Induced Abortions and Posttraumatic Stress - Is there any relation?

A Swedish multi-centre study

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Abstract
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Introduction: Induced abortion is a common medical intervention. Whether psychological sequelae might follow induced abortion has long been a subject of concern among researchers, and there is lack of knowledge about the relationship between posttraumatic disorder (PTSD) and induced abortion. **Aims:** To study and compare PTSD, posttraumatic stress symptoms (PTSS) and anxiety- and depressive symptoms among women seeking abortion, allowing for demographic variables. Further aims were to assess risk factors and to assess PTSD and PTSS following induced abortion in relation to experienced care at the clinic. **Methods:** This was a multi-centre cohort study targeting women who requested an induced abortion at the outpatient clinics of the gynaecology and obstetrics departments of six public hospitals in Sweden. All women who requested an induced abortion before the end of gestational week 12 were approached for participation. PTSD, PTSS, anxiety- and depressive symptoms, personality traits and women's perceptions of abortion care were measured by means of questionnaires. Measurements were made at the first visit before the abortion as well as three- and six-months thereafter. Data collection was performed from September 2009 to January 2011. **Results:** 1,514 women filled out the questionnaire before the abortion. Abortion-seeking women did not suffer from PTSD to a greater extent than the general Swedish female population. Few women (51/720) developed PTSD or PTSS after the abortion, 11 did so due to trauma experience related to the abortion. Women at risk of posttraumatic stress were more likely to be young, having anxiety- or depressive symptoms and personality traits related to neuroticism. Furthermore, women with PTSD or PTSS were more likely to perceive certain aspects of the abortion care as deficient. **Conclusions:** The vast majority of women coped well with the induced abortion. Few developed posttraumatic stress post abortion. The majority did so because of trauma experiences unrelated to the induced abortion. Young women and women with mental distress are vulnerable groups that need to be paid attention to in abortion care. These women are at risk for negative experiences of the abortion care, and may be at risk of PTSD or PTSS post abortion

Keywords: Abortion Induced, Stress Disorders Posttraumatic, Anxiety, Depression, Mental Health, Personality Traits, Ambulatory Care Facilities

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Bryt upp, bryt upp! Den nya dagen gryr.
Oändligt är vårt stora äventyr.

Karin Boye

List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.

I   Wallin Lundell, I., Sundström Poromaa, I., Frans, Ö., Helström, L., Högberg, U., Moby, L., Nyberg, S., Sydsjö, G., Georgsson Öhman, S., Östlund, I., Skoog Svanberg, A. The prevalence of posttraumatic stress among women requesting induced abortion.
Eur J Contracept Reprod Health Care. 2013;18(6):480-8.

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BMC Women's Health. 2013;13(1):52.

III Wallin Lundell, I., Sundström Poromaa, I., Ekselius L., Georgsson Öhman, S., Frans, Ö., Helström, L., Högberg, U., Sydsjö, G., Skoog Svanberg, A. Neuroticism-related personality traits are associated with post-abortion posttraumatic stress. *Submitted.*

IV Wallin Lundell, I., Georgsson Öhman, S., Sundström Poromaa, I., Högberg, U., Sydsjö, G., Skoog Svanberg, A. How do women perceive abortion care? A study focusing on women with mental and posttraumatic stress. *Submitted.*

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Contents

Abbreviations

AOR	Adjusted Odds Ratio
CI	Confidence Interval
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
HADS	Hospital Anxiety and Depression Scale
IES	Impact of Event Scale
NCCMH	National Collaboration Centre for Mental Health
OR	Odds Ratio
PCL-C	PTSD Check List, Civilian version
PTSD	Posttraumatic Stress Disorder
PTSS	Posttraumatic Stress Symptoms
QPP	Quality from the Patient's Perspective
SSP	Swedish Universities Scale of Personality
SQ-PTSD	Screen Questionnaire-Posttraumatic Stress Disorder
WHO	World Health Organization

Introduction

Induced abortion in a historical perspective

Induced abortions among women with unwanted pregnancies have existed at all times and in all cultures (1, 2). Even the ancient Greeks knew how to induce an abortion with herbs, different drugs and even by surgery (2, 3). In the last few centuries, women with different social backgrounds such as rich, poor, married, single, with or without children have found ways to terminate unwanted pregnancies, mainly through illegal abortions. The abortion was induced either by the woman herself or through a helper like a friend or abortionist. In the past century, more wealthy women could turn to experienced, competent and expensive illegal abortionists and as a result get safer abortions. Poorer women were forced to turn to an abortionist with lower success rates and often with more doubtful skills (2).

In the beginning of the 20th century, syringes for injections of fluids into the uterus became more common. Common fluids that were injected were water or soap water. Catheters and tubes were also frequently used to induce abortions among women themselves and among illegal abortionists (2, 3).

An induced abortion was a criminal act in Sweden until the first abortion law of 1938 was enacted. The law was a result of the large number of illegal abortions. Abortion was still a criminal act but was permitted on limited medical, eugenic and humanitarian grounds. When a request for a legal abortion was made, social workers counselled abortion-seeking women by providing encouragement and moral support, but their approach was to persuade women to continue their pregnancy to term. In 1946, a social-medical indication was added to the law. Women were permitted to have abortion if there was a presumption that the birth and care of the child would imply physical or psychological weakness for the woman (2, 3). A fifth indication, fetal malformations, was added to the abortion act in 1963 (2).

During the early sixties, it was still difficult to get a legal abortion in Sweden, leading to Swedish women travelling to Poland for the abortion. In Poland, free abortion had been permitted since 1959. At that time, it was mostly well-educated liberal men and men from political organisations who requested free abortions for their significant others. It was not until the seventies that free abortions were demanded also from the women's liberation. The arguments for free abortion were from the perspectives of emancipation and feminism (2). In 1974, a new abortion law was enacted, which is still in

force and guarantees women free abortion upon request until the end of the 18th gestational week (2, 4).

Induced abortions worldwide

Induced abortion is a common procedure throughout the world for terminating unwanted pregnancies; however, the circumstances governing whether women have or do not have access to a safe abortion are regulated by their countries' abortion laws (5-7).

Worldwide, about 40% of women live in countries with restrictive abortion laws (8), for instance, European countries such as Poland, Ireland, Malta and most of the African and South American countries (9). These laws are highly restricted and prohibit abortion or allow abortion only to save the woman's life or to protect her physical and mental health. In countries with restrictive laws, high rates of unsafe abortions are to be expected with an increased risk for maternal deaths and morbidity due to complications from unsafe abortions (6, 8, 10). According to the WHOs definition, an unsafe abortion is a termination of pregnancy carried out by a person without the necessary skills or in an environment that does not meet the minimal medical standards, or both. In the year 2008, 21.6 million unsafe abortions took place globally, almost all in low income countries, and the percentage of maternal deaths due to unsafe abortion was 13% (6).

Countries with liberal abortion laws are located mainly in Europe, North America, Oceania and some areas in Asia. In 2008, the abortion rate in United States was 20/1,000 women of reproductive age, and in England and Wales 17/1,000. In Europe, Eastern Europe has the highest abortion rates, for example, Estonia where the abortion rate was 30/1,000 women in 2008. The lowest abortion rates among countries in Europe are in Germany and Switzerland with 7/1,000. Apart from some countries in Eastern Europe, Sweden had the highest abortion rate in Europe with 21/1,000 women of reproductive age (15–44 years) in 2008 (5).

First trimester induced abortions in Sweden

The Swedish abortion law of 1974 is liberal and guarantees, as previously mentioned, free abortion up to the end of the 18th gestational week (4). However, the major increase in the abortion rate was during the mid-sixties and the early seventies before the abortion law of 1974 went into effect. This could be because of the new indication of fetal malformations and because a more abortion friendly attitude in healthcare was requested by the National Board of Health and Welfare (11). Sweden has a high rate of induced abortions, also the highest rate among the Nordic countries. However, the abor-

tion rate has remained rather stable since the abortion law of 1974 was enacted. During 2012, the number of induced abortions in Sweden was 37,300 (20.7/1,000 women, age 15–44). Of those, 79% were performed before gestational week nine. Most abortions were performed in the age group 20–24 years, followed by women 25–29 years, then by women 30–34 years, and lastly teenagers. Surgical abortion is decreasing among first trimester abortions in favour of medical abortions, which constitute 96.9% of all abortions before gestational week six and 83.2% of all abortions between gestational week seven to eight (12).

Before gestational week nine, two methods, medical and surgical abortions, are available (13). In the first trimester, medical abortion is the most frequently used method and it is performed in two steps. The first step is oral medication using mifepristone and the second step, after 24–48 hours, is administration of prostaglandins such as misoprostol vaginally (10, 13). Mifepristone is an antiprogestogen, which blocks progesterone- and glucocorticosteriod receptors. It also increases the sensitivity of the uterus to prostaglandins such as misoprostol. Misoprostol is a prostaglandin analogue registered for use as prevention and treatment of induced gastric ulcer, which as a side effect has a strong contracting effect on the uterus (14). Prostaglandins soften the cervix and induce uterine contractions (14). By administering mifepristone before the prostaglandin, such as misoprostol, it potentiates the effect of the latter causing more pronounced uterine contractions (14, 15). Medical abortion, with a combination of mifepristone and prostaglandins, is an intervention that was developed in Sweden and introduced in 1992 (13, 15).

As an option, medical abortion can be performed at home (16). Women who choose home abortion start the induced abortion by taking the mifepristone medication at the clinic, according to the Swedish abortion law, followed by home-use of misoprostol after 24–48 hours (4). The impression is that the number of home abortions has increased (16), although statistical data unfortunately is lacking (17). Until 2011, the available statistics for induced abortion reported in Sweden were: year of birth, home district, number of births and abortions, gestational week and abortion method (10). In 2012, there was a temporary interruption of the registration of statistics from abortion clinics due to a decision from the Swedish National Board of Health and Welfare that referred to the need to maintain confidentiality of abortion seeking women. The report of the data is now restricted to age groups, home district, previous abortions, gestational week, abortion method and incomplete abortions. In contrast, home abortions are now reported (12).

Some hospitals have started to offer medical abortions between gestational week nine to twelve, which are performed at the clinic. During 2011, 1,533 medical abortions were performed between gestational week nine and twelve, in comparison with the 3,849 surgical abortions performed at the same gestational length (18). Surgical abortion is normally available from

gestational week seven but can be performed at an earlier stage (13). Most commonly, cervical priming with prostaglandin analogues is administered three hours before vacuum aspiration to soften the cervix. Cervical priming reduces the risk of injuring the cervix, especially in young women and it also reduces the risk of perforation in higher gestational age. The surgical abortion is performed with vacuum aspiration, and both general anaesthesia and local anaesthesia are used (13).

Complications following first trimester induced abortion

Complications related to medical abortion in early abortions are unusual. During step two, when misoprostol is administered, some women experience side effects, such as pain and nausea (19, 20); thus it is important to provide analgesics during this stage. Side effects of medical abortion include moderate to heavy bleeding (19), which is why it is important to inform the woman, since heavy bleeding post abortion could be pathological (13). Incomplete abortions or failed abortions are very rare. In early abortions, approximately 2% are incomplete and in 1% of the cases an abortion does not occur. In these cases, a vacuum aspiration is needed to complete the abortion (20). There is a slightly increased risk of genital infections and haemorrhage due to surgical abortions. Another rare complication is perforation of the uterus (13, 19). Surgical abortion is not recommended before gestational week seven, due to an increased risk of incomplete abortion. There is no evidence of long-term complications, such as infertility or breast cancer, per se following the abortion (13, 21). Medical complications may be of importance for negative experiences of abortion care (22).

Abortion care and practice

According to the abortion law, women are guaranteed and cannot be refused an abortion up to gestational week 18. The women do not need to declare the reason for the abortion. Further, the Swedish abortion law regulates induced abortions only to be performed by physicians in public hospitals or in private clinics approved by the Swedish National Board of Health and Welfare; the latter is less common (4).

Professionals working in abortion services and involved in the abortion process include: gynaecologists, midwives, nurses and hospital social workers (20). The law regulates that women seeking abortion should be offered a voluntary meeting with a social worker. This is generally offered when women make their first call for an appointment. Up to gestational week nine, the woman can choose the abortion method, either medical or surgical, in consultation with the gynaecologist or the midwife. With the increase of medical abortions, the management of first trimester medical abortions has gradually shifted from physicians to midwives. Duties such as counselling,

contraceptive services, care of the women during the procedure and follow-up have been delegated to midwives (20). In addition, in an increasing number of hospitals in Sweden, midwives have been trained to perform medical abortions up to gestational week nine. In doing so, they have acquired skills to perform vaginal ultrasound dating of the pregnancy and they are also responsible for the contraceptive counselling (23, 24). Within this new practice, midwifes are now responsible for the entire abortion process, that is, from receiving the first call for an appointment to follow-up. This allows the woman to meet the same midwife throughout the whole process (20).

Women's experiences of abortion care

Study findings from different countries demonstrate that women in general rate the overall satisfaction of abortion care as high (22, 25-28). When women are dissatisfied or report negative experiences of abortion care, it is due to multiple factors. Patient-related factors such as experiences of pain, expectations of care and socio-demographic background have been shown to be of importance (25). Young women are more likely to report negative experiences of abortion care (22, 25, 29) as well as women with higher education (college degree or higher) (25) and women without children (22, 29). Examples of factors related to negative experiences of care are inadequacies in timely care (25, 30), inadequacies in treatment by clinicians and healthcare staff (25, 27, 28, 30), and medical complications associated with the abortion (22). One factor suggested to increase satisfaction with the abortion services for women with surgical abortion is shortened waiting time at the clinic (30). It is important to offer emotional support (28-30) and information about bleeding, pain and the impending expulsion to women undergoing medical abortion (26-30).

Women's experiences of abortion care also depend on the context in which they live and where the abortion is performed. For instance, in the United States and Mexico, anti-abortion protesters outside the clinic often have a negative impact on women's reactions to the abortion clinic experience (22, 27, 31). Moreover, the elaborative security measures in place at many abortion clinics contribute to increase women's feelings of stigma, isolation and secrecy. Due to these circumstances, women can be buzzed into clinics through security doors, they are anonymously treated and for security reasons companions are not allowed (31). Although the safety regulations intend to protect staff and clients, in reality the safety procedures result in being a more upsetting experience for some women (27, 31).

In a qualitative study by Stålhandske and colleagues (32), Swedish women viewed the abortion care as being natural, rational and efficient and more focused on medical and technical procedures than on more sensitive issues. Some women appreciate this attitude from the healthcare staff, free of

questions of emotional or moral issues or the judgmental attitude that they had expected to meet in the abortion service. In contrast, other women experience the abortion care as being distanced and view the healthcare staff as avoiding broaching any existential aspects of the situation.

Studies of medical abortion in home settings indicate that women appreciate the privacy, control and the social support they receive from their partner or other significant person (16, 33-35). They are more likely to be satisfied, to choose the same method in case of a future abortion and recommend the method to a friend than women who choose medical abortion at the clinic (35, 36).

Posttraumatic Stress Disorder (PTSD)

Posttraumatic Stress Disorder (PTSD) is a disorder that may result after an individual has been confronted with a life threatening or a violent traumatic event. Earlier, PTSD was solely associated with military service personnel, known in terms of shell shock and battle fatigue. However, other extreme traumatic events like war, terrorism, torture and natural disasters are often associated with PTSD. Besides such extreme events, it is well known that PTSD can occur in any traumatic situation. Thus, traumas like accidents, intimate partner violence, rape and child abuse can cause PTSD (37).

Individuals with PTSD suffer from symptoms of the trauma. These symptoms include memories of the trauma that they relive over and over again, such as flashbacks and nightmares. These individuals avoid people and places associated with the traumatic event and are also distressed by reminders of the trauma. They are hyper-aroused, which can mean difficulties sleeping, trouble concentrating and being hyper-vigilant (37). Consequently, patients with PTSD are pre-occupied with thoughts of their personal safety and are often scanning their environment for threatening stimuli. In case of doubts, they will assume a present danger and react accordingly. The symptoms of avoidance and hyper-arousal can be understood within this perspective. Another important manifestation of PTSD is emotional numbness; these individuals are unable to experience loving feelings and to show mutual feeling in return to loved ones. As a consequence, persons with PTSD might isolate themselves and are emotionally inaccessible to loved ones with whom they had previously been close. PTSD symptoms may also affect the capacity to work because of difficulties concentrating, irritability and loss of interest in work or school. Persons with PTSD feel as if they have been changed by their traumatic experience and regard themselves as altered after the event (38).

Prevalence of PTSD

Initially, PTSD was considered as being a rare condition, and the trauma exposures were considered as very extreme events, outside the range of normal human experience (37, 39). Recently, epidemiological studies have demonstrated high prevalence rates of trauma exposure in the general population and confirmed that PTSD can occur following a wide range of extreme life events. Although exposure to traumatic events are common, only a few individuals develop PTSD following an extreme event (37).

Kessler and colleagues conducted a study analysing the prevalence of PTSD in the general US population. They found an overall prevalence rate of 7.8%, with rates of 5.0% for men and 10.4% for women (40). In the Swedish population, the responding figures were 3.6% for men and 7.4% for women (41).

The relation between reproductive events and PTSD is explored in some studies, for example, the prevalence of PTSD in relation to childbirth (42-44). In a recent systematic review from Western European countries, the prevalence of PTSD in relation to childbirth is approximately 1–2% (45). A Swedish study reported a prevalence of 1.3% following childbirth and risk factors for PTSD included depression in early pregnancy and fear of childbirth (44). In the systematic review, subjective distress in labour and obstetrical emergencies were the most important risk factors (45).

Explanations of PTSD symptoms

Knowledge of neurobiological explanations of PTSD symptoms has progressed during the past decade. It has been demonstrated that neurochemical and neuropeptide systems play an important role in the behaviours associated with fear and anxiety producing stimuli. These systems have an effect on distinct cortical and subcortical brain areas that are important for the medication of the symptoms associated with PTSD (46). Furthermore, a possible genetic predisposition has also been suggested (47, 48). Research in molecular genetics is on the way to identify the genes that underlie the neurobiological disturbances, which increase vulnerability to PTSD (46).

There are also different psychological theories helping to explain PTSD symptoms, where both conditioning and cognitive models are used (46).

The Pavlovian fear-conditioning model has influenced treatment and research. According to the conditioning model, fear is acquired via classical conditioning and avoidance via instrumental conditioning. A person exposed to a life-threatening experience may become conditioned to stimuli present during the trauma, like sounds and odours. As a result, these previously neutral stimuli will elicit intense anxiety through the process of classical conditioning (46).

According to the cognitive model, the explanation for the PTSD symptom is due to the person's interpretation of the traumatic event, rather than the event itself. An event can be interpreted in different ways and thereby evoke different feelings (46).

Partial, subsyndromal PTSD and Posttraumatic Stress Symptoms (PTSS)

Some individuals only partly meet the diagnostic criteria of PTSD. In the literature, the terms subsyndromal, subthreshold, partial PTSD or posttraumatic stress symptoms (PTSS) have been used, as no single definition for levels of posttraumatic stress below the diagnostic criteria level exists (46). However, subsyndromal PTSD is often exhibited by Vietnam veterans and is associated with impaired work capacity, such as more work loss days and impaired school functioning (49-51). The partial/subsyndromal PTSD has not been a diagnosis in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)(39) or in the Fifth Edition (DSM-5) (52). However, it has been argued that it would be appropriate with such a diagnosis for individuals requiring clinical attention, who do not meet the full diagnostic criteria (46, 53). The counter-argument regarding such diagnosis is that individuals with subsyndromal PTSD should instead be categorised as having an adjustment disorder to prevent an overpathologisation of normal reactions (53).

Numerous studies have reported the prevalence and the morbidity of subsyndromal PTSD; however, the problem is that subsyndromal PTSD has not been defined in a consistent way. Consequently, the evidence has not been considered strong enough to include subsyndromal PTSD as a diagnosis in the DSM-5 (53).

Anxiety disorders

Anxiety disorders include common features of excessive fear and anxiety. The differences between fear and anxiety are that fear is an emotional reaction to a real or perceived impending threat, associated with automatic arousal whereas anxiety is a premonition of a future threat. Anxiety is often associated with muscle tension and vigilance in preparation to handle a future danger and may lead to cautious or avoidant behaviours (52). Unlike the rather common, mild, brief anxiety caused by a minor stressful event, anxiety disorders include several anxiety symptoms, which last over a specific time period and may deteriorate if not treated (54).

The lifetime prevalence of a disorder is the proportion of individuals who reported having the disorder at some time in their life (55). The 12-month

prevalence (point prevalence) is the proportion of individuals who reported having the disorder some time during a 12-month period (56). The lifetime prevalence of anxiety disorders varies between 19–25% and the 12-month prevalence between 12–17% in different studies. For men, the corresponding figures are 19% and 12%, respectively, and for women 25% and 17%, respectively (57, 58). These figures are likely to be applicable for Swedish circumstances (56).

Depressive disorders

Depressive disorders are characterised by a presence of sadness, emptiness or irritable mood accompanied by somatic and cognitive changes (52).

Major depressive disorder is considered to be the classic condition in depressive disorders. The disorder is characterised by discrete episodes lasting at least two weeks and represents a change from previous functioning, changes in affect, cognition, and neurovegetative functions and inter–episode remissions. The symptoms of major depressive disorder are depressed mood most of the day and nearly every day, loss of interest or pleasure in almost all activities, weight loss or weight gain, sleep disturbance, agitation or retardation, fatigue, difficulties concentrating and recurrent thoughts of death and suicidal thoughts. The symptoms mean that individuals with major depressive disorder suffer from some impairment, ranging from mild to severe. The impairment could range from an unwariness of the depressive symptoms for those who interact with the depressed person to complete incapacity such as the depressed person being unable to attend to basic self-care needs (52). The prevalence of major depressive disorder varies in different studies mainly due to different methodologies, differences in culture and lifestyle and degree of traumatisation; nonetheless, the lifetime prevalence is approximately 17–18%. This means that every fifth person, once in their lifetime, will have an onset of severe depression (59). The prevalence rate is higher in females (52); in a Norwegian study, the lifetime prevalence was 24% in women (55).

The findings in an epidemiological study from the European Outcome of Depression International (the ODIN study), demonstrate that the prevalence of depressive disorders appears to vary between the counties of United Kingdom, Ireland, Spain, Norway and Finland, and between urban and rural areas, often with higher prevalence in cities. The overall prevalence of depressive disorders in the ODIN study was 8.6%, with 6.6% for men and 10% for women. The prevalence of depressive disorders in Nordic men in urban areas varied from 3.3%–7.6% and for rural areas 5.6% in men in both countries. The corresponding figures for women in urban areas varied from 8.4%–12% and in rural areas from 7.4%–10.3%. Finland had the lowest prevalence rates in all categories (60). A similar study by Dahlberg and col-

leagues (61), conducted in Sweden, found prevalence rates of *depressive symptoms* of 4.1% for urban men and 4.4% for men living in a rural area; the corresponding figures for women were 6.6% and 6.9%, respectively.

Importantly, the present thesis has not evaluated the presence of depressive disorders, merely the prevalence of depressive symptoms. Depressive symptoms may be assessed by a wide range of validated self-reported scales, and may be regarded as screening instruments for a depressive disorder.

Personality traits

Personality traits are described as a broader range of individual differences in thinking, feeling and behaving. In adulthood, personality traits remain rather stable throughout life (62). The level of stability may differ between personality traits (63, 64), where the personality trait of extraversion is shown to be more stable than other traits (64). In personality research, personality traits are often central in the understanding of a person (65) but also for psychopathological research and diagnosis (66). To assess personality, taxonomies are needed; one of the first taxonomies can be traced back to ancient Greece (66). In modern taxonomies, personality is mostly classified into three or five dimensions, known as the Big Five, respectively, the Big Three Models (62, 66). The Big Five model, which is the most researched taxonomy of traits worldwide, includes neuroticism, extraversion, conscientiousness/constraint, agreeableness and openness-to-experiences/intellect (62, 65).

All personality taxonomies include neuroticism as a trait, which encompasses the tendency for a person to experience the world as threatening or distressing. Neuroticism is one of the most studied traits in psychology (62). High levels of neuroticism are more common in women than in men (67). Neuroticism is associated with development of psychiatric disorders; the association between neuroticism and depressive or anxiety disorders is well known (67-70). The female gender and neuroticism are both risk factors for development of major depression. Stressful life events and neuroticism are independent predictors of major depression. They also interact such that individuals with experiences of stressful life events tend to experience them as being more stressful than others (70). Among several factors such as type of exposure, pre-existing psychopathology and coping strategies, personality traits is one factor that is associated with the risk of developing posttraumatic stress disorder (PTSD) (71). In particular, high levels of neuroticism is reported to predict the PTSD response to a traumatic event (72) and may be associated with the presence of PTSD (73).

Another personality trait commonly included in different models is extraversion. The characteristics of individuals with an extroverted personality are being outgoing, expressive, energetic and dominant (62). Aggressiveness

is a trait which reflects differences in the frequency, ease and intensity at which an individual becomes angry or irritated (66).

Induced abortions and mental health

The psychological impact of induced abortion on women's mental health has been reviewed by six different groups of researchers, including the National Collaboration Centre for Mental Health (NCCMH), the Academy of Medical Royal Colleges, and the American Psychologist Association. The overall findings from all except one of the reviews, are that there are no specific psychological sequels following an induced abortion *per se* (74-80). Instead, it is stated that women's mental health prior to the abortion is the strongest predictor for her mental health post abortion (74-79). Hence, the majority of women cope well with the abortion and report positive feelings such as relief and release (81, 82). However, at the same time these reviews also acknowledge that individual women may experience severe psychological distress following an abortion, although it remains unclear if the symptoms are causally linked to the abortion (74, 79).

At the same time, all reviews have pointed out that literature on mental health issues in relation to induced abortion often suffers from methodological limitations (74-79). The most common methodological problems identified in studies dealing with mental health status following abortion include: 1) lack of control of pre-abortion mental health status (for instance, in cross-sectional post-abortion studies, 2) no control of other risk factors for mental health problems, 3) use of non-validated instruments, 4) underreported reproductive history, and 5) sampling bias (women self-described as being harmed by induced abortion) (75, 76). Furthermore, in cross-sectional post-abortion studies, the choice of an appropriate comparison group is of utmost importance. For instance, comparisons with never-before pregnant women, women with wanted pregnancies, women with miscarriages, and women with deliveries of unintended pregnancies may not be relevant to address the questions of whether abortion is associated with mental health problems (75, 76). Unfortunately, due to inappropriate methodology and poor study designs, a number of available studies may open up to entirely different interpretations, depending on scientific interpretations (74). Of particular concern are cross-sectional epidemiological studies, where reverse causality may be at hand (83), i.e. it may as well be that poor mental health and drug abuse increase the risk of unplanned pregnancies and abortion.

Most research has been devoted to depressive and anxiety symptoms, but psychological well-being, substance abuse, child abuse and measures of severe psychopathology have also been evaluated (74-80). Limited information on the risk of PTSD following an induced abortion is at hand (see further below). From the Scandinavian perspective, a small longitudinal study

from Norway reported more avoidance and shame, but also higher relief, and no difference in depression scores between post-abortion women and women who had had a spontaneous abortion (84, 85). At the five-year follow-up of the above study, post-abortion women reported significantly higher scores of depression and anxiety compared to women in the general population, but the causal relationship with the abortion is presumably weak at this time-point (85). A register-based Danish study, on the other hand, pointed out that women who had undergone an induced abortion had a higher risk of psychological disorders both before *and* after the abortion than women giving birth to the first child (86). Finally, while Kero and colleagues (82) did not specifically report on mental health problems, their longitudinal study on Swedish women reported that only 2 of 58 women described painful-feelings one year after the abortion.

However, the scientific aspect of mental health in relation to induced abortion has, over the years, been, and continues to be, heavily influenced by political, ethical and social perspectives. Not surprisingly, the scientific debate is most fierce in the United States (74, 75). Depending on the perspective, groups of researchers continue to argue that an induced abortion may cause harm to women's mental health. In line with this perspective, Speckhard and Rue first proposed the term "post abortion syndrome" in the mid-1980s (87, 88). According to their views, the "post abortion syndrome" is a specific form of PTSD, characterised by flashbacks and denial but also other symptoms such as depression, guilt, grief, shame, anger and substance abuse (74, 87). However, both the American Psychological and the Psychiatric Associations have refused to consider "post abortion syndrome" as a valid diagnosis (88). Nevertheless, over time various syndromes have been coined, such as the "abortion trauma syndrome" and the "post-abortion depression and psychosis syndrome" (76). In 2009, Robinson specifically reviewed the evidence used by these researchers and, similar to other reviews, found no evidence of any such syndrome (76).

However, in spite of the NCCMH, the Academy of Medical Royal Colleges, and the American Psychologist Association reviews from 2008–2011 (74, 78, 79), Priscilla Coleman published a meta-analysis on abortion and mental health in 2011. In contrast to previous reviews, she concluded that women who had undergone an abortion experienced an 81% increased risk of mental health problems, and that nearly 10% of mental health problems was attributable to abortion (80). The review resulted in 10 critical commentary publications in British Journal of Psychiatry, and the statistical methods of the meta-analysis was also heavily criticized by Steinberg and colleagues (89). Hence, any contribution to this scientific field most be of utmost quality in order for results not to be misinterpreted.

Although research about the relation between induced abortion and PTSD is limited, some results have been reported. The only longitudinal study conducted thus far, which included 442 women who were undergoing first-

trimester abortion, reported on a PTSD prevalence of 1% at two years follow-up (81). The Norwegian longitudinal study reported higher scores on the Impact of Event Scale (IES), commonly used to asses PTSD, for the PTSD symptom avoidance in women with induced abortion compared to women who had had a miscarriage (84). Rue (see above) and colleagues (90) performed a cross-sectional post-abortion study of 217 American women (recruited at two outpatient clinics) and 331 Russian women (recruited at a national hospital specialised in women's health). A physician interviewed the Russian women, and the American women responded to a questionnaire with the same questions about their experiences of the abortion. The study suggested that 14.3% of the American women and 0.9% among the Russian women met the criteria for PTSD. Additionally, by making use of data from the National Co-morbidity Study, one of the most well-recognised psychiatric epidemiology studies in the United States, and disregarding the possibility of reverse causality, Coleman (see above) and colleagues reported that women who had had an abortion more often also had PTSD in comparison with women who had never had an abortion, 19.8% vs 10%, respectively (83). Finally, in a selected sample of women recruited at US-based crisis pregnancy centres and a few (unmentioned) additional organisations, Coleman also assessed posttraumatic stress symptoms in women who had had early or late abortions, i.e. 13 gestation weeks or beyond (up to 30 weeks of pregnancy). She reported that women who had had a late abortion had higher scores on the Intrusion subscale assessed by the PTSD Checklist-Civilian Version (PCL-C). These women were also more likely to report disturbing dreams, reliving the abortion, and had trouble falling asleep than women who had had early abortions (91).

Clearly, because of methodological problems in the majority of the above presented studies, there is an imminent need for additional, high-quality, unbiased studies on the possible relationship between PTSD and induced abortion.

Rationale for this study

Knowledge about the relation between induced abortions and posttraumatic stress is limited. Research studies are few; in particular, longitudinal studies are scarce, and studies in the field are often criticised for methodological problems. Furthermore, the report on socio-demographic information provided to the Swedish National Board of Health and Welfare for national abortion statistics is strictly limited in Sweden. Consequently, there is a lack of socio-demographic information and of information about mental health status of abortion seeking women. These circumstances contribute to limited knowledge about abortion seeking women in Sweden. Additionally, the medical abortions in home settings are increasing in Sweden, and from a

clinical point of view, concerns have been raised that severe pain during medical abortions may qualify as a traumatic experience. The purpose of this multi-centre longitudinal study is to gain knowledge about the relation between induced abortions and posttraumatic stress. This knowledge can also contribute to improving the quality of care for abortion seeking women, particularly women with previous posttraumatic stress reactions and with posttraumatic stress present at the abortion clinic.

Aims

The overall aim of the study was:

To study and compare posttraumatic stress disorder (PTSD), posttraumatic stress symptoms (PTSS) and anxiety- and depression symptoms among women seeking abortion, allowing for demographic variables. Further aims were to assess risk factors and to assess PTSD and PTSS following induced abortion in relation to experienced care at the clinic.

The specific aims of the studies were:

Study I

To describe the prevalence and pattern of traumatic experiences, assess the prevalence of PTSD and PTSS, identify risk factors for PTSD and PTSS and analyse the association of PTSD and PTSS with concomitant anxiety and depressive symptoms in women requesting induced abortion.

Study II

To assess the prevalence PTSD and PTSS before, and at three and six months after induced abortion, and to describe the characteristics of the women who developed PTSD or PTSS after the abortion.

Study III

To compare Neuroticism-related personality trait scores of women who developed post-abortion PTSD or PTSS with those of women with no posttraumatic stress prior to or after abortion. A secondary aim was to explore these factors among women who had pre-abortion posttraumatic stress and continued to suffer from these symptoms during follow up.

Study IV

To identify perceived deficiencies in the quality of abortion care, focusing on the perceptions of women who present with mental stress at the abortion clinic.

Materials and Methods

Table 1 displays an overview of the sub studies included in the thesis

Table 1. Design, participants, data collection and analyses of studies I-IV

Study design	Participants	Measurements	Data analyses
I. Multi-centre, cross-sectional	*Women requesting induced abortions* 1,470 baseline responders	SQ-PTSD HADS	Chi^2 Logistic regression analysis
II. Multi-centre, longitudinal cohort study	*Women who underwent induced abortions* 1,381 baseline responders 742 responders at 3-month assessment 641 responders at 6-month	SQ-PTSD HADS	Chi^2 Independent t-test
III. Multi-centre, cross-sectional and longitudinal cohort study	*Women who underwent induced abortions* 1,294 baseline responders 537 total number of responders over the two follow-up periods	SQ-PTSD SSP	Independent t-test ANOVA Logistic regression analysis
IV. Multi-centre, cross-sectional and longitudinal cohort study	*Women who underwent induced abortions* 708 responders at 3-month assessment	SQ-PTSD HADS QPP	Chi^2 Fisher's Exact test Logistic regression analysis

Study design

The design is a multi-centre cohort study targeting women who requested an induced abortion. Six outpatient clinics of the departments of gynaecology and obstetrics at the University hospitals in Uppsala, Umeå, Linköping, Örebro, Stockholm South General Hospital (Södersjukhuset) and Falu Hospital recruited participants to the study. The data of the four studies in this thesis derives from this multi-centre cohort study.

Participants and data collection

All women requesting an induced abortion before the end of gestational week 12 were approached for participation in the study. Research nurses or

midwives informed women at the first visit to the clinic about the study. Women who agreed to participate received written information and were asked to sign an informed consent form. A questionnaire (baseline questionnaire), coded with a study-specific ID number was filled out and the completed questionnaires were deposited in a locked mailbox. The exclusion criterion was inability to read and understand Swedish. The period for inclusion was from September 2009 to June 2010. In the first study, 1,514 women participated (response rate 58%); of those, 1,470 had valid responses at the baseline assessment (Table 1).

Two follow-up questionnaires were sent by mail to women who had filled out the baseline questionnaire. The second questionnaire was mailed three months after the abortion and the third questionnaire, six months thereafter, with two reminders for each questionnaire. Women who completed all three questionnaires received two cinema tickets. The data collection period for all three questionnaires was from September 2009 to January 2011. Study II included women who were responders at baseline, at three and at six month. Of the 1,470 responders at baseline, 13 were excluded because they did not undergo an abortion or had a second trimester abortion. Furthermore, 76 were never reported to the study-centre; consequently, there were 1,381 responders available. The response rate was 742 (54%) at the three-month assessment and 641 (46%) at the six-month assessment (Table 1).

In the third study, 1,294 women from the baseline assessment were included. Reasons for the declining numbers of participants were unanswered questionnaires or missing values. The total number of responders at the two follow-up periods was 674. Women with PTSD/PTSS at baseline, but who no longer met the criteria for PTSD/PTSS at the six-month assessment, were excluded (n=137) (Table 1).

Women who were responders at the three-month follow-up with valid responses for the included measurements required for study IV were included (n=708) (Table 1).

Measurements

Socio-demographic background data

The baseline questionnaire included socio-demographic data including age, civil status, education, ethnicity and occupation. In addition, information regarding tobacco and alcohol use was collected. Supplementary data were retrieved from medical records such as parity, previous abortions, gestational age, abortion method, place of abortion (home or at clinic), antidepressant medication and psychosocial support.

Diagnostic criteria for PTSD

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)

In the present study, PTSD was defined by the criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (39). According to the definition, all the criteria from A–F had to be fulfilled to be diagnosed with PTSD. The criteria in DSM-IV were as follows:

Two A-criteria assessed trauma exposure. A1) The confrontation with the stressor should involve actual or threatened death or serious injury, or a threat to the physical integrity of self or others. A2) The response to the confrontation should involve fear, helplessness or horror (39).

The B, C and D criteria were the three symptom clusters defining the disorder. B) Persistent re-experiencing of the traumatic event by having intrusive thoughts, nightmares or flashbacks. C) Persistent avoidance of stimuli associated with the event and symptoms of emotional numbing, described as the inability to feel any positive feelings such as love, contentment, satisfaction and happiness. D) Hyperarousal symptoms such as difficulties in sleeping, concentration and controlling anger. E) The symptoms in B, C and D had to last more than one month. F) The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning (39).

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)

The revised Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) was released in May 2013. In DSM-5, PTSD is no longer considered as an anxiety disorder, instead PTSD is classified as a category of disorders related to trauma- and stressor related disorders (92, 93). The A2 criterion "The response to the confrontation should involve fear, helplessness or horror", from DSM-IV has been removed because the criterion did not have any utility in predicting the onset of PTSD. Non-accidental, non-violent deaths from criterion A have also been omitted (93). Otherwise, the PTSD symptoms from DSM-5 are mostly the same as in DSM-IV (92), but the number of symptom clusters included has increased from three to four. The symptom clusters are as follows: B) Intrusion symptoms, C) Persistent avoidance of stimuli associated with the trauma, D) Negative alterations in cognitions and mood that are associated with the traumatic event with additional symptoms such as persistent or distorted blame of self or others, and persistent negative emotional state and E) Alterations in arousal and reactivity that are associated with the traumatic event with additional symptoms such as aggressive, reckless or self-destructive behaviour (52). How the revised criteria in DSM-5 will affect the prevalence of PTSD is yet unclear,

but preliminary data indicates that fewer individuals will meet the DSM-5 criteria than the DSM-IV criteria (94).

Studies I – IV, the Screen Questionnaire- Posttraumatic Stress Disorder

The Screen Questionnaire - Posttraumatic Stress Disorder (SQ-PTSD), was developed by Frans and colleagues in 2003. It is a self-reporting question-naire based on the DSM-IV criteria (41, 95). In DSM-IV, different symptom clusters are described in relation to each criterion from B–D. The B-criterion (re-experience) contains five symptoms, the C-criterion (avoiding/numbing) seven, and the D-criterion (hyperarousal) five (39). To fulfil a research diag-nosis of PTSD in the study, the diagnostic procedure described by Frans and colleagues were followed (95). To fulfil the A-criteria trauma exposure, the woman had to admit, by answering to yes/no questions, that she had experi-enced or witnessed a traumatic event involving actual or threatened death or serious injury, or a threat to the physical integrity of herself or others (crite-rion A1). In addition, the response had to be characterised as "intense fear, helplessness, or horror" (criterion A2). Furthermore, in the baseline ques-tionnaires common traumatic events (96) were rate: robbery, physical as-sault, sexual assault (any type of unwanted sexual activity), sudden unex-pected death (tragic death) of a loved one, war and traffic accidents. In the next step, yes/no questions followed to measure persistence of the DSM-IV symptoms for criteria B–D. If at least *one* of the re-experienced symptoms was met, the B-criterion was considered as being fulfilled. The C-criterion was fulfilled if at least *three* of the avoidance/numbing symptoms were pre-sent. Finally, the D-criterion was fulfilled if at least *two* symptoms of in-creased arousal were reported. To fulfil the E-criterion, the disturbance dura-tion had to be more than one month. Finally, the F-criterion was fulfilled if the woman reported that she had experienced marked distress and functional impairment in at least one of the domains: personal, social or professional life. To be considered as having PTSS, the A-criteria together with at least *one* of the B–D criteria had to be fulfilled. In a previous population-based study, the reliability and validity, as well as the sensitivity and specificity of the SQ-PTSD had been tested to satisfactory results (95).

Studies I – IV, the Hospital Anxiety and Depression Scale

The Hospital and Anxiety Scale (HADS) was developed by Zigmond and Snaith in 1983, and measures symptoms of anxiety and depression (97). The scale is a reliable and valid instrument for assessing anxiety and depression in medical patients (98). HADS is translated into several languages including Swedish, and is available on application to R.P Snaith (97). The instrument,

which is widely used internationally, is a self-assessment scale containing 14 items divided into two scales: anxiety - seven items and depression - seven items, giving a possible range of 0–21 for each subscale (97, 98). For both subscales, Zigmond and Snaith recommended a cut-off score of 7 or lower for a non-case, 8–10 for doubtful cases, and 11 and above for definite cases (97). There is no single generally accepted cut-off score for HADS and different cut-offs are used in studies (98). In a review of papers using HADS, Bjelland and colleagues found a cut-off score of ≥ 8 for both the anxiety and the depression scale giving sensitivities and specificities for both subscales of approximately 0.80. They also stated that HADS had good screening properties and was similar to other instruments used for identification of anxiety disorders and depression (99). In studies I-IV, the cut-off was set at ≥ 8 for cases, and scores from 0–7 for non-cases.

Study III- the Swedish universities Scales of Personality

The Swedish universities Scale of Personality (SSP) is developed from the Karolinska Scales of Personality (KSP). The KSP inventory focuses on personality traits useful for psychopathological research and diagnosis. It consists of 135 items grouped into 15 scales (66). Weaknesses in the psychometric property were later defined and as a result KSP was revised into the SSP. The development of SSP improved the psychometric quality and the scale contains fewer items, specifically, 91 items divided into 13 scales. In the development of SSP, a factor analysis yielded a three factor solution depending on the factor loadings. Factor 1 compromises personality scales assessing traits of Neuroticism, factor 2 includes scales assessing Aggressiveness and factor 3 scales of Extraversion. The three major factors revealed by factor analysis consist of the following personality trait scales (100). Below, the included personality traits are described with explanations and examples.

Factor 1 - Neuroticism factor
Somatic Trait Anxiety - tending to experience autonomic arousal, restlessness and tension. 'My body often feels stiff and tense'.
Psychic Trait Anxiety - worried, insecure, and anxious. 'I'm the kind of person who is excessively sensitive and easily hurt'.
Stress Susceptibility - easily stressed when hurried or facing new tasks. 'I get tired and hurry too easily'.
Lack of Assertiveness - non-assertive in social situations. 'Even though I know I'm right I often have great difficulties getting my point across'.
Embitterment - dissatisfied, blaming and envying others. 'I have often gotten into trouble even when it was not my fault'.
Mistrust - suspicious, distrustful. 'I tend to be on my guard with people who are somewhat more friendly than I expect' (100, 101).

Factor 2 - Aggressiveness factor

Social Desirability - socially conforming, friendly, helpful. 'No matter whom I'm talking to, I'm always polite and courteous'.
Trait Irritability - irritable, lacking patience. 'I don't have so much patience'.
Verbal Trait Aggression - tending to express aggressive feelings in speech. 'When I get angry, I often express myself ironically or sarcastically'.
Physical Trait Aggression - tending to express aggressive feelings in action, such as getting into fights. 'If someone hits me, I hit back' (100, 101).

Factor 3 - Extraversion factor

Impulsiveness - acting on the spur of the moment, non-planning. 'I have a tendency to act on the spur of the moment'.
Adventure Seeking - needing change and action. 'I have an unusual great need for change'.
Detachment - socially withdrawn, avoidant of involvement. 'I feel best when I keep people at a certain distance' (100, 101).

Each scale includes seven items. The response format is a four-point Likert scale in which 1 denotes 'does not apply at all' and 4 denotes 'applies completely' (100). Social Desirability and Detachment are included in the factors with inversed values. The SSP scores are transformed into *T* scores with a mean of 50 and a standard deviation of 10, based on a norming Swedish sex-stratified non-patient sample (100). Women who had valid responses to the questionnaires were included in study III.

Study IV - Quality from the Patient's Perspective

Quality from the Patient's Perspective (QPP) is a questionnaire based on a theoretical model of quality of care from a patient perspective, developed by use of the grounded theory approach (102, 103).

According to QPP, the quality of care can be understood in light of two conditions: the resource structure of the care organisation *and* the patient's preferences. The first condition consists of person-related, physical and administrative qualities, and the latter has both rational and human aspects, such as the patient's expectations of his or her unique situation. The short form of QPP for outpatient clinics contains 21 items organised into four dimensions (medical-technical competence of the caregivers, physical-technical conditions of the care organisation, identity-oriented approaches of caregivers and socio-cultural atmosphere) (102, 103). Each item is evaluated in two ways by the respondent: the experiences of the care perceived and the subjective importance (103). A personal quality of care index is computed on the basis of the relationship between the two scores (102, 103).

To evaluate women's perceptions of quality in abortion, a modified QPP version was used, inspired by a previous abortion study (28). Eighteen items from the original short form of QPP for outpatient clinics (102) were considered appropriate for the purpose of the study. The phrasings of the items were altered to capture the women's experiences of the abortion services. The items measured both the experiences of the care received and the subjective importance, e.g. 'I was treated with respect by the health care staff' (experience). 'It is important for me to be treated with respect by the health care staff' (subjective importance). A five-point Likert-scale was used where 1 denoted "do not agree at all" and 5 denoted "fully agree". The differences between the experience of the care received and the subjective importance were calculated to receive the perceived quality of care (see, Data analyses).

Table 2. Measurements at the three time points

Measurements	At base-line	At three months	At six months
Socio-demographic data	X		
SQ-PTSD	X	X	X
HADS	X	X	X
SPP	X		
QPP		X	

Data analyses

For a research diagnosis of PTSD or PTSS, the baseline assessment of SQ-PTSD was used in study I. Anxiety- and depressive symptoms were evaluated by the HADS; additionally socio-demographic data from the baseline questionnaire were analysed (Table 1).

In study II, the instruments SQ-PTSD and HADS from the three assessment points were used for the analyses; additionally socio-demographic data from the baseline questionnaire and supplementary information from medical records were analysed (Tables 1 and 2). Because of the low prevalence rate in the two groups of PTSD and PTSS, they were classified as one group (PTSD/PTSS). For further analyses, the responders were categorised into groups depending on their time-course of PTSD or PTSS research diagnoses.

The four groups used for the analyses were:

1. Women who had *no* PTSD or PTSS at baseline but who met the criteria for PTSD or PTSS at least once at the three- or six-month assessment were classified as having *developed PTSD/PTSS*. Women who had PTSS

at baseline but who met the criteria for PTSD at least once at the three-
or six-month assessment were also referred to this group.

2. Women who had PTSD or PTSS at baseline but no longer met the crite-
    ria for PTSD or PTSS, respectively, at the three- or six-month assess-
    ment were classified as *recovered*. Women who had PTSD or PTSS at
    baseline, missing data at the three-month assessment but who no longer
    met the criteria for PTSD or PTSS, respectively, at the six-month as-
    sessment were also assigned to this group. Notable, at the six-month as-
    sessment, these women did not fulfil the criteria for either PTSD or
    PTSS.

3. Women who met the criteria for PTSD or PTSS at all assessments were
    classified as *unchanged*.

4. Women who never fulfilled the criteria for PTSD or PTSS at any time-
    point were denoted as a *comparison group.*

Differences in characteristics including socio-demographic data and repro-
ductive history were compared between women who developed
PTSD/PTSS, recovered from PTSD/PTSS, remained unchanged in their state
of PTSD/PTSS, and the comparison group.

In addition, an attrition analysis was conducted due to the high dropout
rate. Data regarding dropouts at the three-month assessment were derived
from the baseline questionnaire, and data regarding dropouts at the six-
month assessment were derived from the three-month questionnaire. The
socio-demographic data, reproductive history, PTSD as well as PTSS were
used to explore differences in characteristics between responders and drop-
outs at the three- and six-month assessments (see, Statistical analyses).
Women with missing data regarding PTSD or PTSS at baseline were ex-
cluded.

In study III personality trait scores were compared between women with
pre-abortion PTSD or PTSS, and women with no PTSD/PTSS (comparison
group). Also, because of the substantial dropout rate, trait scores were also
compared between those who remained and those who dropped out. For
analyses of post-abortion PTSD or PTSS, the responders from all three as-
sessments were categorised depending on their PTSD or PTSS trajectories,
in the same way as in study II. Women who recovered, i.e., had PTSD or
PTSS at baseline but no longer met the criteria for PTSD or PTSS, at the 6-
month assessments, were excluded from the analyses on post-abortion PTSD
and PTSS.

In study IV, women were classified due to mental health status for analy-
sis of their perceptions of quality of abortion care. Women with a research

diagnosis of PTSD or PTSS at baseline were categorised as one group. Women who scored high on HADS, i.e. had anxiety and/or depressive symptoms were included in one group. Women with no research diagnosis were used as a healthy comparison group. The analysis of the QPP was conducted according to instructions in the manual of QPP (102). The individual score of a single item on the *experience scale* was compared with the group mean score for that item. The same procedure was performed with the matching item of *subjective importance*, e.g. 'I was treated with respect by the health care staff (experience). 'It is important for me to be treated with respect by the health care staff' (subjective importance). Depending on the differences in the scores of the items, the quality of care was classified into three groups: deficiency, balance and excess. The mean scores were also calculated for the nine experience items, and the nine subjective importance items, respectively. By comparing the mean scores of the two indexes, an overall assessment of the perceived abortion care was obtained. The two indexes were calculated and classified as *deficiency, balance* and *excess* in the same way as earlier described. For the statistical analyses, the three profile groups, deficiency, balance and excess, were classified into two: *deficiency* as one group and balance and excess as a *satisfactory group*.

Statistical analyses

Initially, a power analysis was conducted to estimate the standard error (SE) of the two-sided 95% confidence interval (CI; calculated by use of the large sample normal approximation) for the prevalence to not exceed (±) 0.014. Simulations based on the above assumptions showed that if n = 1.500, the SE would exceed 0.014 with a probability of 0.12, i.e. the power was 0.88.

Pearson's Chi-Square test was used to compare differences between two independent groups (e.g. PTSD vs comparison group; PTSS vs dropouts) on categorical background data, such as socio-demographic data and reproductive history (studies I, II and IV). When appropriate (fewer observations than 5 in a cell) Fisher's Exact test was used in study IV.

The 95% CI for the lifetime and the point prevalence of PTSD were calculated by using normal approximation (studies I and II).

To compare mean scores on continuous variables for two independent groups, Independent t-test was used, and are presented as means and ± SD. One-way analysis of variance (ANOVA) was used in study III, followed by Tukey's Honestly Significant Difference test to explore which groups were significantly different from one another. Further, in study III the obtained α-levels were subjected to a Bonferroni correction of *p*-value < 0.004 for the personality traits scales and *p*-value < 0.017 for the personality factors, to protect for Type I errors.

Binary logistic regression analyses were conducted to evaluate how one or more variables predicted a dichotomous variable (104). Adjustments for different socio-demographic background data were made in the studies.

In study IV, the Cronbach´s alpha coefficients for the index of experiences was 0.77 and for the index of subjective importance 0.76.

All statistical analyses were performed by using Statistical Package of Social Science, SPSS, Statistics for Windows, Version 20.0. (IBM Corp, Armonk, NY, USA). The statistical analyses were considered statistically significant at $p < 0.05$ except from study III (see above).

Ethical considerations

Women who are going to terminate pregnancies are in a vulnerable situation. Research questions about the abortion may evoke ambivalence to the termination, thus voluntariness is of great importance. At the first visit at the clinic, the abortion-seeking women were informed about the study by research nurses or midwives and women who agreed to participate filled out an informed consent. Still, they were able to choose to participate or not by filling out the questionnaire or not. Responders in need of support were offered counselling by a social worker at each abortion clinic and if required referral to a psychiatrist or psychologist was also pursued. To ensure the participant's anonymity, the baseline as well as the follow-up questionnaires were coded with ID numbers and stored in a locked room. The ID numbers were applied in the database. It was impossible for the research group members to identify the participating women except for the responsible study researcher who had the key to the ID numbers.

In cases where the informed consent was missing but a filled out questionnaire was available, analyses of the questionnaires were done, in respect of the women who had spent time to fill out the questionnaire. However, in these cases, due to the women's integrity, no information was retrieved from the medical records.

The follow-up questionnaires were sent by mail to the women. To be respectful to the women and to not reveal the abortion, the follow-up questions about trauma experience had to be formulated as if the traumatic event was in relation to the visit at the clinic instead of directly in relation to the abortion.

The study was conducted in close cooperation with abortion clinics at each hospital. Participating investigators, research nurses and midwives were informed at regular meetings. The researchers did not participate in the care or treatment of the women.

An application to the Ethical board for conducting an attrition analysis by telephone interviews was rejected. The argument for denial was due to the

women's integrity of choosing to not participate and that no information of such investigation was available in the original patient information.

The study was approved by the Central Ethical Review Board of Uppsala University, Uppsala, Sweden (approval date 25 February 2009).

Results

Study I

Trauma experiences among women requesting abortion were common (41%). Severe physical threat, psychological threat and severe physical injury were the most commonly reported trauma experiences. In fact, 12% of women had experiences of sexual assault, 18% of robbery, and 4% of war (Table 3).

Table 3. Reported trauma experiences among women requesting induced abortion (1,514)

	n	%
Self-experience or witness of severe physical threat	659	43
Self-experience or witness of severe psychological threat	588	39
Self-experience or witness of severe physical injury	544	36
Self-experience or witness of a traffic accident	370	24
Self-experience or witness of death threat	366	24
Death of a relative or close friend by accident, homicide or suicide	332	22
Robbery	275	18
Sexual assault	183	12
War	61	4

Multiple responses possible, frequencies reported for each item

Lifetime and point prevalence of PTSD was 7% (95% CI: 5.8–8.5) and 4% (95% CI: 3.1–5.2), respectively. The overall reporting of PTSS was 23%;

(95% CI: 21.1–25.4). Most women who fulfilled research criteria for PTSD had concomitant anxiety- (90%) and depressive symptoms (76%); this was also the case in women with PTSS (60% and 38%, respectively).

A number of socio-demographic variables were associated with PTSD, including smoking, and no alcohol use (or heavy drinking). In the multivariate regression model, anxiety and depressive symptoms, smoking and no alcohol use remained significantly associated with PTSD.

Study II

The prevalence of ongoing PTSD at baseline was 4.3%, at three-months 2% and at six months 1.9%. Corresponding numbers for PTSS was 23.5% at baseline, 4.6% at three-months and 6.1% at six-months.

Twenty-one women developed PTSD and 30 women developed PTSS during the study course. In comparison with the healthy comparison group, women who developed PTSD or PTSS (n = 51) during the follow-up period were more often young, students, less often working full-time, had a lower level of education, no children, and had more often received counselling before the abortion. In addition, they had more often anxiety-and depressive symptoms. However, the abortion method or the place of abortion was not associated with development of PTSD or PTSS.

Trauma experiences during the period between the induced abortion and the three-month assessment were reported by 57/720 women. The most commonly reported trauma was physical and psychological threat from a partner or from other persons, followed by traumatic events in the family and accidents. Among the 57 women, 14 reported trauma experiences that were related to the visit at the abortion clinic, without giving any examples of what kind of trauma they had experienced. Eleven of these developed PTSD or PTSS.

Response rates at the three-month and six-month follow-up were 54% and 46%, respectively. Because of the low response rates an attrition analysis was necessary for the overall interpretations of the results. Dropouts at the three-month assessment were younger, more often born outside Sweden, had a lower level of education, reported tobacco use more often but less alcohol use, had more anxiety and depressive symptoms and were more often using antidepressants. In addition, they had more often had a previous abortion and had less often received counselling before the abortion, and they also had higher rates of lifetime PTSD, ongoing PTSD and PTSS at the baseline assessment than the responders. Dropouts at the six-month assessment had lower levels of education, reported tobacco use more often and more often had a previous induced abortion, but did not differ from responders in rates of lifetime PTSD, ongoing PTSD or PTSS.ES

Study III

Women with PTSD and PTSS at baseline displayed higher scores than the comparison group on almost all personality traits associated with neuroticism, particularly Embitterment and Mistrust. The highest personality trait scores within the neuroticism factor were found in women who fulfilled a research diagnosis of PTSD, whereas women with PTSS had intermediate scores, and the comparison group had scores close to the population mean.

Similarly, women who developed PTSD/PTSS post abortion had higher scores than the comparison group on several of the personality traits associated with neuroticism, more specifically, Somatic Trait Anxiety, Psychic Trait Anxiety, Stress Susceptibility and Embitterment.

Women who remained unchanged regarding their PTSD or PTSS status throughout the study had higher scores than the comparison group on most of the neurotic personality traits, and higher scores of Embitterment than women who developed PTSD/PTSS. These women also had higher scores on several of the personality traits within the Aggressiveness and Extraversion factors.

In competition with a number of risk factors investigated in previous studies of this thesis, high Neuroticism scores and low age were the strongest predictors for the development of post-abortion PTSD/PTSS. Women who reported high, or very high scores, of Neuroticism had odds ratios for PTSD/PTSS development of 2.6 (CI 95% 1.2–5.6) and 2.9 (CI 95% 1.3–6.6), respectively (Table 4).

Table 4. The association between age, Neuroticism, alcohol use and counselling before abortion among women who developed PTSD/PTSS after abortion (n = 43)

Developed PTSD/PTSS	AOR	95% CI	P-value
Age *(≤ 24 years)*	2.3	1.2–4.4	<0.05
Neuroticism *High scores* *(3rd quartile vs* *below median)*	2.6	1.2–5.6	<0.05
Very high scores *(4th quartile vs* *below median)*	2.9	1.3–6.6	<0.05
Alcohol use *Yes*	0.5	0.3–1.1	0.1
Counselling before abortion	1.5	0.8–3.0	0.2

AOR, adjusted odds ratio; CI, confidence interval. The socio-demographic variables in the table that were considered for inclusion in the final model were those with moderate associations ($p < 0.2$) in the bivariate analyses. Age, educational level, occupation and parity were all inter-related, and consequently, age was chosen because it had the strongest predictive value. Neuroticism was categorised as below median (50) in comparison with the two highest quartiles.

Due to the high number of dropouts in this longitudinal study a dropout analysis based on the pre-abortion personality assessments was conducted. The dropouts had slightly, but significantly, higher scores on Somatic Trait Anxiety, Embitterment, Mistrust, Verbal and Physical Trait Aggression and Adventure Seeking.

Study IV

Women with posttraumatic stress more often perceived the overall abortion care as deficient. In addition, they reported deficiencies in support and treatment with respect, in the possibility to have privacy and rest, and in the support from partner/friend/relative during the procedure. However, perceived deficiencies of abortion care did not differ between women with anxiety and/or depressive symptoms and the healthy comparison group (Table 5).

The overall assessment of the abortion care was reported as deficient by 16% of the women in the study. Women who terminated their pregnancy at the abortion clinic were less satisfied with the abortion care than women

who terminated their pregnancy at home. The abortion method, however, had no influence on the perceived quality of the abortion care. Young women were most critical; they reported deficiencies in all items.

PTSD/PTSS were significantly associated with increased reporting of overall deficient quality of abortion care, (adjusted odds ratio [AOR] 1.94, CI 95% 1.17–3.21). Anxiety and/or depressive symptoms, were not associated with increased report of overall deficient abortion care (AOR 1.29, CI 95% 0.78-2.15).

Table 5. Perceived deficiencies in the content of abortion care in relation to mental health status

Perceived deficiencies in quality of abortion care by item	Comparison group (n = 330)		PTSD/PTSS (n = 182)			Anxiety and/or depressive symptoms (n = 196)		
	n	%	n	%	p-value		%	p-value
Acceptable waiting time for appointment	73	21.1	40	22.1	0.995	38	19.5	0.475
Information about the procedure	61	18.5	34	18.8	0.934	43	21.9	0.336
Participation in decision-making procedure	42	12.7	31	17.2	0.166	30	15.3	0.405
Acceptable time for the procedure	46	14.0	27	14.9	0.773	32	16.3	0.465
Treatment with respect by the healthcare staff	60	18.2	50	27.6	0.013	48	24.5	0.083
Receiving good care and support	55	16.8	51	28.5	0.002	42	21.4	0.184
Possibility to have privacy and rest during the procedure	35	10.7	39	21.9	0.001	31	16.0	0.082
Possibility to have support from partner, relative or friend when needed	31	9.5	32	18.1	0.006	20	10.2	0.796
Effective analgesic	48	14.8	39	21.5	0.053	25	12.8	0.521
Overall assessment of abortion care	44	13.3	38	20.9	0.026	34	17.3	0.210

Missing information for the healthy comparison group was prevalent in between 0.3% (Acceptable waiting time) and 1.5% (Effective analgesic), for women with PTSD/PTSS in between 0.5% (Acceptable waiting time for appointment, Information about the procedure, Acceptable waiting time for the procedure, Treatment with respect by the healthcare staff) and 2.7% (Possibility to have support from partner, relative or friend when needed) and for women with anxiety and/or depression in between 0.5% (Acceptable waiting time for appointment and 1% (Possibility to have privacy and rest during the procedure).

Discussion

Main findings

The main findings of the present thesis are that abortion-seeking women do not suffer from PTSD more often than the general Swedish female population. Few women developed PTSD or PTSS after the abortion, but among those who did, only one in five did so because of a trauma that was related to the abortion. Hence, according to the findings in this thesis there is no evidence of an "abortion trauma syndrome", but in line with previous research, our findings also confirm that a small fraction of women may develop PTSD or PTSS after the abortion. The risk of developing PTSD was associated with high scores on neuroticism-related personality traits, which expands our understanding of how possibly inherited vulnerability traits may influence the risk of post-abortion distress. Furthermore, women who present at the abortion clinic with pre-existing PTSD or PTSS are more likely to perceive certain aspects of the abortion care as deficient, ultimately suggesting a number of improvements in the clinical abortion care.

Methodological Considerations

Strengths

This study is conducted in a Swedish context where abortion has been accepted for almost half a century, and where the resistance to abortion is low and free of stigmatisation compared to many other countries. The setting is somewhat ideal, free from confounders such as anti-abortion protesters, which may interfere and lead to negative experiences of abortion. A strength of the present study was the size of the study population and the nationwide multi-centre design, approaching all women who requested an induced abortion at outpatient clinics from large and middle-sized cities across the country, thus, protecting against sampling bias as much as possible. An additional strength was the longitudinal design where mental health status was assessed before, at three-months and at six-months after the abortion, together with detailed recording of socio-demographic and reproductive variables that could influence or contribute to the overall risk of mental health disorders. In addition, the longitudinal design provided us with a suitable comparison

group for many analyses, i.e. women who had undergone an induced abortion in the same time-period but with no PTSD/PTSS throughout the study period (75).

Further, the use of standardised and validated instruments was a strength. The SQ-PTSD has been validated in Sweden and was specifically chosen as it measures both the existence of one or several trauma experiences *and* symptoms of trauma, unlike many other self-reported instruments. The latter turned out to be of importance in the present study as the results, in fact, suggested that many trauma experiences after the induced abortion were unrelated to the abortion care *per se*. However, although the SQ-PTSD was suitable for Swedish circumstances, and provided us with direct comparisons to data obtained from the general population (95), it is not readily comparable with international studies where other instruments have been used.

Limitations

The major limitation of this longitudinal study was the relatively low response rate, first at baseline, and then later at the three- and six-month follow-ups. The relatively low response rate at baseline (58%) is presumably a result of the multi-centre design, where continuity of field supervision (monitoring) and different organisations for recruitment (upon arrival to the clinic or when leaving the clinic), and local responsibility for the study (one or several responsible persons) may have played a role. For instance, whereas the response rates ranged between 45–77% between sites, the two sites that had *one* study-responsible nurse both obtained response rates above 70%. The attrition at the clinics was probably random, as the recruitment process was sometimes on hold during certain days or weeks in some clinics and did not just affect special shifts or selected women. Hence, it is not suspected that the primary inclusion of subjects to the study is biased by selection. We were also reassured by similar prevalence rates of PTSD and PTSS between the different participating study sites.

Variation in response rates between sites was also reported by Dobkin (105) in a longitudinal multi-site study approaching women requesting abortion. Careful recruitment analysis was conducted in Dobkin's study and multiple interventions were made to try to increase the response rate. The best effect of these interventions was study visits with regular communications about study specific problems. Their response rate was 37.5%, which is less than in the present study. Interventions conducted in the present study were site visits in the beginning of the study, reports of the recruitment rates to each site and cinema tickets as patient incentives.

Another problem which affected response rates at both baseline and follow-ups is a general decline in response rates of epidemiological studies during the past 30-years, with steeper declines in recent years (106). Declining response rates has been reported not only in Sweden but also for surveys in the Nordic countries. A Finnish study suggested decreasing response rates

over 25 years, from 86% in 1978 to 52% in 2002 (107). In a Danish public health survey, the response rates in a self-administered questionnaire decreased from 68% in 1994 to 51% in 2005, and the declining response rates were particularly common among young people (108). Statistics Sweden also reports declining response rates in Swedish public surveys such as The Survey for Living Conditions (ULF-undersökningen) (109). A survey focusing on society, opinion and media, The Riks-SOM survey (den nationella SOM-undersökningen) is also affected by declining response rates from 70% in 1987 to 57% in 2012. Of note is that the response rate among young women in ages 16–19 years was 47% and in ages 20–29 years 45% in 2012, a decline from 60% and 75% in 1998, respectively (110). Furthermore, response rates in the Nordic countries and in other European countries continue to decline despite intensified follow-up strategies (109). Suggested reasons for the declining response rates are increased telemarketing using new techniques for selling which might abuse the public trust and undermine the credibility of surveys (106). Statistics in Sweden has reported that the media debate about statistics and the risk of interference in individual's integrity might have influenced the willingness to participate in surveys (109). Furthermore, there seems to be a declining civic engagement and people choose to participate in surveys only when the issue is very important to them (106).

The attrition of participants in longitudinal abortion studies is generally high with response rates of around 50% at follow-up (81, 84, 85, 111), and can limit the conclusions because of selection biases, for instance, if the healthiest patients are those who choose to continue (112). In this respect, our study did not distinguish itself from previous attempts with response rates at three- and six-months of 54% and 46%, respectively. Dropout analyses were conducted as part of papers II and III, by use of all available baseline data. In line with dropout analyses in longitudinal studies of various scientific fields (113-116), the women who dropped out of this study were younger, more often born outside Sweden and had higher levels of anxiety and depressive symptoms than responders. Of relevance for our results, dropouts had higher rates of PTSD and PTSS at baseline and scored higher on some of the neuroticism-related personality traits than responders, such us Embitterment and Mistrust. The poorer mental health among the dropouts, including a higher baseline prevalence of PTSD, is one explanation for their decision not to participate further in the study. Further, for women with PTSD, avoidance is one symptom, which might have affected the follow-up response rate. Wenemark (109) has reported that questions in questionnaires can cause burden to the respondent with feelings of distress like anxiety, sadness or worry, which may also be one explanation to the dropout rate. It is also conceivable that some women did not want to be reminded of the abortion and therefore decided not to participate further in the study. In addition, all questionnaires contained a great number of items covering the areas

of interest, which might also have lowered the response rate. Finally, in this young study population another reason for "dropping-out" of the study was also change of addresses or name.

The results of the dropout analyses in studies II and III, however, also suggest that the dropouts had an increased susceptibility for the development of PTSD (higher baseline prevalence of PTSD and PTSS, higher scores of neuroticism-related personality traits and social gradients). It is thus probable that the rates of PTSD and PTSS following the abortion were underestimated. Consequently, careful interpretations of the study results must be considered. However, at the same time, it should be emphasised that the most important study aim was to determine the proportion of women who *developed* PTSD or PTSS following the abortion. Clearly, such post-abortion development could only occur in women who had PTSS-only or were screen-negative at baseline. While it is difficult to approximate the true rate of post-abortion PTSD/PTSS, the PTSS prevalence rates between responders and non-responders at the three-month follow-up (20.7% and 26.1%, respectively), give some indication that true post-abortion prevalence of PTSD/PTSS would only be marginally changed if attrition had been perfect.

Other limitations of the study included the choice of instruments for assessment of depression and anxiety symptoms. We used the Hospital Anxiety and Depression Scale for this purpose. Recently, the HADS was evaluated as a screening instrument to identify anxiety and depressive disorders in non-psychiatric patients, but unfortunately, the study results suggested that the latent structure of HADS is unclear and sensitivity for detection of depressive disorders too low. For this reason, the authors suggested that HADS could be recommended for screening of general distress but not for anxiety- and depressive disorders (117-119). However, for the research purposes in the present study HADS was considered to be a suitable tool for assessment of anxiety- and depressive symptoms. Future studies, should consider the use of better screening instruments for depression, and possibly also the use of structured psychiatric interviews.

In this study, a modified QPP version was used, inspired by a previous abortion study (28). In the original QPP, the items and the theoretical framework of the questionnaire were developed based on patient interviews. Since then the QPP has been further developed for different contexts of care, and all questions have been derived according to the patients' perspective and formulated in words used by patients, which strengthens the validity of the instrument (102). However, there is no instrument developed for abortion services. Therefore, the QPP questions intended for outpatient clinics were used in the present study but the phrasings were altered to capture the women's experiences of the abortion services. This may have affected the psychometric property of the questionnaire. However, the QPP has the advantage that it assesses the patient's perceptions of care formed by their view of the encounters with the existing care (102, 103). This is unlike many other

assessments of patient satisfaction using predefined global questions, such as 'What do you think about the care?' The responses of these broad predefined questions are demonstrated to be heavily influenced by the mood state and the personality of the respondent (102, 120). Another limitation in the present study was that the questionnaires incorporated very few, or no open-ended question where women could have had an opportunity to express whatever they wanted e.g. in relation to the abortion or to the survey. Open-ended questions may improve the autonomy for responders in the response process and improve the relatedness by showing the respondents an interest in what the they want to express (109). An open-ended question might have entailed a deeper understanding of the participating women in the study, and would have given us an option to perform, although limited, qualitative analyses. Considering the study aim, it would have been of value to have had in-depth understanding of stress reactions in relation to abortion care by doing research interviews at the follow-up. However, prospective identification of those women with PTSD/PTSS and then contacting them would not have been ethically advisable nor permissible. Thus, we had to rely only on a standardised questionnaire providing information about the abortion experience of those with PTSD/PTSS.

The relation between induced abortion and posttraumatic stress

Most women in the study sample coped well with the induced abortion. Few women developed PTSD or PTSS post-abortion and of those who did, a majority developed PTSD or PTSS due to traumatic experiences unrelated to the abortion. Consequently, the findings in the present study is in accordance with previous studies demonstrating that there is *no* existing "post-abortion syndrome" (76, 87), a syndrome coined by pro-life influenced researcher in the United States (88). Instead, the findings indicate that factors contributing to the development of PTSD or PTSS post-abortion include individual vulnerability factors, pre-existing anxiety and depressive symptoms, young age, and coincidental trauma experiences unrelated to the abortion.

Concomitant symptoms of anxiety and depressive symptoms were common among women with PTSD. Previous studies have reported frequent comorbidities between PTSD and anxiety and depressive disorders (40, 121). It is notable that those women who developed PTSD or PTSS post-abortion had approximately the same level of anxiety- and depressive symptoms as the women with pre-abortion PTSD/PTSS, and that more than 60% had anxiety symptoms already at baseline. Accordingly, in line with previous research, anxiety, depression and possibly other pre-morbid psychiatric disorders that were not assessed in this study are the most important predictors

of PTSD post-abortion (122). Similarly, women with a pre-abortion history of depression are more likely to experience psychological problems or regret the abortion, two years post-abortion (81). Depression also predicts poorer post-abortion mental health and negative abortion-related emotions (74-79, 81).

Patients seeking care at an Obstetrics-Gynaecology clinic are, by definition, women, and as such, can be expected to suffer from a number of psychiatric conditions when they present at the clinic. Previous studies in the outpatient gynaecology clinic have estimated that approximately 30% of unselected gynaecologic patients suffer from a psychiatric disorder, with depressive disorders being the most commonly encountered (123). Depression and anxiety disorders were significantly more common among those seeking care for abdominal pain and uro-gynaecological symptoms, and among those who made frequent and unscheduled visits, and those who were hospitalised for acute care (124). In addition, merely due to the fact that our patients are women, they may also be more susceptible to development of PTSD. This has been previously demonstrated in relation to delivery, where prevalence rates of post-delivery PTSD have been reported to vary between 1–2% (44, 45). However, it is quite possible that a number of "gynaecologic traumas" may lead to PTSD/PTSS in vulnerable women, such as miscarriage, extra uterine pregnancies, IVF or merely the gynaecologic examination. These areas are, as of yet, unexplored but are important in the context of post-abortion PTSD.

Neuroticism is also associated with mental health problems and women who developed PTSD or PTSS post-abortion scored higher on neuroticism-related personality traits than the comparison group. Neuroticism is reported to be a predictor of PTSD response to trauma (72, 73), and high levels of neuroticism may contribute to a vulnerability of posttraumatic stress (71). Similarly, although neuroticism and stressful life events are independent predictors of a depressive episode, they also interact in that individuals with high neuroticism are more sensitive to the depressogenic effects of adversity (70). Extrapolating from what is known in the field of depression and anxiety disorders, genetic factors shared with neuroticism are commonly acknowledged to account for between one-third and one-half of the genetic risk of lifetime major depression, generalised anxiety disorder, panic disorder, and virtually all phobic disorders (68, 70, 125). Perhaps the most well-known of these genetic factors is the short version of the serotonin transporter gene, which has been found to moderate the influence of stressful life events on depression, among many other effects (126). Thus far, no studies have modelled the relationship between PTSD, *neuroticism* and shared genetic or environmental factors, but it is not far-fetched to speculate that risk of post-abortion mental health problems may also be influenced by genetic vulnerability traits (127). Indeed, numerous studies have evaluated the genetic susceptibility for PTSD, most often modelled in interaction with

trauma severity (instead of neuroticism). For instance, while a recent meta-analysis found no straight-forward association with the short version of the serotonin transporter and PTSD, the interaction between this polymorphism *and* severe trauma was a significant explanatory variable for PTSD (128). Parenthetically, it should be mentioned that DNA samples were collected at two of the participating sites of this study. These samples have been geno-typed for number of candidate genes, including genes involved in stress response and monaminergic neurotransmission. However, because of the (for a genetic study) limited sample at hand, it remains to be seen if any conclusive data can be derived from this data set. Nevertheless, our finding that post-abortion PTSD/PTSS is associated with high scores of neuroticism under-scores the importance of pre-existing vulnerability traits for the development of mental health issues after the abortion.

Another vulnerable group in the study seems to be young women, in this study defined as below age 25. Young age was associated with having a two times increased risk of PTSD/PTSS. Half of the women with pre-abortion, ongoing PTSD was younger than 25 years, and more than half of the women developing PTSD/PTSS was younger than 25 years. Young age has previously been demonstrated to be a risk factor of PTSD (71, 129), as age at the time of the traumatic experiences is an important determinant of PTSD response (37). The risk for PTSD given a specific exposure declines, although modestly, as age increases (40). The lifetime prevalence of PTSD among adolescents was 10% for girls and 6% among boys in a national survey from the United States (130).

A traumatic experience is essential for the development of PTSD symptoms. Experiences of trauma among abortion seeking women were also common. The high rate of trauma exposure is in accordance with findings from previous studies (41, 44, 131). The most common traumatic event among women requesting abortion was self-experience or witness of severe physical or psychological threat. Breslau and colleagues (132) found that a history of previous exposures to traumatic events is associated with a greater risk of PTSD from subsequent trauma. Previous exposure to assaultive violence, such as rape, sexual assault and being badly beaten up are associated with a higher risk of PTSD from subsequent trauma (132). In fact, sexual assault has been demonstrated to be the trauma involving the highest risk for PTSD in adults (71) as well as in adolescents (130). Some women in our study population had pre-abortion experiences of sexual assault, but due to the low number of cases that developed PTSD/PTSS after the abortion, no analysis as to the specific trauma experiences was conducted.

The likelihood of developing PTSD symptoms after a traumatic event differ between individuals (53). A meta-analysis by Brewin and colleagues (129) indicates that the majority of individuals exposed to traumatic events do not develop PTSD, or recover quickly after the trauma exposure. Some people experience acute distress from which they never recover. Others suf-

fer intensively for a shorter time, some seem to recover quickly but later experience symptoms such as difficulties concentrating and unexpected health problems. However, the vast majority experience the traumatic event reparably well and do not experience any disruption in their ability to function at work or in relationships (133).

In this study, four groups were defined depending on their time course of PTSD post-abortion: the women who developed PTSD/PTSS, those who were unchanged, those who recovered and a comparison group with no PTSD or PTSS throughout the study period. This classification is somewhat similar to the classification according to Bonanno and colleagues (134) and can be useful in the interpretation of the different PTSD trajectories of this study. The natural human stress responding in the aftermath after a traumatic event can be, according to Bonanno, captured in four different trajectories: resilience, recovery, delayed and chronic trajectories (133, 134). Resilience refers to the ability for an individual to maintain stable and in balance after a traumatic event (133). This trajectory is represented by women who presented at the abortion clinic with previous traumatic experiences but had not developed PTSD or PTSS. Recovery is a trajectory when the normal functioning is impaired and symptoms of posttraumatic stress are present for a period of time but which then gradually returns to the same level of functioning as prior to the event. The recovery can be quick or take up to a couple of years (133). This trajectory may explain why women with baseline PTSD or PTSS no longer had symptoms at the end of the study. The delayed trajectory could be explained as PTSS symptoms which increase over time and eventually lead to PTSD (134). It is thus possible that some of the women who developed PTSD after the abortion followed this trajectory, i.e. that the trauma experience occurred before the abortion, but full symptom onset was delayed until after the abortion. The chronic trajectory which essentially corresponds to chronic PTSD (134) would thus roughly correspond to the women who remained unchanged in their state of having PTSD throughout the study.

The acceptance of abortion in Swedish society is high. Qualitative studies from Sweden, United Kingdom and United States indicate that Swedish women are less stigmatised because of a termination of pregnancy than women in United Kingdom and United States (135-137). Cultural values in the host society are strongly connected with how women look upon themselves when they make the decision to terminate a pregnancy. This self-image in turn could have a great impact on how the abortion affects their mental health (77, 135). Swedish women's experience of induced abortion in an atmosphere devoid of stigmatisation might also be reflected in the low rate PTSD/PTSS after the abortion. Thus, food for thought for US pro-life researchers: Perhaps the "abortion trauma syndrome" that they claim is caused by the pro-life campaigns rather than the abortion *per se*.

How can abortion care be improved for vulnerable women?

Women with PTSD or PTSS were more likely to perceive the abortion care as deficient. Concerns of personality safety are important and individuals with PTSD are pre-occupied with scanning the environment for threatening stimuli (38). This behaviour might have affected the perceptions of abortion care as being deficient among women with posttraumatic stress in the study. However, most women were satisfied with the abortion care, but some women reported deficiencies in the overall abortion care. In addition, the most reported deficiencies were concerning whether they had been treated with respect by the healthcare staff. Interactions with healthcare professionals can mitigate or alleviate women's negative experience of abortion care. Thus minor positive interactions can lead to a positive effect while minor negative interactions can lead to a large negative effect (31). Being treated with respect, having possibility to have privacy and having a significant person present during the abortion process as well as adequate pain relief were expressed as being important by the women in this study. In the new practise, with the option to have medical abortion between gestational week nine to twelve, this is of most importance, as well as for women having surgical abortion and the few who opt to have first trimester medical abortion in the clinic.

Furthermore, women who terminated their pregnancy at the clinic reported deficiencies in the abortion care to a greater extent than women who terminated the pregnancy at home. In a recent Swedish study, experience of the home abortion process was rated by the women as being less difficult than expected by 34.2%, as expected by 33.4% and worse than expected by 20% (34). Studies of medical abortion in home settings indicate that women appreciate social support from their partner or other significant person, during the abortion process (16, 33, 34, 138). Several studies demonstrate that social support is of importance in coping with the abortion (16, 33, 34, 77, 136, 139). The care and support women had from their partner or other significant person in the home setting might have influenced how they valued "good care and support" in the survey. In the present study, there was no association between setting and abortion method in relation to the development of PTSD/PTSS after abortion.

Studies of home abortions are few and concerns have been raised, from a clinical point of view, that severe pain during medical abortion in home settings may be a risk for a traumatic experience. The result from the present study revealed no indications of inadequate pain relief for women who had home abortions. Contradictory results have been reported in a recent Swedish study of women who opted for home abortion (n = 395), where 57.5% reported a need for additional oral analgesia (34). However, in the sub-sample of women having medical abortion at the outpatient clinic of Umeå

University hospital measuring intensity of pain by using VAS, Visual Analogue Scale, one-fifth reported severe pain. Of those, one-third reported inadequate pain relief. Perceived pain, either psychological or physical, is central in the traumatic experience leading to posttraumatic stress reactions. Thus, proper monitoring and pain alleviation should be most important to avoid painful traumatic experiences or re-traumatisation in women with previous traumatic experiences. In addition, women with posttraumatic stress were more likely to report insufficiencies in the pain alleviation. This might be related to pain adjustment. Study findings have demonstrated that the PTSD symptom cluster hyper-arousal is associated with pain outcomes such as pain intensity and disability in patients with chronic pain (140).

Young women (< 25) were most dissatisfied with the abortion services. Young age has previously been reported as one background factor associated with low patient satisfaction of inpatient care in a Swedish hospital (141). In a longitudinal study, it was reported that younger age pre-abortion predicted more negative post-abortion evaluations (81). The findings in the present study point towards that some young women had negative experiences of being treated with respect in the abortion care. However, another Swedish abortion study displays contradictory results, showing that women aged 20–48 are more dissatisfied than the younger women regarding satisfaction with help and support given by the healthcare staff (28). Findings from Swedish qualitative studies indicate that young women, i.e. teenagers have experiences of negative attitudes toward teenage pregnancies and supportive attitudes towards abortion among partners, friends and parents (142, 143). Young women also express experiences of a paternalistic attitude from the healthcare staff and feelings of not having the possibility to discuss the unwanted pregnancy. Furthermore, experiences of the counselling being too coercive in ambition to prevent new unintended pregnancies, and difficulties finding a suitable contraceptive method or worries about side effects of contraception are not addressed (142, 143). One explanation to this attitude might be a widespread attitude in the Swedish society towards teenage pregnancies though the societal norm is a strong preference for abortion over teenage childbearing (143). Previous studies have demonstrated that vulnerable groups who require more attention and may have unique needs are adolescents, women with mental- or physical disabilities, and women who are survivors of violence, women who are ambivalent and have poor support and who may suffer coercion (77, 144).

One possibility to identifying women in need of support is continuity, such as giving one midwife the opportunity to follow the woman throughout the whole abortion process, according to the new practice adopted at an increasing number of Swedish hospitals (20, 24). Though the Swedish abortion law only allows physicians to perform abortions (4), the medical abortion up to gestational week nine has been delegated to specially trained midwives (20). Longitudinal continuity in primary care is reported to be cost effective

and effective communication is associated with better health status (145), and it is likely that continuity with one provider caring for the patient, as in the new practice in abortion care, has the same effect. Besides continuity, a patient-centred care (PCC) may facilitate the opportunity to discover women's different needs (146-150). Patient-centeredness is complex (151) and currently the exact meaning of patient-centred care is ambiguous (147-149). In a literature review, patient participation, involvement and relationship between the patient and the healthcare staff were analysed as the core elements of PCC (146). However, despite lack of consensus patient-centred care is promoted as a desirable model of care (152, 153). According to Sidani and Fox (147), the definition of PCC can be divided into three components: holistic care, collaborative care and responsive care. The holistic care comprises all domains of health (bio-physical, cognitive, emotional, behavioural, social and spiritual). The purpose of the holistic care is to attend to all needs that a patient has at the time of a healthcare encounter. It includes the assessment of patients' conditions, with interventions and services targeting the totality of the patient's conditions. Holistic care is often characterised as comprehensive and involving exploration of the whole person (147). By practicing holistic care, it is most likely that women's different needs in abortion care might be identified.

The next component is collaborative care, which consists of a partnership between the patient and the healthcare professional. Collaborative care aims to facilitate patient's participation in making care-related decisions, treatment and self-care. It involves a process of shared decision-making together with the patient (147). Within this component, information about available abortion methods is provided to allow women to participate in collaboration with healthcare professionals to decide what method to use. Robson (154) demonstrated that the choice of abortion method is associated with satisfaction with abortion care and with acceptance of the procedure in medical abortions, and suggests that patient-centred abortion care should offer the choice of medical or surgical abortions up to 14 gestational weeks.

The last component is responsive care, which is an individualisation of care, thus, to acknowledge the patients as an individual and concentrating on patient's circumstances rather than the disease or the problem (147). To practice responsive care within abortion care is, for example, to be receptive to women's perceptions of terminations of pregnancies and methods, to address fear of complications and perceived difficulties for women to find suitable contraception. In addition, a therapeutic relationship is needed. This means that in this relationship patient's and healthcare professionals respect each other's knowledge and experience. Particular healthcare professionals are open and respectful to patient's knowledge (147).

Conclusions

The findings demonstrated that abortion-seeking women were not suffering from PTSD more than the Swedish female population in general. The vast majority of women coped well with the induced abortion, but a minority developed posttraumatic stress post-abortion. The majority did so because of trauma experiences unrelated to the induced abortion. The women at risk of developing posttraumatic stress are more likely to be young, having anxiety- or depressive symptoms and a personality trait related to neuroticism. Neuroticism-related personality traits and young age were associated with developing posttraumatic stress. Young women and women with posttraumatic stress were more likely to perceive abortion care as deficient. In summary, the findings indicate that vulnerable groups such as young women and women with mental distress should be paid more attention in abortion care, as these women are at risk for having negative experiences of the abortion care, and some are also at risk for developing PTSD/PTSS post-abortion.

Clinical implications

The findings in the present study intended to be a contribution to the knowledge of abortion seeking women's mental health status considering the prevalence of PTSD and PTSS. The findings have also contributed to the knowledge of socio-demographic characteristics and mental health status of women who terminate the pregnancy in the first trimester. The knowledge may have make it easier to identify these women who develop posttraumatic stress or are at risk of negative experiences of the abortion or abortion care. Young women are easy to identify and are a vulnerable group. Specifically, the age group 20–24-years-old is the most frequent age group to request induced abortions; however, not all of them are vulnerable. Nonetheless, the findings in the present study suggest that this age group together with teenagers are worth additional consideration in the abortion care, but there is a challenge to identify those who need more support during the abortion process. Identifying the risk groups of women with anxiety- or depressive symptoms or having a personality related to neuroticism is, on the other hand, not so easy. However, one way to increase the possibility of identifying those in need of support might be continuity, such as a midwife following the woman throughout the whole abortion process. Additionally, a patient-centred care might also increase the possibilities to identify vulnerable groups of women within abortion care. Furthermore, it should be mandatory that all women are given the possibility for privacy and rest during the procedure, and women should also be able to bring along a significant person for support during the abortion process.

Future studies

Further research is needed about vulnerable women, in abortion care with pre-existing or existing mental health distress. There is lack of research in a Swedish context regarding suitable support for vulnerable women and how to identify vulnerable groups of women.

For these purposes it would be worthwhile to conduct a waiting-room survey including questionnaires with validated instruments screening for mental stress, e.g. anxiety- and depressive symptoms and PTSD. Through this data collection, women with mental stress present at the abortion clinic can be identified for further qualitative research. By interviewing these women about their experiences of abortion care, it is possible to get a deeper understanding of their needs and what kind of support they need from abortion care. Both quantitative and qualitative data collections and analysis are required to get a broad view of different options for suitable support that can be offered in abortion care. For example, an option worth evaluating is support and therapy available through different websites and applications for smartphones, which may also attract women in abortion care.

More studies are also needed about how vulnerable women at risk for negative experiences of abortion will be identified, although it is a challenge for healthcare personal to identify these women. One way might be to ask special questions as has been suggested in a previous study (155). For example, questions about social support, coping strategies and prior mental health status to narrow down women at risk of mental distress following abortion. In respect of women's integrity, it is a true challenge to ask these questions in such a way so that they are not intrusive to women, and at the same time the women should not be made to feel that they should question their decision to terminate the pregnancy.

There are also indications that women who are sure of their decision are not interested in discussing emotional aspects, which is another challenge (156, 157). Consequently, there is a need for further research to find the balance of how to approach women to identify their special needs. Thus, research should be conducted in collaboration with women having experiences from Swedish abortion care to explore women's needs from their own perspective. Both quantitative and qualitative research approaches, for example, the design described above, may provide knowledge about appropriate ways to identify vulnerable groups.

Svensk sammanfattning – Summery in Swedish

Det övergripande syftet med denna avhandling var att studera posttraumatisk stress disorder (PTSD), posttraumatisk stress symtom (PTSS) samt ångest- och depressionssymtom hos abortsökande kvinnor i relation till sociodemografiska variabler. Ytterligare syften var att identifiera riskfaktorer för PTSD och PTSS efter abort samt att relatera detta till upplevelser av abortvården.

De flesta kvinnor som genomgår en abort gör det utan några större svårigheter och många beskriver en känsla av lättnad och befrielse efter aborten. Dock finns det ett mindre antal kvinnor som utvecklar psykisk ohälsa, såsom depression och ångest efter abort. Ibland hävdas det, att kvinnor också kan utveckla stressymtom, såsom vid PTSD, efter abort. Kunskapen om sambandet mellan inducerad abort och PTSD är begränsad och många studier inom området är kritiserade för att vara av bristande kvalitet, främst på grund av metodproblem.

Med PTSD menas att en person har upplevt, bevittnat eller konfronterats med en händelse som inneburit död, allvarlig skada, eller hot mot den egna eller andras integritet. Händelsen ger i sin tur upphov till olika symtom, som kan yttra sig som mardrömmar, påträngande tankar, överspändhet och undvikande av personer och platser som påminner om den traumatiska händelsen. Eftersom the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, (DSM-5), publicerades i maj 2013 baseras denna avhandling på de tidigare kriterierna i DSM-IV. För att erhålla diagnosen PTSD måste alla kriterierna för PTSD i manualen vara uppfyllda. Det finns också individer som varit med om traumatiska händelser som givit upphov till några symtom men de uppfyller inte alla symtom enligt kriterierna. Tillståndet skapar lidande för individen, men är inte en diagnos enligt DSM-IV eller DSM-5. Det finns ingen gemensam benämning på detta tillstånd utan olika benämningar används. I denna avhandling benämns detta tillstånd posttraumatic stress symtom (PTSS).

Alla delstudierna är baserade på en multicenter kohort studie som genomfördes på gynekologmottagningar vid sex sjukhus i Sverige. Abortsökande kvinnor tillfrågades om deltagande i studien av speciellt utsedd personal på mottagningarna. Kvinnorna informerades om studien, de som accepterade att delta gav sitt informerade samtycke skriftligt och fyllde i en enkät på mottagningen. Enkäten kodades och lades i en låst brevlåda. I denna baslinje-

mätning deltog 1514 kvinnor, varav 1470 hade fullständigt ifyllda enkäter för utvärdering av förekomst av PTSD eller PTSS. Uppföljningsenkäter skickades hem till de deltagande kvinnorna, tre och sex månader efter aborten. Studiens enkäter innehöll frågor för självskattning av PTSD, PTSS, ångest- och depressionssymtom samt personlighetsdrag, även abortvården utvärderades. Datainsamlingen för de tre enkäterna pågick från september 2009 till januari 2011.

Syftet i delstudie I var att undersöka förekomsten av traumatiska upplevelser, PTSD, PTSS, ångest och depressionssymtom hos abortsökande kvinnor. Ytterligare syften var att studera riskfaktorer för PTSD och PTSS samt att undersöka förekomsten av samtidiga symtom av depression och ångest. Resultatet visade att traumaupplevelser var vanligt (41 %) hos de abortsökande. De vanligast förekommande traumahändelserna var fysiskt och psykiskt hot mot den egna personen eller mot andra. Abortsökande kvinnor var inte mer drabbade av PTSD än den svenska kvinnliga befolkningen i övrigt. Livstidsprevalensen, d.v.s. att man någon gång i livet haft PTSD, var 7 %, vilket är samma nivå som i den svenska kvinnliga befolkningen, där prevalensen är 7 %. Fyra procent rapporterade en pågående PTSD och 23 % PTSS. Hos kvinnor med pågående PTSD var det vanligt med samtidiga ångest- och depressionssymtom. Ångest- och depressionssymtom var också förenat med en ökad risk för PTSD.

Syftet med den andra delstudien var att mäta förekomsten av PTSD och PTSS före aborten och vid tre och sex månader efter. Ytterligare ett syfte vara att undersöka vad som var utmärkande för de kvinnor som utvecklade PTSD eller PTSS efter abort. Av de 1470 kvinnor som ingick i studien från baslinjemätningen, exkluderades 13 för att de inte genomgick abort eller genomgick abort efter v 12. Sjuttiosex kvinnor från baslinjemätningen rapporterades aldrig in till studieansvariga vilket medförde att dessa kvinnor aldrig erhöll uppföljningsenkäterna. Således inkluderade 1381 kvinnor, vid tre månadersuppföljningen var svarsfrekvensen 742 (54 %) och vid sex månader 641 (46 %). Vid baslinjemätningen rapporterade 4,3 % en pågående PTSD, vid tre månader 2 % och vid sex månader 1,9 %. Under studieperioden utvecklade 51 kvinnor PTSD eller PTSS efter aborten. Dessa kvinnor var ofta unga (< 25 år), studenter, inte heltidsarbetande, hade en lägre utbildningsnivå, inga barn och de hade oftare haft kuratorskontakt innan aborten. Dessutom hade de högre nivåer av ångest- och depressionssymtom. Elva kvinnor relaterade traumahändelsen till aborten, medan de övriga angav andra traumatiska händelser som inte var relaterade till aborten som orsak.

Syftet med delstudie III var att jämföra neuroticism-relaterade personlighetsdrag hos kvinnor som utvecklat PTSD eller PTSS efter aborten, med de som inte hade PTSD eller PTSS. Dessa personlighetsdrag undersöktes också hos kvinnor som hade PTSD eller PTSS innan aborten. Personer med neuroticism tenderar att uppleva världen som hotfull och stressande och neuroticism har i tidigare studier visat sig vara en riskfaktor för PTSD. Både kvin-

nor med PTSD eller PTSS före aborten och de som hade utvecklat det efteråt, hade högre nivåer av neuroticism-relaterade personlighetsdrag, jämfört med de som inte hade PTSD eller PTSS. Resultatet visade, i likhet med andra studier, att risken för att utveckla PTSD var associerat med neuroticism-relaterade personlighetsdrag, men även med ung ålder.

På grund av den låga svarsfrekvensen gjordes en bortfallsanalys i studie II och III. Kvinnorna i bortfallsgruppen vid tre månadersuppföljningen var yngre, oftare utlandsfödda, hade en lägre utbildningsnivå, var oftare tobaksanvändare, drack alkohol i mindre omfattning, hade högre nivåer av ångest- och depressionssymtom och använde oftare antidepressiva läkemedel. Dessutom hade de oftare genomgått tidigare abort, hade i mindre grad haft kuratorskontakt innan aborten och hade en högre livstidsprevalens av PTSD, pågående PTSD och PTSS, jämfört med de kvinnor som deltog vid tre månader. Bortfallsgruppen vid sex månader hade lägre utbildningsnivå, hade oftare genomgått tidigare abort men skiljde sig inte i livstidsprevalensen av PTSD, pågående PTSD eller PTSS jämfört med deltagare. I studie III hade också bortfallsgruppen högre nivåer av neuroticism-relaterade personlighetsdrag.

Syftet med den fjärde delstudien var att identifiera brister i abortvården med fokus på hur kvinnor med psykisk ohälsa upplevde vården. Abortvården som helhet rapporterades som bristande av 16 % av kvinnorna i studien. Yngre kvinnor, (< 25 år) och kvinnor med PTSD eller PTSS rapporterade oftare brister i abortvården som helhet. De utvärderade även brister i flera andra aspekter av abortvården. Dessa var bemötandet från sjukvårdspersonalen, att få god vård och stöd, möjligheten till avskildhet och vila samt möjligheten att ha någon närstående med sig.

En av avhandlingens styrkor var studiedesignen, en multicenter kohort studie som möjliggjorde ett deltagande av kvinnor från storstad till medelstora städer i Sverige. Användandet av etablerade, utvärderade instrument och att alla kvinnor inklusive jämförelsegruppen hade genomgått abort är exempel på andra styrkor.

Studiens svaghet är det stora bortfallet. Svarsfrekvensen är dock i linje med andra abortstudier, en tendens med minskade svarsfrekvenser verkar också finnas i såväl svenska som europeiska befolkningsundersökningar. Rekryteringen av kvinnor vid de olika sjukhusen varierade mellan 45-77 % och bäst lyckades sjukhus med en studieansvarig person som rekryterade kvinnorna. Förekomsten av PTSD eller PTSS bland de deltagande kvinnorna vid de olika sjukhusen låg i stort sett på samma nivå. Bortfallet vid de olika klinikerna var troligen slumpmässig, då perioder förekom då inga kvinnor rekryterades. Detta innebär att bortfallet förmodligen inte uppkom under speciella arbetspass eller att vissa kvinnor skulle ha uteslutits under rekryteringen, vilket också talar mot att en snedrekrytering skulle förekommit. Trots allt förekom det mer PTSD och PTSS bland kvinnorna i bortfallsgruppen. De hade lägre socioekonomisk status och oftare en neuroticism-relaterad

personlighet, faktorer som kan vara förenade med en ökad risk för att utveckla PTSD. Av den anledningen kan siffrorna i studien vara underskattade och tolkningen av resultaten bör göras med en viss försiktighet. Studiens syfte var dock att undersöka hur många kvinnor som utvecklade PTSD efter abort och PTSD kan bara utvecklas hos dem som initialt har PTSS eller inga symtom alls. Nivån av PTSS skiljde sig marginellt mellan deltagande kvinnor (20,7 %) och bortfallsgruppen (26.1 %), vilket indikerar att den sanna siffran av förekomsten av PTSD/PTSS efter abort marginellt skulle skilja sig även om svarsfrekvensen varit hög.

Avhandlingsarbetet visar att abortsökande kvinnor inte har PTSD i högre grad än svenska kvinnor i övrigt. Få kvinnor utvecklar PTSD efter aborten och majoriteten gör det av traumahändelser som inte är relaterade till aborten. Riskfaktorer för att utveckla PTSD eller PTSS efter abort är neuroticism-relaterade personlighetsdrag och ung ålder. Brister i abortvården som helhet rapporterades av kvinnor men PTSD eller PTSS men också av de yngre kvinnorna. Möjlighet till avskildhet och vila, ett respektfullt bemötande och möjligheten att ha någon närstående med sig var också aspekter av abortvården som rapporterades som bristande. Dessa fynd indikerar att yngre kvinnor och kvinnor med psykisk ohälsa är sårbara grupper som behöver uppmärksammas i vården då dessa kvinnor är i riskzonen för att uppleva brister i abortvården och för att eventuellt kunna utveckla PTSD och PTSS efter abort.

Utvecklingen inom svensk abortvård går emot ett ökat antal hemaborter och att barnmorskor handlägger tidiga medicinska aborter. Dessa nya rutiner innebär att samma barnmorska följer kvinnan från första telefonsamtalet, under besöket på mottagningen och har möjlighet att följa henne genom hela abortprocessen. En sådan kontinuitet tillsammans med ett person-centrerat arbetssätt där individens behov sätts i centrum, borde innebära ökade möjligheter att identifiera sårbara abortsökande kvinnor med behov av särskilt stöd.

Framtida forskning bör fokusera på kvinnor med mental ohälsa i abortvården. Forskning om hur kvinnorna kan identifieras, men också forskning kring vilka typer av stödinsatser som efterfrågas av kvinnorna själva, när behov av stöd finns. Longitudinella studier, såväl kvantitativa och kvalitativa behövs. Genom en väntrumsenkät skulle kvinnor med psykisk ohälsa kunna identifieras och sedan följas upp med intervjuer och enkäter kring dessa aspekter

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