 prospective longitudinal study, 1 priori planned substudy of a multicentre randomized controlled trial.

The included studies were rated to be at high or moderate quality, but this review also included two studies rated to be of weak quality (Jubran et al. 2010, Hatchett et al. 2010). Ten of the included studies were conducted on a medical-surgical or mixed diagnosis ICU population. 2 studies included medical ICU patients and 1 study investigated patients weaned from prolonged mechanical ventilation. The number of patients who completed the studies ranged between 41 and 313 for single studies.

A number of different screening tools were used: PTSS-14 (PTS Syndrome 14-questions inventory), PDS (Post-traumatic Stress Diagnostic Scale), IES (Impact of Event Scale), IES-R, (Impact of Event Scale-Revised), ETIC-7 (Experience after Treatment in Intensive Care 7-Item Scale), PTSD-1, (PTSD diagnostic interview). Cut-off score for PTSS above case level ranged from 30 to 35 on the IES-R. The patients were either interviewed, answered questionnaire or a combination of these two methods.

Prevalence

The studies included in this review reported a prevalence ranging from 8,4-32% for PTSD/PTSS related symptoms >1 month following ICU discharge. Six of the studies found a prevalence of PTSS of more than 20% three months up to a year post-ICU (24-32%).

Risk factors for post-ICU PTSD/PTSS

Demographics

Demographic factors such as age, sex and level of education were identified as risk factors for developing PTSD/PTSS. Five studies concluded that female gender was a risk factor for developing post ICU-PTSD (Samuelson et al. 2007, Jackson et al. 2007, Weinert and Sprenkle 2008, Myhren et al. 2010, Hatchett et al. 2010), although two of these studies did not find this statically significant (Myhren et al. 2010, Hatchett et al. 2010).

Other studies did however not find female sex predictive of acute symptoms of PTSD. (Jubran et al. 2010, Wallen et al. 2008). But conclusion have also been made that neither age nor female sex increased the risk of developing PTSD/PTSS (Wade et al. 2012). Low educational level was also a factor identified as a risk factor for developing PTSS (Myhren et al. 2010).

Prior psychiatric disorder

A prior psychiatric disorder was identified to be a significant risk factor for developing post-ICU PTSD/PTSS (Davydow et al. 2013, Jubran et al. 2010, Jackson et al. 2007, Wade et al. 2012). One study found that all patients diagnosed with PTSD had a previous history of psychiatric disorder compared to 31% of patients not diagnosed with PTSD (Jubran et al. 2010). Davydow et al. found a strikingly high prevalence of major depression prior to ICU admission (2013).

Acute stress symptoms and ICU-memories

Acute stress symptoms and both adverse and factual memories were linked to developing PTSD/PTSS in post-ICU patients. Two studies found a correlation between delusional memories and risk for post-ICU PTSD/PTSS (Jones et al. 2007, Wade et al. 2012). Factual recall, memories of pain and large number of events remembered were other factors associated with risk of developing PTSD/PTSS (Myhren et al. 2010, Samuelson et al. 2007). Two studies identified intrusive memories as a risk factor (Wade et al. 2012, Granja et al. 2008), whereas memories and symptoms of acute stress in the ICU were other risk factors identified to be a risk for post-ICU PTSD/PTSS (Wade et al. 2012, Davydow et al. 2013). One study concluded that patients with delirious memories had more PTSS, but there was no association between PTSS and factual recall of ICU events (Weinert and Sprenkle 2008).

Amnesia for the early period of critical illness was positively associated with the level of PTSS in the study by Granja et al. (2008). This study also found that the number of “adverse” experiences that patients remembered was significantly associated with a higher PTSS-14 score (Granja et al. 2008).

Physical restraint without any sedation predisposed patients to develop PTSD (Jones et al. 2007). Hatchett et al. found that patients who had memories of physical restraints in the ICU were six times more likely to develop PTSD (2010).

Sedation and mechanical ventilation

4 studies have investigated how the level of sedation affect long-term psychological outcome (Jackson et al. 2010, Weinert and Sprenkle 2008, Jones et al. 2007, O'Connor et al. 2009). A randomized-controlled trial concluded that management of mechanically ventilated medical ICU patients with a “wake up and breathe“ protocol resulted in similar cognitive, psychological and functional outcomes among patients tested 3 and 12 months post ICU (Jackson et al. 2010). One study found that increasing duration of sedation was shown to be the strongest clinical risk factor for PTSD (Wade et al. 2012). Another study found greater levels of sedation and longer duration of mechanical ventilation to be two of several risk factors for developing PTSD/PTSS (Granja et al. 2008). O'Connor et al. concluded that daily sedation interruption improved patient physiological and psychological outcomes compared with routine sedation management (O'Connor et al. 2009). Jubran et al. 2010 did however not find any association between sedation received, total duration of mechanical ventilation and patients with and without PTSD (Jubran et al. 2010). PTSD has also been found to be lowest in patient either the most awake during mechanical ventilation, or the least awake (Weinert and Sprenkle 2008).

DISCUSSION

The aim of this literature review was to investigate prevalence and risk factors for developing post-ICU PTSD/PTSS in a general ICU population. A main finding was that PTSD/PTSS ranged from 8,4-32% > 1 month following ICU-discharge. Previous studies have found a prevalence rate from 5 to 63% for PTSD/PTSS among survivors of critical illness (Jackson et al. 2007). The variance was little regardless of whether the outcome in question was PTSD or PTSS, and this exceeded some “high risk” populations such as participants in combat, violent assault and survivals of natural disasters. This wide variation could be related to the variety of variables examined, small sample sizes, loss to follow-up, and the use of screening as opposed to diagnostic instruments (Wallen et al. 2008, Jackson et al. 2007).

Six of the included studies in this review found a prevalence of PTSS to be higher than 20%. The literature described a prevalence of PTSD/PTSS varied from 5-63%. Although the highest prevalence of PTSS was 32% in this review, findings were fairly consistent with the literature and a review from 2008. This review found a median point prevalence for PTSD/PTSS at 22% (Davydow et al. 2008). Jackson et al. reported that the highest rates of PTSD (54, 59 and 63%) were found in control groups with sample sizes between 11 and 27 (2007). These studies investigated explicit PTSD and not PTSS, and these findings were strikingly high. A sample size this small was a significant methodological limitation in these studies. This could limit the generalizability of the studies, and be one of the reasons why the prevalence of PTSD was found to be extremely high.

PTSS were often measured through screening instruments such as questionnaires, but a diagnostic interview was recognized to be the appropriate instrument to set the diagnosis of PTSD (Davydow 2008, Jackson et al. 2007). Self-report measures did often not allow researchers to determine if a constellation of symptoms reflect PTSD or is a time-limited adjust disorder (Jackson et al. 2007). Most of the studies investigated in two literature reviews relied exclusively on questionnaires to estimate the prevalence of PTSD/PTSS. (Jackson et al. 2007, Davydow et al. 2008). Diagnosis of PTSD were also found to be made entirely on the basis of information derived from screening tools as opposed to diagnostic tools, such as diagnostic interviews (Jackson et al. 2007, Davydow et al. 2008, Wallen et al. 2008). Using screening instruments tend to yield significantly higher false-positive rates for PTSD than diagnostic instruments, although this was not always the case (Jackson et al. 2007). These

methodological limitations were found to be a key explanation to the wide variance of PTSD reported in the literature.

Loss to follow-up and a low percentage of respondents were identified as a challenge when it came to investigate the prevalence of PTSD/PTSS. One of the symptoms of PTSD/PTSS is avoidance. Patients who did not respond or were loss to follow-up could suffer from extreme symptoms. But non-respondents could also include those who had fully recovered. This increased the risk of bias (Granja et al. 2008).

Another key finding in this review was that only two of the included studies explicitly investigated the prevalence of PTSD. Both these studies used a diagnostic interview to set the diagnosis of PTSD, and did not have the methodological limitation described in previous studies. These studies also found a fairly consistent prevalence of PTSD, respectively 9,2% (Jones et al. 2007) and 12% (Jubran et al. 2010). This finding also correlated well with the literature. The use of more comprehensive instruments, as a diagnostic interview, resulted in the identification of fewer cases (Jackson et al. 2007).

An important finding was that risk factors for developing post-ICU PTSD/PTSS were multifactorial. Demographics, a prior psychiatric history, ICU memories, sedation level and how patients are cared for in the ICU were all factors that could contribute to the developing of these conditions. Female sex and younger age were found to be risk factors for post-ICU PTSD/PTSS. Two studies included in this review did however not find female sex a risk factor, but only one third of these participants were women (Wallen et al. 2008, Jubran et al. 2010). The sample sizes were also small in both studies, and a significant part of the patients did not complete the study by Jubran et al. or were loss follow-up (2010). This increased the risk of bias and was a considerable limitation in these studies.

Younger age was identified as a risk factor in all studies investigating this variable, and none of the studies included in this review found older age or male sex to be a risk factor for post-ICU PTSD/PTSS. This was consistent with the literature.

The present review found a previous psychiatric history a risk factor for developing post-ICU PTSD/PTSS (Davydow et al. 2013, Jubran et al. 2010, Jackson et al. 2007, Wade et al. 2012). Studies screening patients for a prior psychiatric history at some level, found a prior

psychiatric disorder to be a risk factor for developing PTSD/PTSS. The high prevalence of major depression prior to ICU admission in the study of Davydow et al. made the authors hypothesize if major depression was a risk factor for critical illness (Davydow et al. 2013). There was a methodological inconsistency regarding screening, inclusion and exclusion of patients with a prior psychiatric history in this review. None of the studies screened patients for PTSD prior to ICU-admission. Jackson et al. also describes that only a few studies formally inquired about patients' pre morbid psychiatric histories (2007). This can be one of several factors that contributed to the inconclusive prevalence of PTSD/PTSS described in this review and the literature.

Acute stress symptoms and ICU-memories

Extremely stressful experiences, anxiety, adverse and factual memories were factors associated with risk of developing post-ICU PTSD/PTSS in this review. There was however very little consistency regarding what kind of memories, experiences and psychological distress in the ICU associated with greater risk of developing post-ICU PTSD/PTSS. A wide range of variables investigated can be some of the explanation. When it came to remembering traumatic events, the literature suggested that absence of memory was protective against the developing of PTSD. Explicit memories could be basis for nightmares and flashbacks and contribute to the avoidance and re-experiencing (Jackson et al. 2007).

One study did however find amnesia for the early phase of critically illness to be a risk for developing post-ICU PTSD (Granja et al. 2008). Amnesia was also associated with a significantly longer ICU-stay and higher score for severity of illness. The author hypothesized this could be due to brain dysfunction at the peak of critically illness. Severity of illness was not identified as a risk factor for developing post ICU-PTSD/PTSS in other studies included in this review. This is consistent with the literature. One of the limitations in the study by Granja et al. was the low respondent rate (52%), and selection bias could not be ruled out (2008). ICU memories and PTSS were collected simultaneously. The authors also suggested that retrospective collection of memories may be unreliable and affected by current symptom level of anxiety, depression and PTSS (Granja et al. 2008).

Sedation and mechanical ventilation

Patients in ICUs are exposed to mechanical ventilation and other invasive therapies that could induce pain and anxiety. A usual practice in many ICUs has been to moderate or heavily sedate patients, perhaps also to make sure there would be little or no recall of events (Jackson et al. 2010). There has been a concern that patients who remembered their ICU stay could have adverse psychological outcome (O'Connor et al. 2009). More recent studies suggested however that sedative medication might contribute to more adverse outcomes rather than prevent them (Jackson et al. 2010, O'Connor et al. 2009, Wade et al. 2012). Jones et al. made an interesting finding; patients with a history of previous psychiatric disorders received more sedation than those with no history, although this was often unknown to the staff (2007). The staff could be responding to expression of anxiety and distress in these patients. It could not be ruled out that a high levels of sedation associated with development of post-ICU PTSD/PTSS also were be linked to a higher degree of anxiety expressed by patients with a prior psychiatric history.

The present review found that daily sedation interruption seemed to improve both patients psychological and physiological outcome (Jackson et al. 2010, O'Connor et al. 2009). But daily sedation interruption could also cause adverse psychological outcome related to patients increased awareness of the ICU environment (Jackson et al. 2010). Level of sedation could contribute to patients experiences in the ICU (Jones et al. 2007), but the literature was inconclusive when it came to what kind of memories and experience that was related to a higher risk for developing post-ICU PTSD/PTSS. The literature suggested that factual recall could have a protective effect against developing PTSD, but the present study did not confirm this (Weinert and Sprenkle 2008, Granja et al. 2008).

Some risk factors for post-ICU PTSD/PTSS were related to how patients were cared for in the ICU (Jones et al. 2007). This included patient comfort, sedation practice and the use of physical restraint. The strong correlation between being physical restrained and high levels of PTSS was striking, also when patients had no memories of being restrained (Hatchett et al. 2010, Jones et al. 2007). A significant part of these patients had recall of delusional memories. Many of the delusional memories were of events in the ICU misinterpreted by patients at the time, e.g. the staff tried to hurt them. The study conducted by Davidow et al. concluded that substantial acute stress symptoms remained the most potent factor associated with greater severity of PTSS over the course of one year after ICU admission (2013). In this

study, nearly half of the patients were physical restrained. Hatchett et al. concluded that patients only should be physical restrained if all other alternatives had failed (2007).

Limitations

This review was conducted by one author. Studies were not identified through other sources than databases, and this could reduce the quality of the review.

CONCLUSION

This review found a prevalence of post-ICU PTSD/PTSS in a general intensive care population between 8,4-32%. Six of the included studies found a prevalence of more than 20%. This was over all high and consistent with the literature. Exact PTSD/PTSS prevalence could not be determined due to methodological limitations in previous studies such as use of screening instruments as opposed to diagnostic instruments.

An interesting finding in this review was that the diagnosis of PTSD was not made without a diagnostic interview. Previous studies have found that the diagnosis of PTSD was repeatedly made on the basis of information derived from screening tools, and could therefor lead to high false positive rates.

The cause of PTSD/PTSS was multifactorial and this was also consistent with the literature. Some ICU patient were identified to have a higher risk for developing post-ICU PTSD/PTSS due to their age, sex, level of education and prior psychiatric history. Others risk factors were partly related to how patients were cared for in the ICU. Memories of pain, fear stress and anxiety were linked to the development of post PTSD/PTSS. These symptoms could be prevented or treated, and ICU staff should closely assess patients for any signs of distress. Physical restraining of patients must be avoided. Further studies on PTSD/PTSS need to be more methodological rigorous, use larger and more homogenous samples, and also employ diagnostic as opposed to screening instruments.

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Del 2: Refleksjonsoppgave

Hvordan kan utvalg og datainnsamlingsinstrument påvirke prevalens av posttraumatisk stress syndrom og symptomer på posttraumatisk stress i studier av intensivpasienter?

1.0 Innledning

Posttraumatisk stress syndrom (PTSD) er en potensielt alvorlig psykiatrisk diagnose, og har tradisjonelt blitt assosiert med traumatiske hendelser som voldelige overfall, krig og naturkatastrofer (Jackson et al. 2007). I senere tid har det blitt utført en rekke studier som viser at pasienter som overlever kritisk sykdom også kan utvikle PTSD eller symptomer på posttraumatisk stress (PTSS) (Jones et al. 2007, Granja et al. 2008, Davydow et al. 2013, Jackson et al. 2007, Davydow 2008).

Litteraturen rapporterer en prevalens av PTSD eller PTSS på mellom 5 og 63% hos gruppen tidligere intensivpasienter (Jackson et al. 2007, Wallen et al. 2008). Årsaken til at disse funnene varierer så mye er uklar, men metodologiske begrensninger som seleksjonsbias, frafall under studiene og den store variasjonen når det gjelder hvilke instrumenter som blir brukt er viktige faktorer (Davydow et al. 2008, Jackson et al. 2007). Symptomer på posttraumatisk stress er enkle å identifisere, men for å sette diagnosen PTSD bør det gjøres et diagnostisk intervju fordi dette er en psykiatrisk diagnose (Courtis 2004). I studier som omhandler posttraumatisk stress hos intensivpasienten er det derimot vanlig at pasientene selv rapporterer sine symptomer ved å fylle ut et spørreskjema. Jeg har også funnet en stor variasjon i prevalens av PTSS i min studie.

I denne oppgaven vil det bli gjort rede for metodene diagnostisk intervju og selvrapportering av symptomer i spørreskjema for å påvise PTSD/PTSS hos intensivpasienter. Det vil bli diskutert om valg av diagnostisk intervju eller spørreskjema kan være en årsak til de varierende funnene når det gjelder prevalens av PTSD/PTSS hos denne pasientgruppen. Faren for systematiske skjevheter i forhold til utvalg i studiene vil bli drøftet, og om dette også kan være en medvirkende årsak til den store variasjonen i prevalens.

Følgende problemstilling er valgt:

Hvordan kan utvalg og datainnsamlingsinstrument påvirke prevalens av PTSD/PTSS i studier av intensivpasienter?

2.0 Hva er PTSD/PTSS og hvordan kartlegges PTSD/PTSS?

2.1 Definisjon av PTSD

PTSD ble innført som diagnose av Verdens Helseorganisasjon i 1978, og viste en global anerkjennelse av den typiske symptomatiske respons ved traumatiske livshendelser (Weiss 2007).

I 1980 ble PTSD introdusert i the Diagnostic and statistical manual of mental disorders third edition (DSM-III), og dette gav fagfolk et viktig verktøy for å forstå menneskers reaksjon på traumatiske hendelser (Weiss 2007).

Pasienter med PTSS viser symptomer på PTSD, men oppfyller ikke alle kravene for å sette denne komplekse diagnosen (Jackson et al. 2007).

Begrepet PTSD er i utvikling. I 2013 kom den femte utgaven av the Diagnostic and Statistical manual of Mental Disorders (DSM-5) ut. Der blir PTSD definert på følgende måte:

”The essential feature of posttraumatic stress disorder (PTSD) is the development of characteristic symptoms following exposure to one or more traumatic events. Emotional reactions to the traumatic event (e.g., fear, helplessness, horror) are not longer a part of Criterion A. The clinical presentation of PTSD varies. In some individuals, fear-based re-experiencing, emotional, and behavioral symptoms may be predominant. In others, anhedonic or dysphoric mood states and negative cognitions may be most distressing. In some other individuals, arousal and reactive-externalizing symptoms are prominent, while in others, dissociative symptoms predominate. Finally, some individuals exhibit combinations of these symptom patterns” (American psychiatric association 2013, s. 274). (Vedlegg 2)

2.2 Spørreskjema som metode for å kartlegge PTSD/PTSS

Spørreskjema er en mye brukt metode for å kartlegge PTSD/PTSS hos intensivpasienter, og de blir også brukt for å sette diagnosen PTSD (Jackson et al. 2007). Respondentene graderer sine symptomer i standardiserte svaralternativer, der en lav score gjerne indikerer et lavt nivå av symptomer på PTSD, og en høy score indikerer et høyt nivå.

Ved bruk av spørreskjema kan det undersøkes store populasjoner, og svarene kan ofte enkelt bearbeides elektronisk (Polit and Beck 2012). Respondentene er garantert full anonymitet, og kan svare fritt uten å bekymre seg for eventuelle negative reaksjoner. Selvrapporing av symptomer i spørreskjema er den vanligste måten å kartlegge PTSD/PTSS hos intensivpasienten på, og blir brukt i langt større utstrekning enn diagnostisk intervju (Davydow 2008, Jackson et al. 2007). Ulempen med spørreskjema som metode er at det gir respondenten mindre mulighet til å utdype og beskrive sine symptomer og opplevelser (Johannessen et al. 2010)

Etter at PTSD ble anerkjent som en psykiatrisk diagnose, utviklet Horwitz, Wilner, & Alvarez et enkelt men effektivt selvrapporingsskjema i 1979. Dette skjemaet ble kalt the Impact of Event Scale (IES) (Weiss 2007). Hensikten var å undersøke alvorlighetsgraden av symptomer hos pasienter de siste syv dagene etter en spesifikk traumatisk hendelse. Dette spørreskjemaet tok for seg syv spørsmål om påtrengende minner og åtte om unngåelse. I 1995 ble IES videreutviklet av Weiss, Marmar, Metzler, & Ronfeldt. Den komplette undersøkelsen av reaksjoner på traumatiske hendelser skal inkludere en vurdering av graden av hyperaktivering. Syv spørsmål i denne kategorien ble lagt til i spørreskjemaet som fikk navnet the Impact of Event Scale Revised (IES-R). IES-R har fire standardiserte svaralternativer som går fra 0= ikke i det hele tatt til 4= ekstremt. Antall poeng pasienten skårer blir avgjørende for om han/hun blir diagnostisert med klinisk signifikant PTSS (Weiss 2007). (Vedlegg 3)

IES-R er et instrument som dekker symptombildet på PTSD slik som det er beskrevet tilbake til DSMV-III. Det er et mye brukt spørreskjema som er vurdert til å være av høy validitet og reliabilitet (Christianson and Marren 2013, Bienvenu 2013). Spørreskjemaet kan gi mye informasjon om pasientens symptombylde og konsekvensene av disse symptomene. Etter at syv spørsmål i kategorien hyperaktivering ble lagt til i 1995, dekker det hele symptombylde som må være tilstede for å sette diagnosen PTSD.

IES-R består av 22 spørsmål som er korte, enkle og konsise. Det er standardiserte svaralternativer. Dette kan være viktig fordi de som svarer vil ha varierende grad av

leseferdigheter og evne til å kommunisere skriftlig (Polit and Beck 2012). Det har også vist seg at spørreskjemaer med åpne spørsmål har en tendens til å bli mangelfullt besvart. Årsaken til dette er at respondentene ofte ikke ønsker å skrive egne svar, selv om egne svar kan være mer utdypende og informative (Johannessen et al. 2010).

2.3 Intervju som metode for å kartlegge PTSD/PTSS

Intervju er den mest brukte måten å samle inn kvalitative data på, og gjør det mulig å få fylldige og detaljerte beskrivelser av blant annet respondentens opplevelser (Johannessen et al. 2010). Diagnostisk intervju blir ansett for å være den beste måten å påvise PTSD (Courtis 2004). Respondenten kan ofte svare mer fritt og gå mer i dybden når det gjelder å beskrive egne erfaringer. Den som intervjuer kan også svare på spørsmål, slik at eventuelle misforståelser unngås (Album et al. 2010). Eventuelt manglende lese eller skrivekunnskaper hos deltagerne vil ikke påvirke resultatet, og denne metoden egner seg også godt for de som av ulike årsaker kan ha problemer med å fylle ut et spørreskjema, som for eksempel eldre og barn (Polit and Beck 2012). Ved et personlig intervju er man også sikker på at den som svarer er den man ønsker svar fra. Et spørreskjema kan for eksempel bli fylt ut av pårørende. Ulempen med intervju som metode er at det ikke er egnet til å undersøke store populasjoner, og utvalget blir dermed mindre. Respondenten kan heller ikke være anonym, og det er fare for at intervjueren påvirker respondenten selv om han/hun opptrer som en nøytral aktør (Polit and Beck 2012).

Intervjuer kan være mer eller mindre strukturerte. Et ustrukturerte intervju er uformelt og har åpne spørsmål. Forskeren tilpasser spørsmålene innenfor et gitt tema til den enkelte respondent. Det semistrukturerte intervjuet har en intervjuguide som et utgangspunkt, mens spørsmål, temaer og rekkefølge kan varieres. I et strukturert intervju har man på forhånd fastlagt både tema og spørsmål, og det er faste svaralternativer som forskeren krysser av for (Johannessen et al. 2010).

The PTSD Interview (PTSD-1) er en av flere instrumenter som blir brukt for å påvise både PTSS og den fulle diagnosen PTSD (Blake 1995). Intervjuet undersøker de 17 PTSD symptomene fra DSM-III, der pasienten skal rangere dem etter alvorlighetsgrad på en 7 poengs-skala. 1= Nei/aldri, 7= Ekstremt/alltid. To oppfølgingsspørsmål kartlegger hvorvidt symptomene under ett var tilstede i minst en måned på et tidspunkt etter traumet, og om de er

tilstede på det nåværende tidspunkt. Dette er et intervju som har blitt vurdert til å være av god kvalitet høy og validitet (Watson 1991, Blake 1995). Intervjuet er strukturert. (Vedlegg 4)

PTSD-1 ble utviklet for å møte fire spesifikasjoner, blant annet nær korrelasjon til DSM-III standard. Det undersøker om individet har opplevd en uvanlig, ekstremt traumatisk hendelse, samt symptomene gjenopplevelse av traumet, unngåelse og hyperaktivering (Watson 1991).

2.4 Utvalg

Når det forskes på en populasjon, er det ønskelig å kunne si noe om populasjonen som helhet, uten å måtte undersøke hver enhet. For å kunne gjøre dette må utvalget av de som deltar i studier være representativt for hele populasjonen (Johannessen et al. 2010). Selv om forskeren finner et representativt utvalg i en populasjon, er det ikke sikkert det er et representativt utvalg som velger å delta. Dette kan resultere i et skjevt utvalg som igjen kan føre til systematiske feil. Faren for systematiske feil øker i studier med lav svarprosent (Album et al. 2010). Når det forskes på populasjonen tidligere intensivpasienter er det viktig å være ekstra oppmerksom på dette problemet. Denne pasientgruppen sliter ofte med en varierende grad av alvorlige fysiske og psykiske plager i etterkant av intensivoppholdet. Det er derfor rimelig å anta at mange av disse ikke orker å delta i studier, og faren for et systematisk skjevt frafall vi derfor være tilstede.

3.0 Hvordan kan utvalg og datainnsamlingsinstrument påvirker prevalens av PTSD/PTSS i studier av intensivpasienter?

3.1 prevalens av PTSD hos intensivpasienter

Litteraturen viser en stor grad av varierende funn når det gjelder prevalens av PTSD/PTSS hos intensivpasienter, og dette har blant annet blitt knyttet til de ulike instrumentene som er brukt. En annen viktig faktor er at det ikke alltid går klart frem hva som undersøkes. Er det PTSD eller PTSS? (Jackson et al. 2007, Davydow et al. 2008). Det er ikke uvanlig at begrepene brukes om hverandre, også i samme studie.

I min studie fant jeg at kun to av de inkluderte studiene eksplisitt undersøker PTSD (Jubran et al. 2010, Jones et al. 2007). Disse benytter seg av diagnostisk intervju for å sette diagnosen. I tillegg bruker begge selvrapporing av symptomer i spørreskjemaer. De benytter seg av instrumenter som er validert til å sette diagnosen PTSD, og har dermed ikke den metodologiske svakheten som litteraturen beskriver. De er også relativt konsistente når det gjelder funn av PTSD, henholdsvis 12 (Jubran et al. 2010) og 9,2% (Jones et al. 2007). Flere av de andre studiene jeg har inkludert har også brukt diagnostisk intervju, men disse har undersøkt PTSS og ikke PTSD.

I min studie fant jeg at de studiene som undersøkte PTSS jevnt over lå høyere i prevalens enn de to som undersøker PTSD. Dette funnet er som forventet når studiene som måler PTSS benytter seg av instrumenter basert på selvrapporing av symptomer, og ikke instrumenter som er validert til å sette den komplekse diagnosen PTSD. Litteraturen viser også at bruk av diagnostiske instrumenter fører til at færre tilfeller av PTSD blir identifisert (Jackson et al. 2007). Den høyeste prevalensen av PTSS i min studie fant jeg i studiene gjort av (Myhren et al. 2010, Wade et al. 2012, Hatchett et al. 2010). Her ligger prevalensen mellom 24 og 32%. Disse studiene har benyttet seg av ulike spørreskjemaer for selvrapporing av symptomer. Studien av Hatchett et al. er gjort i Sør-Afrika. Der er det ikke uvanlig å binde pasientene, og 24% av pasientene i denne studien kunne huske at de hadde vært bundet (2010). Disse pasientene hadde seks ganger så høy risiko for å utvikle symptomer på posttraumatisk stress enn de som ikke hadde slike minner. Det er derfor rimelig å anta at dette i alle fall delvis kan forklare den høye prevalensen i denne studien.

3.2 Utvalg og frafall i studier

Pasienter som har overlevd akutt og/eller kritisk sykdom har vært igjennom en varierende grad av store fysiske og mentale påkjenninger. Det kan derfor være rimelig å anta at en del av disse ikke har overskudd til å delta i studier. Når det gjelder å studere PTSD/PTSS hos denne pasientgruppen, er det også et viktig poeng at unngåelse er en del av symptombylde ved. Det kan derfor ikke utelukkes at en del av pasientene som opplever betydelige plager ikke vil delta (Granja et al. 2008, Wallen et al. 2008). Det kan også stilles spørsmålstejn ved deltagelsen til de pasientene som opplever mindre problemer knyttet til PTSD/PTSS. Er disse pasientene mer eller mindre villige til å delta i slike studier? Kan det for eksempel være at de opplever at det er lite relevant for dem og derfor ikke ønsker å delta? Eller er det nettopp disse pasientene som har overskudd til å delta? Det vet man lite om, men dette kan også ha innvirkning på utvalget, og dermed føre til et systematisk skjevt frafall.

Et problem som går igjen ved bruk av spørreskjema er at de ofte har en lav svarprosent. Stort sett vil gode spørreskjemaer få svar fra rundt 60% av de som mottok skjemaet. Ved å bruk diagnostisk intervju kan man unngå et sordt frafall. Her er det vanlig med en svarprosent på mellom 80 og 90 (Album et al. 2010). Dette går også igjen i studiene jeg har inkludert. Et eksempel på dette er en stor studie utført av Granja et al. fra der 599 pasienter ble inkludert (2012). Her besvarte bare 313 pasienter spørreskjemaet, det vil si en svarprosent på 52. Årsaken til at respondenter ikke fullfører undersøkelsen kan være mange, og lav svarprosent øker faren for bias (Polit og Beck 2012). Det kan for eksempel være et sosialt skjevt frafall som fører til at de mindre privilegerte i analysedataet faller fra (Album et al. 2010).

Demografiske faktorer som kjønn, alder og utdannelsesnivå er også knyttet til utvikling av PTSD hos intensivpasienter (Jackson et al. 2007, Myhren et al. 2010, Weinert and Sprenkle 2008). Noen studier viser at kvinner er mer utsatt for å utvikle PTSD enn menn, og at yngre pasienter er mer utsatt enn eldre (Jackson et al. 2007, Myhren et al. 2010, Weinert and Sprenkle 2008). Myhren et al. fant at lavt utdannelsesnivå er en risikofaktor for å utvikle PTSD (2012). Mange av pasientene som overlever intensivoppholdet er eldre. Granja et al. fant en mean alder på 59 år i deres studie fra 2012. Eldre kan ha ulik grad av sansesvekkelser som gjør det vanskeligere å fylle ut et spørreskjema på riktig måte (Polit and Beck 2012). Dette øker sjansen for et systematisk skjevt frafall, både når det gjelder, kjønn, alder og utdannelsesnivå.

3.3 Datainnsamlingsinstrumenter og deres betydning

Det finnes en rekke instrumenter å velge mellom for å påvise PTSD/PTSS, og det er viktig å vurdere nøye hvilket instrument som er best egnet. Studier som undersøker prevalens av PTSD og ikke PTSS bør velge et diagnostisk intervju (Courtis 2004). Hvis diagnosen PTSD blir satt ved hjelp av et instrument som ikke er validert til å gjøre dette, kan det føre til at pasienter som ikke oppfyller kriteriene allikevel blir diagnostisert med PTSD. Dermed kan det bli rapportert en falsk forhøyet prevalens (Jackson et al. 2007).

PTSD-1 er et diagnostisk intervju som samsvarer godt med diagnosekriteriene fra DSM-III, og er vurdert til å være av høy reliabilitet og validitet (Watson 1991). Men dette intervjuet har også svakheter. En svakhet er at det er strukturert. PTSD-1 har faste spørsmål og svaralternativer med liten mulighet for respondenten til å utdype sine personlige erfaringer og opplevelser. Det er styrken til de mindre strukturerte, kvalitative intervjuene. PTSD-1 vurderer ikke frekvens og intensitet av PTSS separat, og heller ikke livslange symptomer på en tilfredsstillende måte (Blake 1995). Intervjuet har heller ikke oppfølgingsspørsmål eller detaljerte rangeringsbeskrivelser. Det er avhengig av pasientens rangeringer, og blir derfor mer som en selvrapporing og mindre som et intervju (Blake 1995). Fordi intervjuet er strukturert og har faste svaralternativer gir det ikke intervjueren mulighet til å tilpasse spørsmålene den enkelte i intervjusituasjonen. Det å kunne gå i dybden når det gjelder respondentens tanker og opplevelser er en viktig årsak til å velge intervju som metode (Malterud 2011). Når muligheten for dette faller bort, kan en stille spørsmålstegn ved om PTSD-1 er det mest egnede intervjuet å benytte seg av, eller om man for eksempel heller bør velge et intervju som ikke er like strukturert.

Et eksempel på et semistrukturert intervju som er mye brukt for å påvise PTSD er SCID-1. SCID-1 har en god korrelasjon med de diagnostiske kriteriene i DSM-III og er vurdert til å være av høy validitet og reliabilitet (Jackson et al. 2007). Her benyttes det en intervjuguide der den som intervjuer stiller spørsmål som er mer åpne, og respondenten kan besvare spørsmålene med egne ord.

IES-R er et av de vanligste spørreskjemaene for å undersøke PTSD/PTSS. Bienvenu et al. konkluderer i sin studie med at IES-R er et utmerket, kortfattet mål på PTSD hos intensivpasienten (2013), men det kan ikke brukes til å sette diagnosen PTSD (Christianson and Marren 2013). Det har også en god korrelasjon med det semistrukturerte, diagnostiske

intervjuet the Clinician-Administered PTSD Scale (CAPS). CAPS blir vurdert til å være den nåværende ”gullstandarden” i klinisk forskning på PTSD (Bienvenu 2013).

En svakhet ved IES-R er at det er et screening verktøy og ikke en omfattende test. Den har heller ikke et klinisk fokus (Christianson and Marren 2013). Antall poeng pasienten skårer på IES-R er avgjørende for om pasienten blir vurdert til å ha klinisk signifikant PTSS. Allikevel finnes det ingen spesifikk cut-off score (Christianson and Marren 2013). En cut-off score på både 25, 30 og 33 har blitt vurdert til å gi den beste diagnostiske nøyaktighet (Samuelson et al. 2007). Samtidig fant jeg at en av studiene jeg har inkludert i min studie benytter seg av en cut-off score på 35 (Wallen et al. 2008). Davydow et al. understreker også dette problemet i sin review (2008). Dette er en av faktorene som direkte påvirker prevalens av PTSS som blir vurdert til å være klinisk signifikant. Det er slike faktorer litteraturen peker på når den anbefaler at videre forskning på feltet bør være metodologisk strenge (Davydow 2008, Jackson et al. 2007).

Variablene som undersøkes i IES-R er symptomer som skal graderes. Dette forutsetter bruk av skjønn, og disse variablene skiller seg fra kvantitative data som for eksempel kjønn, alder, og nasjonalitet. Standardiserte svaralternativer åpner ikke opp for at respondenten selv kan utdype og gi et nyansert bilde av sine symptomer. Dette er styrken til det kvalitative intervjuet (Malterud 2011). Allikevel har IES-R en styrke i at den inkluderer alle tre symptomkompleksene i diagnosen PTSD som er påtrengende minner, unngåelse og hyperaktivering.

4.0 Konklusjon

De siste årene har det vært en økende interesse for forskning på psykisk helse hos intensivpasienten, herunder PTSD/PTSS. Litteraturen viser at PTSD/PTSS er et problem hos denne pasientgruppen, men prevalens varierer mye i de ulike studiene som er utført. Litteraturen peker på at bruk av en rekke ulike instrumenter og et høyt frafall i studier er viktige årsaker til den store variasjonen i prevalens.

I min studie fant jeg at det er mest vanlig å måle prevalens av PTSS, og her er prevalensen ofte en god del høyere enn i studiene som eksplisitt måler prevalens av PTSD med et diagnostisk instrument. Dette er konsistent med litteraturen. Jeg fant også at de studiene som målte prevalens av PTSD bruker et diagnostisk intervju, og de har dermed ikke den metodologiske svakheten litteraturen beskriver. Frafallsprosenten i studier som omhandler PTSD/PTSS er ofte stor, og kan også ha betydning for prevalens gjennom et mulig skjevt frafall.

På grunn av metodologiske begrensninger kan eksakt prevalens av PTSD/PTSS ikke fastslås. Det anbefales videre forskning innenfor dette feltet. Studier som ønsker å utforske prevalens av PTSD/PTSS i denne pasientgruppen bør fokusere på å ikke bare undersøke symptomene, men også kliniske relevans av disse. I tillegg understrekes viktigheten av å bruke et skikkelig diagnostisk instrument.

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Vedlegg 1: Author guidelines Journal of Advanced Nursing

Last updated: November 2013

JAN publishes high quality qualitative, quantitative and mixed method systematic reviews, systematic methodological, economic and policy reviews, realist and integrative reviews, of relevance to nursing. Authors should demonstrate the appropriate choice and use of methodology for a specific review question or context.

Manuscripts should not exceed 5000 words for the main text, excluding the abstract, summary statement, tables and references. However, at the discretion of the Editor-in-Chief, a more flexible approach to the word limit may be approved for reviews of exceptional quality and importance. Authors who anticipate that their review requires more than 5000 words to adhere to international reporting standards should first make maximum use of supplemental web based files (see [Supporting Information](#)), and then outline the reason for requiring additional words in the main text in the accompanying letter to the Editor-in-Chief. Additional flexibility with the word count will be considered on a case by case basis.

Authors should also consider page length even if the text of their paper is under 5000 words. Very long or numerous tables and figures are not compatible with the page allowance that is available for any single issue of the print journal. Please make maximum use of supplemental web based files (see [Supporting Information](#)). Look at some examples of review papers in recent issues of JAN to see how tables can be formatted using space economically. If appropriate contact the Editor for advice about designing tables of included studies for the print journal.

Organising your paper:

Two separate files to be created and uploaded onto [ScholarOne Manuscripts](#):

Title Page

Your title page should include the following information:

- Full title (maximum 25 words)
- Running head
- Author details: names (please put last names in CAPITALS), job titles and affiliations (maximum of 3 per author), qualifications (maximum of 3 per author, including RN/RM where appropriate)
- Acknowledgements (if applicable)
- [Conflict of Interest statement](#)
- [Funding Statement](#)

The title should begin with a descriptor that best describes the type of review, such as: 'Systematic review:', 'Quantitative Systematic review:', 'Qualitative Systematic Review', 'Meta-analysis', 'Integrative review'

Main file, to include:

Abstract: 250 words. The abstract should include the following headings: Aims (of the paper), Background, Design, Data Sources (include search dates), Review Methods, Results, Conclusion. The abstract should not contain abbreviations or detailed statistics. The Aim should simply state: 'To...'

Summary Statement: Please see the [Summary Statement guidelines](#).

Keywords: A maximum of 10. Should include 'literature review' and other MeSH headings appropriate for the specific review, such as 'systematic review', as well as nurses/midwives/nursing and subject-specific keywords.

Main Text: To include the headings below, and references, tables and figures.

The main text of your paper should include the following headings and sub-headings:

INTRODUCTION

Include rationale, conceptual or theoretical context, and international relevance of topic.

Background

Present the scientific, conceptual or theoretical framework that guided the review, identifying and providing an overview of the conceptual model and/or theory where appropriate. Identify key concepts or study variables.

THE REVIEW

Aim/s

Include research topic/objectives/questions/hypothesis(es): for example, 'The aim of the (type) review was to...'

Design

The review design should be the most appropriate for the review question. Identify type of review and describe design and methods used in detail (e.g. meta-ethnography, Cochrane intervention review, realist synthesis etc). Report original methodological sources of reference for the review design and methods. Report processes and steps used and any methodological adaptations/deviations (if any) with supporting rationale.

Search methods

Include: Development, testing and choice of search strategies (consider using a supplemental information file to report searches), inclusion/exclusion criteria, databases searched, keywords, languages and inclusive dates of the literature searched

Search outcome

Search outcome and audit trail - application of inclusion/exclusion criteria, retrieval and selection of references and handling. Summarise included studies (and, if appropriate, excluded studies) in separate tables.

Quality appraisal

Please note that for most systematic review approaches quality appraisal is mandatory and considered the primary marker of a systematic review. Include a description of approaches used, outcome of appraisal process and audit of discarded studies. Make clear the criteria that were used for discarding studies. If quality appraisal was not undertaken provide a convincing and robust explanation, and in the limitations section outline the potential impact on the credibility of the review findings. *JAN* is less likely to publish reviews where quality appraisal of evidence is considered important but was not undertaken.

Data abstraction

Describe the methods and process(es).

Synthesis

Include clear description of process(es) used.

RESULTS

Present the results of your review using appropriate subheadings outlined here and adhere to relevant standard(s) of reporting (e.g. PRISMA for systematic review of RCTs, or RAMESES publication standards for realist syntheses and meta-narrative reviews). Include a flow diagram illustrating the flow of literature through the review. Review methods that involve multiple methodological stages/processes should report the outcome of each stage/process. If appropriate, identify the conceptual or theoretical context of each definition or discussion of the concept found in the literature.

DISCUSSION

Draw out the applicability, theoretical and practical implications of the review findings. End with limitations and strength and generalisability/transferability of the evidence.

CONCLUSION

This should not be a summary/repetition of the findings. Clarify the contribution of the review to existing knowledge, highlight gaps in knowledge and understanding, outline future research, report implications/recommendations for practice/research/education/management as appropriate, and consistent with the limitations. If appropriate, consider whether one or more theoretical frameworks could guide future research about the topic of the review.

Links to useful resources

Vedlegg 2: definisjon posttraumatisk stress syndrom

Posttraumatic Stress Disorder

Diagnostic Criteria

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).
2. Witnessing, in person, the event(s) as it occurs to others.
3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g, first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

Note: in children, there may be frightening dreams without recognizable content.

3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

5. Marked psychological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

- 1) Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
- 2) Persistent and exaggerated negative beliefs or expectations about oneself, others or the world (e.g, "I am bad", "No one can be trusted", "The world is completely dangerous," "My whole nervous system is permanently ruined").
- 3) Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
- 4) Persistent, negative emotional state (e.g, fear, horror, anger, guilt or shame).
- 5) Markedly diminished interest or participation in significant activities.
- 6) Feelings of detachment or estrangement from others.
- 7) Persistent inability to experience positive emotions (e.g, inability to experience happiness, satisfaction, or loving feelings).

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

- 1) Irritable behaviour and angry outbursts (with little or no provocation), typically expressed as verbal or physical aggression toward people or objects.
- 2) Reckless or self-destructive behaviour.
- 3) Hypervigilance.

- 4) Exaggerated startle response.
- 5) Problems with concentration.
- 6) Sleep disturbance (e.g, difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g, medication, alcohol) or another medical condition.

American psychiatric association (2013) Trauma-and stressor-related disorders
Diagnostic and statistical manual of mental disorders: DSM-5 American psychiatric publishing, Washington, D.C. p 271-274

Vedlegg 3: Impact of Event Scale-Revised

Impact of Events Scale - Revised (IES-R)

Identifier Date

Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you **DURING THE PAST SEVEN DAYS** with respect to (your problem), how much were you distressed or bothered by these difficulties? This assessment is not intended to be a diagnosis. If you are concerned about your results in any way, please speak with a health professional.

0 = Not at all 1 = A little bit 2 = Moderately 3 = Quite a bit 4 =Extremely

1	Any reminder brought back feelings about it	<input type="text" value="Please select ..."/>
2	I had trouble staying asleep	<input type="text" value="Please select ..."/>
3	Other things kept making me think about it	<input type="text" value="Please select ..."/>
4	I felt irritable and angry	<input type="text" value="Please select ..."/>
5	I avoided letting myself get upset when I thought about it or was reminded of it	<input type="text" value="Please select ..."/>
6	I thought about it when I didn't mean to	<input type="text" value="Please select ..."/>
7	I felt as if it hadn't happened or wasn't real	<input type="text" value="Please select ..."/>
8	I stayed away from reminders about it	<input type="text" value="Please select ..."/>
9	Pictures about it popped into my mind	<input type="text" value="Please select ..."/>
10	I was jumpy and easily startled	<input type="text" value="Please select ..."/>
11	I tried not to think about it	<input type="text" value="Please select ..."/>

Serenity Programme™ - serene.me.uk - Impact of Events Scale (IES-R)

- 12 I was aware that I still had a lot of feelings about it, but I didn't deal with them
- 13 My feelings about it were kind of numb
- 14 I found myself acting or feeling like I was back at that time
- 15 I had trouble falling asleep
- 16 I had waves of strong feelings about it
- 17 I tried to remove it from my memory
- 18 I had trouble concentrating
- 19 Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart
- 20 I had dreams about it
- 21 I felt watchful and on guard
- 22 I tried not to talk about it

Avoidance	<input type="text" value="0"/>
Intrusion	<input type="text" value="0"/>
Hyperarousal	<input type="text" value="0"/>
Total Mean IES-R Score	<input type="text" value="0"/>
Total IES-R Score	<input type="text" value="0"/>

Document Version: 1.4
Last Updated: 17 February 2013
Planned Review: 17 February 2018

Introduction to the IES-R

The IES-R was developed in 1997 by Daniel Weiss and Charles Marmar to reflect the DSM-IV criteria for post-traumatic stress disorder (PTSD). The original Impact of Events Scale (IES) predated the adoption of PTSD as a 'legitimate' diagnosis in the DSM-III of 1980 and measured two of the four DSM-IV criteria for PTSD; specifically 're-experiencing / intrusion' and 'avoidance / numbing'.

The IES-R was designed to also assess hyperarousal, another of the DSM criteria for PTSD. Other criteria include exposure to a traumatic event, duration of symptoms and impairment due to symptoms.

The hyperarousal scale adds new items to the original IES; items 4, 10, 15, 18, 19 and 21. These new items help measure hyperarousal symptoms e.g. anger and irritability, heightened startle response, difficulty concentrating and hypervigilance.

For comparisons with IES scores, some consider using the sum of the 'avoidance' and 'intrusion' items. However, the response format in the IES assesses the 'frequency of symptoms' (not at all = 0, rarely = 1, sometimes = 3 and often = 5) and was changed in the IES-R to measure 'symptom severity' (0 = not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit and 4 = extremely).

The main strengths of this revised measure are that it is short, quick and easy to administer and score and may be used repeatedly to assess progress. It is intended to be used as a screening tool, not a diagnostic test.

Scoring the IES-R

Avoidance Subscale = mean of items	5, 7, 8, 11, 12, 13, 17 and 22
Intrusion Subscale = mean of items	1, 2, 3, 6, 9, 14, 16 and 20
Hyperarousal Subscale = mean of items	4, 10, 15, 18, 19 and 21
Total mean IES-R score =	The sum of the means of the three subscale scores

The maximum mean score on each of the three subscales is '4', therefore the maximum 'total mean' IES-R score is 12. Lower scores are better. A total IES-R score of 33 or over from a theoretical maximum of 88 signifies the likely presence of PTSD.

Privacy - please note - this form does not transmit any information about you or your assessment scores. If you wish to keep your results, either print this document or save this file locally to your computer. If you click 'save' before closing, your results will be saved in this document. These results are intended as a guide to your health and are presented for educational purposes only. They are not intended to be a clinical diagnosis. If you are concerned in any way about your health, please consult with a qualified health professional.

Horowitz, M.J., Wilner, M. & Alvarez, W. (1979). Impact of Events Scale: A measure of subjective stress. *Psychosomatic Medicine*, 41(3), 209-218.

Weiss, D.S. (2007). The Impact of Event Scale: Revised. In J.P. Wilson & C.S. Tang (Eds.), *Cross-cultural assessment of psychological trauma and PTSD* (pp. 219-238). New York: Springer.

Vedlegg 4: PTSD-1 Interview

Appendix (continued)

Has the interviewee experienced a trauma? Yes _____ No _____

How old was the interviewee when the event happened? Age _____ Date _____
month/year

(Now give the interviewee a copy of the rating key. Read him/her the questions and ask him/her to choose the correct response.)

RATING KEY

No	Very little	A little	Somewhat	Quite a bit	Very much	Extremely
Never	Very rarely	Sometimes	Commonly	Often	Very often	Always
1	2	3	4	5	6	7

- _____ B-1. Have upsetting memories of (cite the stressor listed above here and in each item below) frequently pushed themselves into your mind at times?
- _____ B-2. Have you had recurring unpleasant dreams about (the stressor)?
- _____ B-3. Have you ever suddenly acted or felt as if (the stressor) were happening again? This includes flashbacks, illusions, hallucinations or other "re-livings" of the event, even if they occur when you are intoxicated or just waking up.
- _____ B-4. Have things that reminded you of (the stressor) sometimes upset you a great deal?
- _____ C-1. Have you ever tried to avoid thinking about (the stressor) or feelings you associate with it?
- _____ C-2. Have you sometimes avoided activities or situations that remind you of (the stressor)?
- _____ C-3. Have you found you sometimes couldn't remember important things about (the stressor)?
- _____ C-4. Have you lost a lot of interest in things that were very important to you before (the stressor)?
- _____ C-5. Have you felt more cut off emotionally from other people at some period than you did before (the stressor)?
- _____ C-6. Have there been times when you felt that you did not express your emotions as much or as freely as you did before (the stressor)?
- _____ C-7. Have there been periods since (the stressor) when you felt that you won't have much of a future—that you may not have a rewarding career, a happy family, or a long, good life?
- _____ D-1. Have you had more difficulty falling asleep or staying asleep at times than you did before (the stressor)?
- _____ D-2. Have you gotten irritated or lost your temper more at times than you did before (the stressor)?
- _____ D-3. Have there been periods since (the stressor) when you had more trouble concentrating than you had before it?
- _____ D-4. Have there been times when you were more overly alert, watchful, or super-aware of menacing noises or other stimuli than you were before (the stressor)?
- _____ D-5. Have there been times since (the stressor) when unexpected noise, movement, or touch startled you more than they did before?
- _____ D-6. Have things which reminded you of (the stressor) made you sweat, tense up, breathe hard, tremble, or overrespond in some other physical way?

Appendix (continued)

_____ E-1. Have you had these problems at least a few times a week for at least a month sometime since (the stressor)?

_____ E-2. Have you had these problems at least a few times each week over the past month?

When did these feelings or problems first occur (month and year)? _____

SUMMARY

Does the interviewee meet the DSM-III-R criteria for:

Section A. History of trauma
(“yes” response to item A-3?) Yes _____ No _____

Section B. Trauma reexperiencing
(at least one “4” or higher response to items B-1, B-2, B-3, and/or B-4?) Yes _____ No _____

Section C. Avoidance of stimuli associated with trauma
(at least three “4” or higher responses to items C-1, C-2, C-3, C-4, C-5, C-6, and/or C-7?) Yes _____ No _____

Section D. Increased arousal
(at least two “4” or higher responses to items D-1, D-2, D-3, D-4, D-5, and/or D-6?) Yes _____ No _____

A lifetime PTSD diagnosis (“yes” responses to Summary Sections A, B, C, and D, and to item E-1). Yes _____ No _____

A current PTSD diagnosis (“yes” responses to Summary Sections A, B, C, D, and to item E-2). Yes _____ No _____

PTSD-I Overall Frequency/Severity score
(Sum of items B-1 through D-6). _____

RATING KEY

No	Very little	A little	Somewhat	Quite a bit	Very much	Extremely
Never	Very rarely	Sometimes	Commonly	Often	Very often	Always
1	2	3	4	5	6	7