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**Psychological distress and multimorbidity in patients
with chronic kidney disease**

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Abstract: The aim of the study was to examine the level of psychological distress and its correlation with multimorbidity in patients with chronic kidney disease. The participants were individuals with end-stage renal failure who receive hemodialysis in three outpatient clinics in Gothenburg. Of the 163 outpatients reviewed, 83 completed the questionnaire and were included in the study. Psychological distress was assessed with the Kessler Psychological Distress Scale (K10), and multimorbidity with the Cumulative Illness Scale (CIRS). The results showed a significant correlation between multimorbidity and psychological distress with 30.6 % of the variation in psychological distress being explained by multimorbidity. The above association was also found significant after controlling for the confounding variables age, gender and living conditions.

A major priority of health care policies during the 21st century is improving care and quality of life for people with chronic diseases. According to the World Health Organization chronic disease is defined as “health problems that require ongoing management over a period of years or decades” (WHO, 2002). Individuals diagnosed with a chronic medical condition are considered a risk population for development of depressive or anxiety disorders. The risk for development of depression is 1.5- 4 times higher in people with chronic medical illnesses compared to the general population (Zalai, Szeifert & Novak, 2012). In addition, individuals with chronic medical conditions report high levels of psychological distress (Taylor et al., 2009).

Chronic kidney disease is considered a serious medical condition that affects the quality of life for many individuals worldwide (Kimmel et al., 2000). Research has also shown that chronic kidney disease is often combined with high mortality rates and high psychosocial burden (Kimmel et al., 2000). The medical definition of chronic kidney disease is based on the presence of kidney damage or on the level of kidney function measured from a parameter called glomerular filtration rate [GFR]. Chronic kidney failure is classified worldwide into five stages based on GFR level (Levey et al., 2010). Individuals with kidney failure stage five and $GFR < 15\text{ml/min/1.73m}^2$ are those in need of chronic dialysis. Kidney failure stage five or end-stage renal disease (ESRD) is an irreversible medical condition that requires hemodialysis (Levey et al., 2010) or kidney transplantation (White & McDonell, 2014).

During hemodialysis, the patient is connected with a dialysis machine through an arteriovenous fistula (Christensen & Ehlers, 2002) or a central dialysis catheter. The dialysis machine functions as an artificial kidney (hemodialyzer) which removes waste products and excess fluids from the blood. Thus, the dialysis apparatus works as a filter through which the blood circulates and then carries on safely back to the body. Renal dialysis is a life-sustaining treatment necessary for the majority of patients with end-

stage renal failure (Christensen & Ehlers, 2002). In addition to dialysis, chronic renal patients have to adhere to various dietary restrictions whilst taking a lot of medication to control other biological aspects that affect the function of the kidney (Smyth et al., 2013). In some cases, kidney transplantation is an option for individuals with chronic kidney failure. Kidney transplantation does not mean that renal failure is completely reversed, but it can lead to significant amelioration of the quality of life of the individual who has received a renal transplant (Akman, Ozdemir, Sezer, Miçozkadioglu & Haberal, 2004).

According to the annual report of the Swedish renal patient register from 2012 (SNR, 2013), there are 8852 patients registered in Sweden for dialysis due to stage five kidney failure. More men than women are diagnosed with chronic renal failure and the reason for that is unknown. The prevalence rate of the disease in Sweden is 926 cases per million inhabitants. The standard dialysis frequency for end-stage renal patients is three times per week, about four hours per treatment. There is some variation in the frequency depending on the clinical status of the person as well as on how well he/she responds to the treatment (SNR, 2013).

According to the literature, individuals with end-stage renal failure are more likely to commit suicide compared to the general population (Finkelstein, Wuertth & Finkelstein, 2009). Specifically, individual behaviors such as noncompliance with the dialysis sessions can irreversibly lead to death. Other treatment related factors, such as noncompliance with the dietary and fluid restrictions can lead to severe physiological consequences that worsen the prognosis of the disease. Poor compliance with the medical treatment has also been seen to correlate with high levels of depressive affect. As a consequence, depressive affect is indirectly related to high risk of mortality in this patient group (Peterson et al., 1991; Zalai et al., 2012).

Functional impairment in daily activities has also been reported by 40.4 % of the patients with chronic renal failure included in the study by Smyth et al. (2013). Almost one fifth of dialysis patients choose to abstain from the dialysis treatment, even when knowing that without dialysis the mortality rate is high (Kimmel, 2002). The awareness of having to accept dialysis as a life-sustaining treatment or to die is a dilemma that all patients with end-stage renal failure have to deal with. Moreover, the emotional impact of living with end-stage renal disease is often overlooked by medical professionals who are responsible for the medical treatment of these patients (Ramirez et al., 2012).

A large number of studies focus on the medical aspect of treating these patients, disregarding the amount of psychological distress the patients have to endure (Rosenberg, Curhan & Sheridan, 2014). Previous medical research has also thoroughly documented the medical burden of chronic renal disease measured as multimorbidity for these patients (Miskulin, 2005; Boyd et al., 2010). In addition, research conducted by White and McDonell (2014) suggests that exploring the amount of distress that ESRD patients endure is of vital importance in order to promote better treatment outcomes.

The correlation between the psychological distress and multimorbidity has been previously addressed in a study based on a sample from community settings (Fortin et al., 2006) and in a study from the general population (Byles et al., 2013). In both of the above studies, psychological distress was found to be significantly correlated with multimorbidity. Given the fact that multimorbidity patterns are highly prevalent in renal patients using hemodialysis (Miskulin, 2005; Boyd et al., 2010), it is highly surprising

how little evidence exists exploring the association between psychological distress and multimorbidity in this patient group. The present study therefore aims to provide knowledge on the level of psychological distress end-stage renal patients in dialysis experience as well as to explore the association between experienced distress and multimorbidity in these patients.

Psychological distress in end-stage kidney disease

Psychological distress has not been thoroughly addressed as a problem among individuals with chronic renal disease (Christensen & Ehlers, 2002). This is probably the case because the majority of the studies on patients with chronic renal failure conceptualize distress in terms of disorder, mostly depressive disorder. The level of depressive affect and its potential impact on the prognosis of the disease has been examined by various researchers. In his research, Kimmel (2002) has shown that depressive affect is very common among dialysis patients. Firstly, depressive affect is supposed to influence the prognosis of the medical treatment. This is the case because individuals with high levels of depressive affect are usually not complying with the nutritional restriction prescribed by their doctors. Secondly, depressive affect has been found related to increased inflammatory processes in the body specifically in the population of chronic renal patients. This is a risk factor for the progression of vascular and other medical complications. Medical complications have also been found to be correlated to high mortality rates in this clinical population (Cukor, Cohen, Peterson & Kimmel, 2007). To summarize, depressive affect is related to worse therapeutical outcomes, worse prognosis and high rates of mortality (Levenson & Glocheski, 1991; Kimmel, 2002).

Various studies about the prevalence of depression i.e. when depression was operationalized as all the depressive disorders included, have shown a frequency of 20 % to 30 % of depression reported among individuals with chronic renal failure (Cukor et al, 2007). Another study by Egede et al., (2005) as cited by White and McDonell (2014) shows that the risk to develop a major depressive disorder is four times higher in patients with end-stage renal failure compared to individuals with other physical illnesses. Concerning the factors that influence the risk for developing a depression, no significant association between the time being on dialysis and the depressive symptoms has been found in the research by Kimmel (2002); (Kimmel & Peterson, 2005). In a study by Akman et al. (2004), the presence of depression was not associated either to age or gender in a sample of patients with end-stage renal failure. Results from the same study showed that married people on dialysis report fewer depressive symptoms than those who remain single (Akman et al., 2004).

Kimmel reports in his research that the study of depression in the chronically ill patient is methodologically difficult (Kimmel, 2000). This is the case because some depressive symptoms often overlap with the organic symptoms of the disease. Regarding the end-stage renal patients, there is often a considerable overlap between uremic symptoms and depression (Cukor et al., 2007). Another important issue that affects the evaluation of depression is the effects of the medicines. A huge majority of renal patients take medications that affect their mood. Corticosteroids or anti-inflammatory medicines are very commonly taken by these patients. These medicines can cause organic mood disorders which interfere with depressive symptoms. Thus, the evaluation of depression among renal patients is a difficult issue to address (Levenson & Glocheski, 1991).

Anxiety disorders are considered more common than depressive disorders among hemodialysis patients (Zalai et al., 2012). However, the prevalence of anxiety in the ESRD population has not been thoroughly studied. A possible explanation for this is that anxiety symptoms are often entangled with depression in this patient population. Cukor et al. (2007) report a 27 % prevalence of anxiety disorders among patients with various medical problems. In another study by Cukor et al. (2008), 45.7 % of the hemodialysis patients had an anxiety disorder according to the DSM-IV criteria. The existence of anxiety was negatively correlated to quality of life for these patients (Cukor et al., 2008). A qualitative study by DeJean, Giacomini, Vanstone and Brundisini (2013) showed that the experience of anxiety among individuals with chronic medical illness is associated with feelings of uncertainty about the future, feelings of guilt, and loss of a sense of self (DeJean et al., 2013). These aspects seem to be relevant for chronic renal patients because of the awareness that renal failure is, in most cases, incurable. Besides that factor, the fact that one's survival depends on dialysis treatment or potential kidney transplantation makes anxiety problems essential to address (Christensen & Ehlers, 2002). The methodological difficulties of estimating depression in renal patients undergoing dialysis, combined with the shortage of studies addressing the prevalence of anxiety in this population, highlight the importance of focusing on the psychological aspect of distress.

Psychological distress is an important factor to address in order to gain a deeper understanding of the psychological status of the individuals undergoing dialysis (Travis, 2008). Psychological distress is defined in the modern literature as a non-specific mental problem that comprises of symptoms of depression and anxiety (Drapeau, Marchand & Beaulieu-Prévost, 2012). According to the above definition, distress is often comprised of an emotional component in terms of feelings of hopelessness as well as an anxiety component expressed in feelings of nervousness or restlessness. Feelings of hopelessness and anxiety are often the result of long-term physical and/or psychological stressors, common during major life changes (Drapeau et al., 2012). This theoretical perspective is in accordance with Horwitz's conceptualization of distress as the psychological outcome of stress (Horwitz, 2007).

Due to the complexity of stress reaction in chronic disease, researchers have tried to estimate the association between distress and chronic disease (DeJean et al., 2013). According to the stress-distress model, prolonged exposure to a stress factor can lead to high levels of distress. If the restraint is severe or the stress reaction is unresolved, it can easily lead to feelings of distress. So even if the stressor is not intrusive, feelings of distress may be apparent (Drapeau et al., 2012). Chronic strain such as the one of a chronic medical condition with significant functional limitations as a consequence of the treatment, can lead to long-lasting distressing complains (Travis, 2008). Dealing with chronic kidney failure especially in the last stage of the disease when dialysis is required, is considered a significant long-term stressor for the person (Smyth et al., 2013).

As mentioned above, an important aspect that influences the level of distress within a person is the grade of functional impairment (Wheaton, 2007). Previous research has shown that high levels of functional disability are common among patients with chronic renal disease utilizing hemodialysis (Smyth et al., 2013). Dialysis treatment usually leads to significant life changes to the everyday life of the person. Particularly, patients with kidney failure stage five, being on dialysis, have to come in terms with severe functional limitations such as reduced ability to exercise and to

independently take care of the everyday household activities. These limitations are often correlated to the frequency of the dialysis treatment and its complications. Dialysis patients need to be on dialysis three to four times each week and the length of each dialysis session is about four to five hours (Christensen & Ehlers, 2002). This leads to a feeling of loss of control over one's time. Feelings of frustration are very common and can be related to the time needed for the hemodialysis treatment (Andersson & Ekelund, 2007). As a consequence, psychological distress is a significant aspect to explore in individuals undergoing chronic dialysis treatment.

Apart from functional limitations as a result of dialysis, chronic disease imposes significant emotional burden on the individual (DeJean et al., 2013). Feelings of loneliness and distress are common problems among people with chronic diseases. Chronic disease leads to significant social isolation mostly because friends are unable to cope with the burden of the disease or because the patients are not motivated to socialize as they did before. Physiological complaints often combined with the long persevering duration of these complaints result in loss of interest for social interaction. This gradually exacerbates the social isolation of people with chronic diseases and makes their adjustment to the disease difficult (DeJean et al., 2013).

Another factor that leads to significant emotional burden is the option of potential transplantation (Andersson & Ekelund, 2007). Not knowing whether one will be an eligible candidate for renal transplantation or not is a reality that a lot of patients have to deal with. This can also be considered as a stress factor (Andersson & Ekelund, 2007). Moreover, existential questions about the future and fear of dying if not complying with the treatment are aspects that trouble this patient group. Dialysis treatment leads to feelings of not being independent as well as a feeling of freedom loss. The dependency of these patients to dialysis restricts them from traveling or working as they would wish (Andersson & Ekelund, 2007; Zalai et al., 2012).

High amounts of psychological distress have been considered a risk factor for developing mental problems (Drapeau et al., 2012). Thus, exploring the level of distress that people with chronic diseases endure is a relevant clinical question in order to identify those patients who are in the risk zone of developing depression or anxiety disorders (Drapeau et al., 2012). In addition, psychological distress is often approached as a medical issue because distress in patients with chronic medical conditions is supposed to negatively affect the adherence to medical treatments (Fortin et al., 2006).

Wheaton (2007) argues that distress varies individually, but is relatively stable during a significant period of time. He conceptualizes distress as a retrospective psychological reaction to a stressor that may persist even if the stressor ceases to operate. He points out that there is a clear association between distress and risk for developing a disorder. Distress has been used in a psychiatric context in the process of screening for risk factors for developing a disorder. It is examined as a continuum which is related to significant life impairment when it remains unaddressed (Wheaton, 2007). According to Payton (2009) distress, disorder and mental health may be correlated but they should be considered as distinct phenomena (Payton, 2009). Recent research on a general population sample indicates that significant psychological distress can be consistent with the presence of a common mental disorder (Kosidou et al., 2011).

There are several other factors that make distress an important issue to address in patients with end-stage renal failure. The severity of the medical condition of chronic renal failure imposes a significant burden on the individual in dialysis (Andersson & Ekelund, 2007). Psychological distress has also often been associated with physical

symptoms (Drapeau et al., 2012). In the case of chronic renal failure treated with hemodialysis, there is a variety of difficulties that are disease-specific. Feelings of tiredness are often correlated with symptoms such as headache, cramps and itching complaints. Sleeping problems are also very common among individuals who undergo hemodialysis. The above problems affect the mood of the person and lead to significant restriction on leisure time activities and working capacity (Andersson & Ekelund, 2007). Even if persons wish to be able to work, the implications and the time needed for hemodialysis treatment make this option quite difficult. Apart from time restriction and illness effects, people with end-stage renal disease experience a great deal of losses such as loss of employment, loss of intimate other and sexual dysfunctions. These multiple stressors are persistent during a long period of time (Kimmel, 2002).

Distress is therefore a relevant issue to address in renal patients in dialysis because the illness in its last stage is often perceived as intrusive in many life domains of the people affected (Christensen & Ehlers, 2002). Moreover, patients who have received renal transplants and have experienced complications such as rejection of the organ and organic failure are in need of dialysis again. Research shows that these patients are more distressed as well as more vulnerable in developing depression. Furthermore, patients with stage five renal failure show higher rates of psychiatric symptomatology compared to patients with other chronic diseases (Christensen & Ehlers, 2002).

In order to understand why psychological distress is relevant to address among people with end-stage renal failure, one should initially take into consideration the amount of physiological burden patients have to endure (Cukor et al., 2007). The renal dysfunction as presented in patients with chronic renal failure does not enable the metabolism of stress hormones from the kidney. As a result, the chronic renal patient is exposed to a biochemical environment similar to chronic physiological stress. Stress hormones that can no longer be metabolized by the kidney, circulate in the body and create an environment of constant physiological stress reaction. The individual who undergoes hemodialysis is dependent on the dialysis treatment in order to reach a hormone balance in the body (Cukor et al., 2007). When it comes to renal failure, the progressive nature of the disease combined with the biochemical alternations of the body lead to substantial organic burden. Our stress hormones are metabolized by the kidney. However, renal failure makes this biochemical exchange difficult which results in a biochemical milieu of constant stress for these patients (Cukor et al., 2007).

There is individual variation in how people react to the stress of chronic renal failure and the suggestion of a bio-psychosocial model is more efficient to understand the level of distress in this patient group. According to the bio-psychosocial model of understanding the psychosocial effect of a chronic disease, parameters such as individual demographic information, physiological parameters, psychological and social factors interact dynamically (Cukor et al., 2007). Recent research shows significant associations between depressive symptoms and medical complications in dialysis patients worldwide. The assessment of the depressive affect on these patients should always take the medical burden of their disease into consideration (Cukor et al., 2007).

Finally, individuals with different dialysis modality report different levels of psychological distress (Levenson & Glocheski, 1991). Patients receiving home dialysis treatment report lower levels of depressive symptoms than those patients who undergo dialysis in hospital settings (Kimmel, 2002).

Multimorbidity

Multimorbidity, defined as the existence of two or more medical conditions within one person (Aarts, 2011; Van den Akker, Buntic & Kontnerus, 2000), has significantly increased in dialysis population (Miskulin, 2005). The high prevalence of multimorbidity is associated with the fact that the population is getting older and that medical expertise makes the identification and classification of diseases that previously remained undocumented possible (Miskulin, 2005). Multimorbidity has previously been addressed in medical research as a confounding parameter that is important to measure in order to secure the statistical efficiency of the research. It has also been mentioned as an independent predictor of various medical research outcomes (DeGroot, Beckerman, Lankhorst & Bouter, 2003). Additionally, multimorbidity has been an area of interest in medical research because it has been found to be correlated with mortality in individuals with chronic diseases (DeGroot et al., 2003).

Multimorbidity in the context of chronic renal disease is relevant to address because chronic renal failure often occurs as a secondary problem to other diseases. According to the Swedish renal registry for active treatment of uremia (SNR, 2013), there are at least six different medical conditions that can lead to renal failure grade five. These can be glomerulonephritis, hypertension, diabetic nephropathy, adult polycystic renal failure, etc. (SNR, 2013). Research has shown that comorbid medical conditions are very common among people with end-stage renal failure. Miskulin (2005) has shown that even if there is a primary disease that leads to chronic kidney failure, there are also secondary medical conditions as a result of the kidney failure. For example, almost over 60 % of the dialysis population in USA has at least one cardiovascular problem (Miskulin, 2005).

Recent research by Boyd et al. (2010) has shown that patients with end-stage renal failure have significant patterns of multimorbidity. These patterns are described as multiple conditions within a person such as e.g. hypertension, coronary heart disease, asthma etc. A common multimorbidity pattern for renal patients is diabetes, congestive heart disease and hypertension (Boyd et al., 2010).

In a study conducted in the Swedish context by Marengoni, Winbland, Karp and Fratiglioni (2008), it was shown that the rate of multimorbidity is higher among women than men. Moreover, advanced age and lower education correlate with higher risk for multimorbidity (Marengoni et al., 2008). Furthermore, other studies about multimorbidity in a sample of patients from the primary care settings show that multimorbidity is strongly associated with age; the older a person is, the higher the rates of multimorbidity (Van den Akker, Buntinx, Metsemakers & Knottnerus, 2000).

Multimorbidity and Psychological distress

Byles et al. (2013) have explored the association between multimorbidity and psychological distress in a large sample of patients from the general population. The findings of their study indicate that comorbid medical conditions can exacerbate feelings of distress. Moreover, high levels of psychological distress are associated with more extensive use of health-care facilities as well as higher mortality rates (Byles et al., 2013). The researchers' hypothesis is that multimorbidity influences the level of psychological distress experienced by the individual. It is also proposed that multimorbidity can predict psychological distress experienced by individuals using primary health care settings. The impact of comorbidity on psychological distress is a

question that needs to be addressed especially for persons from older age groups, because it is supposed that multimorbidity augments with age (Byles et al., 2013). The association between psychological distress and multimorbidity is significant among individuals with a physical illness. Other factors that influence this association are the level of functional disability and demographic variables such as gender, age, socioeconomic and marital status. Women, who are divorced or separated, experience higher level of distress than those who are married. Moreover, individuals who are not able to work because of functional limitations related to their physical status, experience more distress than those who are able to work (Byles et al., 2013).

Fortin et al. (2007) showed in their study that there is a significant association between psychological distress and multimorbidity when the latter is measured not only by a simple account of diseases but also by an estimation of their severity. This association was tested in a sample of individuals with chronic diseases in a primary care setting. The result of that study showed that psychological distress augmented with multimorbidity (Fortin et al., 2007).

A study by Shih and Simon (2008) showed that adults with three or more of six chronic medical conditions were found to have higher risk to have severe psychological distress compared to those with no conditions. The lever of psychological distress was found to augment when the number of chronic conditions within a person increased (Shih & Simon, 2008).

In a study based on a sample of patients from primary care settings, Gunn and his colleagues have shown (2012) that there is a close association between multimorbidity, chronic disease and depressive symptoms (Gunn et al., 2012). The multimorbidity in their study was operationalized as a simple account of diseases. The association between multimorbidity and depressive symptomatology was partially mediated by self-rated health and the participants` subjective evaluation of daily limitations (Gunn et al., 2012).

Aim

As previously outlined, the question of multimorbidity and its relation with distress has recently been given attention in epidemiological studies of patients utilizing primary health settings. However, the association between multimorbidity and psychological distress has not previously been addressed for people with end-stage renal failure. Thus, the aim of the current study is twofold; first, to estimate the prevalence of psychological distress in adults with end-stage renal failure and second, to assess the association between psychological distress and multimorbidity in the same group of people in hemodialysis. A question that is examined is whether there is a difference in the prevalence of psychological distress between men and women in hemodialysis. The author's hypothesis is that there is a significant association between multimorbidity and the level of psychological distress these patients experience.

Method

Sample and Participant Selection

The participants were recruited from three dialysis outpatient clinics in Gothenburg during January and February 2014. I initially came in contact with the doctor in charge of the medical team responsible for the patients with end-stage renal failure in Gothenburg, in order to present the aim of the study. After I obtained his agreement and support to my research study, I contacted the managers of the three outpatient dialysis clinics. All the managers were met in person and received information about the aim and the design of the study. Two of the managers informed their colleagues about the study and the procedure of data collection in a regular meeting of their working team. In one of the clinics, I took part in a meeting with all the health personnel working weekly with the patients to inform them about the aim of the study and the procedure of data collection.

The preparations with all the meetings and information to the personnel were initiated in December 2013. A letter of information (see Appendix A) about the study was sent a couple of weeks before the start of the study to all the hemodialysis patients in the three outpatient clinics. The purpose was to inform the patients about the objective, as well as the ethical considerations of the study.

The sample consisted of 163 adult individuals with stage five chronic kidney failure. They all received hemodialysis treatment in an outpatient clinic for the minimum of one month. Of these 163 persons, those who had little or no knowledge of Swedish were not included in the study. Descriptive statistics defining the study group is presented in figure 1. Participants who were hospitalized during their dialysis treatment or had significant intellectual or other sensory handicap were also excluded from the sample. The eligible participants were all adults with end-stage renal failure grade five, able to read and write. One participant passed away during the study period, two others missed their dialysis session during the data collection process; three other subjects were only receiving dialysis treatment for a short period of time and some only during the night. Those participants were not included in the study (see figure 1).

All the participants were undergoing dialysis treatment because of chronic renal failure; those on dialysis because of acute renal failure were excluded from the sample. Individuals with chronic renal disease who receive home dialysis or peritoneal dialysis were also excluded so as to achieve homogeneity in the sample. The time allocated for the study was not enough to be able to contact individuals that were on home dialysis or peritoneal dialysis. Thus, only individuals receiving outpatient hemodialysis treatment were included in the study.

Procedure

All the participants received written and oral information regarding the aim of the study, that the participation is voluntary and that they have the right to withdraw from the study at any time. The subjects who were enrolled in the study had given their written consent. The study was based on information collected by a questionnaire, as well as on information collected from the patients' medical records. The participants were asked to fill out the questionnaire while being at the outpatient clinic for their dialysis session. Questionnaires of all responders were pre-coded. The participants' permission was asked in order to gather information from their medical records. Information about the medical history needed to assess multimorbidity was collected from their medical records. Seventy-nine dialysis patients gave their consent to collect data from their medical records. The collection of the medical data was planned directly after the gathering of the questionnaires was completed. The information collected from

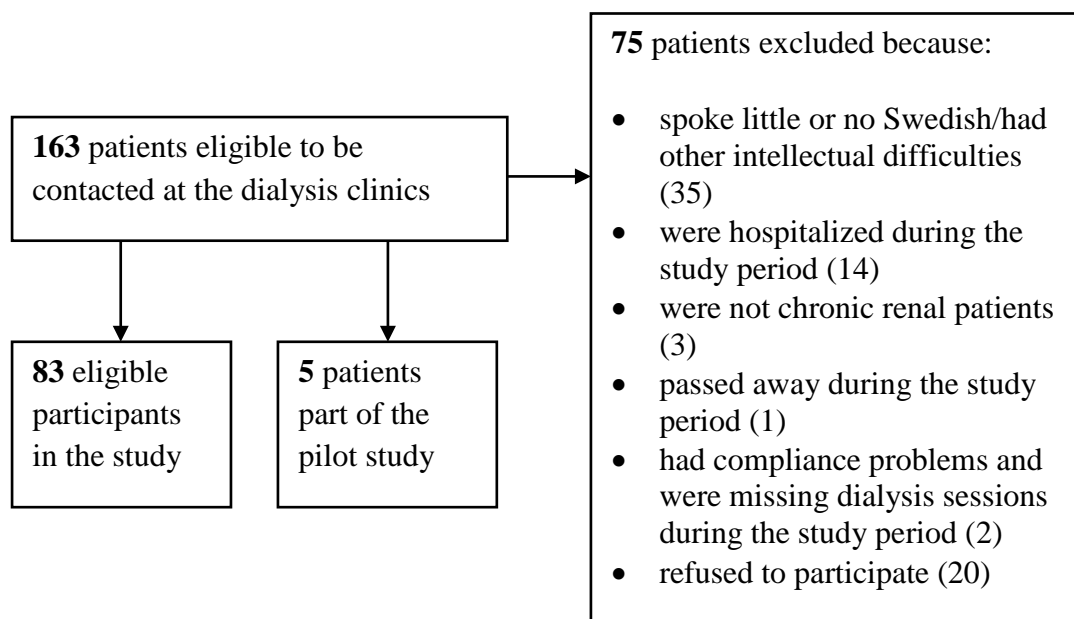


Figure 1. Flow of participants in the survey study.

the patient's medical charts was used in order to measure multimorbidity. The calculation of the multimorbidity index was done a couple of weeks later after all the questionnaires were collected. I thoroughly studied the medical records of the patients during the period of two weeks. The categorization and evaluation of the information was done according to the guidelines of the Cumulative Illness Rating Scale (CIRS) (Miller & Towers, 1991; Miller et al. 1992). Medical conditions that required specialized medical expertise were discussed with the responsible nephrologists so as to assess the severity of the condition. All the gathered information has been treated with confidentiality according to the Swedish Council of Ethics. The collected data were unidentified and used only for the purpose of the study.

Pilot Study.

An initial pilot study was done to explore the feasibility of the study (Thabane et al., 2010). The purpose of the pilot study was to control the participants' reactions to the questionnaire as well as to estimate the exact amount of time needed to fill out the questionnaires while being at the outpatient clinic. Five patients were randomly selected by the nurses working at a clinic. These five patients filled out the questionnaire and gave feedback to the author about the structure of the questions, the time needed to complete it and how relevant the questions were for them. Some verbal alterations in two of the ten questions of the Kessler scale were done after taking the patients' feedback into consideration.

Assessments and Measures

The questionnaire employed in the study was comprised of two parts. The first part was the Kessler Psychological Distress Scale K(10) translated into Swedish

(Kessler et al., 2003). The second part included questions about the participants' demographical data, such as date of birth, sex, marital status, educational background and living conditions. There was also a question of permission to gather information from their medical records, a question of whether they have been using medication such as antidepressants or anxiolytics, a question about the frequency of dialysis as well as a question about the amount of time they have been on dialysis. It took 5 to 10 minutes for the subjects to fill out the questionnaire (see Appendix B).

The participants who needed assistance to fill out the questionnaire were helped by the author. The subjects who gave their consent to take part in the study received the questionnaire within the first 30 minutes of the dialysis treatment at the clinic. The participants were recommended to fill out the questionnaire within the first hour of the dialysis treatment. This was pointed out in order to avoid potential interaction side-effects of the dialysis treatment such as low blood pressure and concentration difficulties because of the fluid exchange.

The Kessler Scale

The level of psychological distress was measured with the Kessler 10 items scale K(10). The Kessler Psychological Distress scale has been widely used in epidemiological studies to estimate the level of psychological distress experienced over the window period of the past four weeks (Kessler et al., 2002; Kessler et al., 2003; Furukawa, Kessler & Slade, 2003). It is comprised of 10 questions concerning various emotional components. The questions of the scale deal with aspects such as tiredness, feeling of worthlessness, nervousness, depression or restlessness. The subjects of the study were asked how often they had felt a particular feeling within the last 30 days. There was a five-level response scale to each question from 1 = *None of the time* to 5 = *All of the time*. Each item is scored from 1 to 5 according to the answer chosen. The scores can then be summed leading to a minimum score of 10 and a maximum score of 50. According to normative data extracted from an Australian study (Australian Bureau of Statistics, 2007), people with a score between 10-19 = experience no distress, 20-24 = mild level of distress, 25-29 = moderate level of distress and 30-50 = severe distress (Victorian Population Health Survey, 2001). A study by Anderson et al. (2013), highlights the sensitivity of the scale for distress-screening in people from different age categories. The scale is also suitable for measuring distress in older individuals (Anderson et al., 2013).

The scale was chosen because of its short format. It was translated from English to Swedish by the author. A professional translator contributed with comments and corrections. The Kessler scale has good criterion validity (Brooks, Beard & Steel, 2006). It can also discriminate cases of mental disorder according to DSM-IV (Andrews & Slade, 2001; Brooks et al., 2006). K(10) scores have been shown to correspond well with diagnoses of anxiety and affective disorders according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (Anderson et al., 2013).

Byles et al. (2013) refer to findings from the National Survey of Mental Health and Wellbeing in Australia (2008) and the New South Wales Population Health Survey (2009) in Sidney; in the current study K(10) scores of 22 and above are considered to be indicative of high levels of psychological distress and scores of 30 and above to indicate very high levels of distress (Byles et al., 2013).

The Cumulative Illness Rating Scale (CIRS)

The instrument used to measure multimorbidity was the Cumulative Illness Rating Scale (CIRS) (Miller & Towers, 1991). This scale was recently validated in a family practice context. The instrument's internal reliability has been tested in studies by Miller et al. (1992). The same researcher is responsible for the last revision of the instrument in order to assure its reliability in the elderly population (Miller et al., 1992). The Cumulative Illness Rating scale measures multimorbidity by taking the amount of illness from 14 different organ systems/domains as well as the severity of the disease into account. The organ domains that are included in the scale measurement are cardiac, vascular, hematological, respiratory, ophthalmological or ear-nose-throat system, upper or lower gastrointestinal, hepatic, renal, genitourinary, musculoskeletal, neurological, endocrine and psychiatric. The severity of the illness from every organ/domain is measured within a scale from 0= *no problem* on the specific domain to 4= *extremely severe problem* on the specific domain. This instrument was chosen because it takes the severity of the illness into consideration and it is not only based on a simple account of the number of medical conditions within a person (Hudon, Fortin & Soubhi, 2007). The final score of the scale is the sum of the severity weight from each domain. Theoretically, very high levels of multimorbidity are not compatible with life. The structure of this instrument makes its usage easy in research studies. Research has shown that it is a valid and reliable scale to measure multimorbidity (DeGroot et al., 2003). The instrument CIRS can be used by health professionals who have experience of working with people with difficult medical problems (Miller & Towers, 1991). The author's previous working experience as a nurse enabled the usage of the instrument.

Statistical Analysis

All data were analyzed using the computer-based statistical program SPSS, version 22.0. Descriptive statistics were calculated for the sample population. T-tests were used to see whether there is a difference in psychological distress between men and women. Pearson's *r* correlation tests were also done to analyze associations between the continuous variables psychological distress, multimorbidity, age, time in dialysis (measured in months) and frequency of dialysis per week. I first carried out bivariate analyses between psychological distress and some other characteristics of the sample such as age, time in dialysis, persons living in the same dwelling and sex. Afterwards, I conducted two multiple regression models. In the unconditional model, I tested the relation between psychological distress and multimorbidity. In the conditional model, I tested psychological distress and multimorbidity together with age, sex and sharing household variable. The statistical significance was established at the level of $p < 0.05$. The variable Sharing Household was recoded to two aspects 1= Living by myself and 2= Living with others. The answer options "Living with a partner" "Living with a child" and "Living with others" were grouped under the category "Living with others". The variable "Psychological distress" was treated as a dependent variable. Only participants who had answered all the questions of the Kessler scale were included in the analysis.

Results

Of the 83 ESDR patients who completed the questionnaire, 57 were men and 26 women. The participants were in average about 66 years old ($M= 65.95$, $SD= 13.27$). The study population was between 33 and 88 years old. The mean time on dialysis was 49.84 months with $SD= 43.63$, $min= 1$ month in dialysis and $max= 168$ months. The mean frequency of dialysis sessions per week was $M= 2.85$ and $SD= 0.54$ (see table 1).

The internal consistency of the Kessler Psychological Distress Scale (K10) was good (Cronbach's $\alpha= 0.90$). The average mean of psychological distress measured with K (10) was 22.99 ($SD= 8.52$). The minimum level of psychological distress as measured with the K (10) in the sample was $min= 10$ and the maximum level was $max= 44$. As part as multimorbidity is concerned, the Multimorbidity was $M= 14.62$ and $SD= 3.19$ (see table 1).

41 % of the study participants answered that they live alone and 59 % that they live with another person either partner or other family member. A t-test showed no significant difference on psychological distress between those who lived alone and those who lived with someone else ($t(80)= -.78$, $df= 80$, $p= .43$). According to the normative data extracted from an Australian study (Victorian, 2001), 47.6 % of the study's participants scored on K (10) = 10-19 which indicates no distress, 12.2 % scored in the range 20-24 which indicates mild level of distress, 19.5 % scored in the range 25-29 which indicates moderate level of distress and 20.7 % scored in the range 30-50 which indicates severe distress.

Table 1: Characteristics of the sample

Sociodemographic and clinical characteristics

Characteristic	<i>N</i>	<i>M</i>	<i>SD</i>
Age (years)	83	65.95	13.27
Psychological Distress K(10)	82	22.99	8.52
Multimorbidity (CIRS)	79	14.62	3.19
How many months in dialysis	83	49.84	43.63
Frequency, dialysis per week		2.85	0.54

Other variables	<i>N</i>	Percent
Gender	83	%
Male		68.7
Female		31.1
Educational level	83	%
<8 years		41
8-12 years		36.1
Higher level (university)		22.9
Marital status	83	%
Married		41.5
Divorced or separated		14.6
Living with a partner/cohabiting		7.3
Widower		12.2
Never married		24.4
Participants taking antidepressives	82	%
Yes		17.1
No		82.9
Missing data	1	1.2
Sharing Household		
I live by myself	33	41
I live with others(partner, child, parents)	49	59

Relationship between psychological distress, multimorbidity and other continuous variables in the study.

No significant correlation between distress and age was found ($r = -.20$, $N = 82$, $p = .06$). The results showed that women report higher levels of psychological distress ($M = 25.73$) compared to men ($M = 21.71$) ($t(80) = 2.02$, $df = 80$, $p = .04$ two-tailed). The results also showed that male renal patients on dialysis show non-significantly ($t = -1.96$, $p = .05$

two-tailed) lower level of multimorbidity as measured by CIRS ($M= 14.66$) compared to female who have a mean of $M= 15.66$. There was a significant positive correlation between psychological distress and multimorbidity ($r=.55, N=78, p < .001$, two tailed). There was no significant association between psychological distress and age or frequency of dialysis or time in dialysis (see table 2).

Table 2: *Summary of Intercorrelations*

Measure	Psychological Distress	Age	Frequency Dialysis	Time in dialysis (in months)
Age	-.207			.214
Psychological Distress			-.109	-.027
Multimorbidity	.553***	.083	-.126	.121
Frequency of dialysis (per week)		.055		

Note. ***Significant for $p < 0.001$.

The regression analysis was done using the Enter method and a significant model emerged. Multicollinearity parameter was checked. Tolerance evaluation was equal to .995 which indicates that there is no problem with collinearity (Brace, Kemp & Snelgar, 2009). The first model 1 which only included psychological distress and multimorbidity showed that 30.6 % of the total variance on distress can be explained by multimorbidity $F(1, 76) = 33.47, p < .001$, (Adjusted $R^2 = .297$). The three control measures age, sex and sharing household were added to the model 2 of the regression. The second model was also significant and 36 % of the variation in psychological distress was explained when age, multimorbidity, sex and sharing household were added as independent variables, $F(4, 73) = 10.26, p < .001$, (Adjusted $R^2 = .325$). In the final model multimorbidity had a $beta = .54, p < .001$. Table 3 gives information about the predictor variables entered into the model (see table 3).

Table 3.

Summary of Multiple Regression Analysis for Variables Predicting Psychological distress in our sample (N=76).

Independent Variable	Dependent variable: Psychological Distress		
	<i>B</i>	<i>SE B</i>	β
Model 1			
Multimorbidity	1.43	.24	.55***
Model 2			
Multimorbidity	1.41	.25	.54***
Age	-.12	.06	-.19*
Sex	1.87	1.72	.10
Sharing Household	1.08	1.58	.06

* $p < .05$ *** $p < .001$

Note. Model 1 is the unconditional model and Model 2 is the conditional model. Psychological distress was measured with K (10). Multimorbidity was measured with CIRS. $R^2 = .29$ ($p < 0.001$) for Model 1 and $R^2 = .32$ ($p < 0.001$) for Model 2.

Discussion

In this study, I explored the prevalence of psychological distress in patients with end-stage renal failure treated with hemodialysis. Apart from identifying the level of distress these patients experience, I tried to estimate the correlation between distress and multimorbidity. The main hypothesis was whether there is an association between psychological distress and multimorbidity in the specific population. The aforementioned hypothesis was tested with multiple regression analysis and the results showed a moderate correlation between distress and multimorbidity. The results of this study indicate that multimorbidity is positively correlated to psychological distress experienced in this patient group. Moreover, multimorbidity is an independent predictor of distress when other factors such as sex, living conditions and age are taken into consideration.

According to the above conclusion, multimorbidity is a significant factor related to the amount of psychological distress the patients in dialysis experience. Previous studies have focused on the estimation of depression among ESRD patients without taking into consideration the influence of multimorbidity on the distress experienced by this patient group. The current study indicates that multimorbidity in renal patients as measured with CIRS instrument can explain almost one third of the variation in psychological distress within these patients. However, this leaves almost 70 % of the experienced psychological distress unaccounted for.

The results of the current study concerning the moderate relationship between multimorbidity and psychological distress, is in accordance with previous research conducted by Byles et al. (2013). Byles et al.'s hypothesis was that multimorbidity is an important factor that may have a significant impact on the level of psychological distress among people with chronic medical diseases. The association between distress and multimorbidity was shown to be significant in his study. This correlation was found to be attenuated when disability was added as a parameter in the model (Byles et al.,

2013). In the current study, the level of disability was not measured directly; however, it is theoretically included to the severity categorization made according to the CIRS instrument. The level of physical limitation because of potential physical problems was estimated according to general rating suggestions by Miller and Towers (1991). Thus, some aspects of disability, such as whether the person has the possibility to take care of his/her daily activities independently, were taken into consideration while assessing the severity of various medical conditions in the estimation of multimorbidity.

Living with end-stage renal disease has also been found to have a significant psychological impact on the amount of distress experienced by the individual. Almost as much as 20.7 % of the study's participants reported that they experience severe distress as assessed with the Kessler scale and the normative data from the National research study in Australia (Victorian Population Health Survey, 2001). The discriminative sensitivity of the Kessler scale has been documented by Brooks et al. (2006). One can hypothesize that severe distress as measured with Kessler scale may be consistent with potential depression diagnosis according to DSM-IV (Brooks et al., 2006). Thus, if almost 20 % of the participants of the present study report severe distress; this is consistent with the previous study by Cukor et al. (2007) on renal patients. Cukor et al. (2007) documented that almost 20 % of patients with renal failure have various patterns of depressive disorders.

The strength of the association between distress and multimorbidity in the current study was minimally reduced after adding some socio-demographic factors in the regression model. In previous studies, there was a reduction of the degree of association after adjusting for confounding parameters but this is probably because previous studies had a larger sample and were not specifically focused on individuals with chronic renal failure (Byles et al., 2013). In the study by Fortin et al. (2007) the risk for significant psychological distress increased five times in the group with the highest multimorbidity (Fortin et al., 2007).

Age has not been found to have a significant association with distress or multimorbidity in this study. This is probably because of the relatively small sample of the participants as well as the choice of the instrument measuring multimorbidity. In previous studies that included larger samples and where multimorbidity was estimated as a simple account of diseases, age was found to be correlated with multimorbidity (Van den Akker et al., 2000). Also, in the aforementioned study by Van den Akker et al. (2000), multimorbidity was operationalized as a simple account of diseases and it was not only focusing on renal patients but on a large sample from the general population.

The sample in the current study comprised of more men than women. This is consistent with previous prevalence studies that report a higher proportion of men than women treated with dialysis because of renal failure stage five (SNR, 2013). The women in the current sample report higher levels of psychological distress compared to men with similar medical problems. This result is in accordance with the study conducted by Byles et al. (2013), in which female gender was identified as a risk factor for high psychological distress among people with chronic medical conditions. In addition, a study conducted with a sample of Swedish renal patients by Theorell, Konarksi - Svensson, Ahlmén and Perski (1991) showed that female patients report more depressive affect compared to men (Theorell et al., 1991).

It is noteworthy that no significant relationship between time in dialysis and distress was shown. This is in accordance with previous studies by Kimmel (2002) where there was no association between depressive symptomatology and the amount of

time in dialysis. In previous studies by Cukor et al. (2007), there was a variation on the level of depressive affect dependent on age. In the present study, age has not been shown to have a significant correlation to psychological distress. This is maybe because of the small sample in the current study and is in accordance with the results by Akman et al. (2004).

According to the results of the current study 32.5 % of the measured psychological distress can be explained by factors such as multimorbidity, age, sex and living conditions. The socio-demographic variables added in the model, impose an insignificant influence to the association between psychological distress and multimorbidity. This significant association between distress and multimorbidity is consistent with previous research by Shih and Simon (2008). Shih and Simon (2008) showed that the increase in multimorbidity results in increase in psychological distress in patients with chronic medical conditions (Shih & Simon, 2008).

A hypothesis on what predicts the rest of the variation in psychological distress can be the aspect of pain. Davison (2003) reports in his study that almost half of the chronic renal patients over 55 years old experience moderate to severe pain. Besides the high proportion of dialysis patients reporting this problem, it often remains untreated. Pain is often addressed medically with proper pain reducing medication. However, a great deal of studies indicate that pain management among patients in dialysis is inadequate. Thus, pain-related burden can be related to distress (Davison, 2003). The aspect of pain as a moderating factor of distress was not taken into consideration in the current study.

Psychological distress was not found to be significantly related to age or other demographic variables in our sample of ESRD patients on hemodialysis. Previous research by Devins, Beanland, Mandin and Paul (1997) showed that psychological distress was higher among younger patients with chronic kidney deficiency compared to the elderly population with similar medical problems (Devins et al. 1997). The mean age of the participants of the present study was above 60 years old. In the context of the present study the majority of the participants were elderly. Moreover, the sample was relatively small and one can hypothesize that the consequences of the dialysis are equally severe for all the subjects regardless of age or other socio-demographic variables. In addition, age has a significant effect when added in the regression model. This may be explained by the hypothesis that advanced age might have a protective effect against distress. It is possible that the older the individual, the more he or she has accepted the chronic burden of the disease. Acceptance of the situation may ameliorate the amount of distress experienced by the person.

Research by Kimmel and Peterson (2005) has shown that half of the elderly dialysis population reports the same levels of depressive feelings even when asked after a period of three years. The amount of psychological burden persists in this population with one third of dialysis patients reporting higher levels of distress when asked again in follow-up studies. Kimmel and Peterson (2005) suggest that depressive feelings can be considered stable along time for ESRD patients on dialysis. However, it is very difficult to assess whether low levels of distress in the current study indicate successful adjustment to the disease or are related to protective factors such as a supportive family or other individual resources.

Individuals who have been on dialysis for a long period of time might have developed constructive coping strategies that facilitate their adjustment to the disease (Reid, Morris, Cormack, & Marchant, 2012). This fact may explain the statistical

significance of age when added in the regression model. Chronic renal insufficiency stage five is the final stage of the disease. Thus, the people on dialysis have had significant renal dysfunction problems for a long time before ending up on dialysis. This time perspective gives the patients the possibility to adjust and reconceptualize the disease and their future life (Reid et al., 2012).

Multimorbidity has been shown to augment with age (Van den Akker et al., 2000); however it is not certain that this is the case for renal patients in the final stage of renal failure. The method used to assess multimorbidity affects whether an association between age and multimorbidity is supposed to be found. In the study by Van den Akker et al. (2000), multimorbidity was assessed as an account of the number of different medical conditions within one individual. According to the above definition of multimorbidity, the older the person is, the higher the multimorbidity rate. However, when multimorbidity is conceptualized not only as a sum of medical diagnoses but also by taking the severity of each medical condition into account, the association of multimorbidity with age may be altered.

The correlation between age and multimorbidity in the current renal sample was not found to be significant. This is maybe because multimorbidity was assessed taking into consideration the severity of the disease encountered. The assessment of multimorbidity according to the CIRS scale can result in high points of multimorbidity if the clinical medical severity of the diseases indicates that. It therefore becomes methodologically problematic to compare with other studies where multimorbidity was measured as a simple account of diseases and results are drawn from populations with other medical problems than renal failure.

Variation in the prevalence of psychological distress depends on the assessment method. In this study, the Kessler scale was used because it is a well validated tool that measures the level of emotional distress including depression and anxiety symptoms (Kessler et al., 2003). It is previously mentioned in this report that diagnosing depression in patients with medical diseases is a methodologically complicated task. Moreover, the fact that a high rate of anxiety is also a prevalent issue for renal patients makes the usage of the Kessler scale clinically important. As a consequence, the usage of a scale that covers anxiety and depression symptoms becomes legitimated (Anderson et al., 2013).

It is important to highlight that 47.6 % of the participants in this study reported low or insignificant amount of distress. This raises the questions of the individual factors such as coping skills that influence the adjustment to the disease. A study by Schokker, Links, Luttik and Hagedoorn (2010) suggests that patients with chronic medical diseases are less distressed when focusing on the positive outcomes of their treatment. This combined with the possibility of getting a renal transplant may buffer the amount of distress experienced by the dialysis patients. Those who are waiting for a renal transplant report less depressive mood and are more hopeful about the future (Akman et al., 2004; Kuntz & Bonfiglio, 2011). This aspect may be a protective factor against stress during dialysis treatment. In addition, previous research has identified partner support as a moderating factor in the relation between distress and coping strategies (Schokker et al., 2010). According to theoretical research on distress, distress declines when circumstances change either by elimination of the stressor or by individual coping strategies (Horwitz, 2007).

Some other factors that should be regarded in order to assess the estimation of distress in ESRD patients are whether the answers of the participants depict the actual

distress they experience or a more positive picture of their psychological status (Kuntz & Bonfiglio, 2011). Previous studies by Carnike (1997) have shown that candidates for renal transplantation show high levels of social desirability when asked to report their subjective distress (Carnike, 1997; Carnike, McCracken & Aikens, 1996). The amount of study participants who wait for kidney transplantation was not evaluated in the context of the current study. This is an important aspect that should be taken into consideration in future studies addressing the question of distress in these patients.

Recent research also shows that there are other determinants of distress in ESRD patients (Devins et al., 1997). One of these factors that influence the amount of distress experienced by the patients is illness intrusiveness. High illness intrusiveness correlates with higher level of distress in the study by Devins et al. (1997). Individuals who identify with the self-image of the chronic renal patient were found to experience more distress than those who did not see themselves as chronic renal patients (Devins et al., 1997).

It is interesting to consider which other factors can influence the variation of psychological distress in the specific population. Christensen and Ehlers (2002) report that patients' distress is often related to specific contextual medical factors. A contextual medical factor that affects the level of distress of the individuals in treatment is whether there is a history of unsuccessful renal transplantation. Individuals returning to dialysis after an unsuccessful renal transplantation experience significant psychological distress. Patients who have been accepted for renal transplantation and experienced complications afterwards (ex. rejection of the transplant and a return to dialysis) feel more severe emotional distress compared with the patients undergoing dialysis, not receiving a transplant (Christensen & Ehlers, 2002). This is an aspect that was not taken into consideration in the current study.

Some association between multimorbidity and distress can be influenced by the role of the medicines. Pharmacological implications on distress or multimorbidity were not explored in the study. Previous research indicates that medicines can exacerbate the symptoms of tiredness and negative mood (Christensen & Ehlers, 2002). It can easily be hypothesized that individuals with high levels of multimorbidity take a lot of medications. Antidepressive medicines have been thoroughly used in renal outpatients with clinically diagnosed depression. However, antidepressants are medically contraindicated because of drug-interactions with the rest of the medication as well as various medical complications in this specific patient group (Zalai et al., 2012). There are studies indicating that supportive and cognitive psychotherapy may improve the resilience of the person and thus indirectly ameliorate the level of distress (Zalai et al., 2012).

A question that this study raises is whether there is a baseline of distress when one suffers from a chronic disease. If we try to conceptualize distress in the context of a chronic, life threatening disease, it is probably expected to find high levels of distress especially in individuals with multiple medical conditions that interact with each other. Distress may be expected and in proportion to the medical burden as reported in chronic diseases (Wheaton, 2007). An interesting perspective is whether severe distress should be handled as a normal reaction to the burden of the chronic disease and its treatment or whether it should be considered as a disorder (Wheaton, 2007). The current study indicates the importance of understanding distress in the context of a chronic disease as end-stage kidney failure after taking the aspect of multimorbidity into consideration. Distress should be understood as an indicator of psychological vulnerability that may be

related to high risk of developing a psychiatric disorder. The aspect of psychological vulnerability requires interventions that provide individuals with strategies to adapt to the situation. Support should be provided to the renal patients who are mostly vulnerable in order to develop coping strategies that alleviate the amount of distress experienced by outpatients with high multimorbidity rates. This is an interesting perspective that this study wants to lift.

The screening for distress on dialysis patients is also important in order to prevent adherence problems with the treatment. Adherence problems, as mentioned in the beginning of this report, are correlated with increased rates of mortality in this patient group (Zalai et al., 2012). Zalai and his colleagues (2012) suggest that structured psychotherapies can be a treatment of option for ameliorating distress on dialysis patients. Alleviating distress will increase the quality of life of these patients as well as their adherence to the treatment. Improvement of well-being among these patients will enhance their adjustment to the treatment which has life prolonging effect.

High level of self-reporting distress may indicate a risk for depression (Anderson et al. 2013; Brooks et al. 2006). It is therefore important to identify the patients who are in the risk zone of developing depression in order to offer therapeutic help. Screening for distress is clinically relevant in order to provide counseling and therapeutical interventions for those patients who are prone to develop a depression. The current study is clinically significant because it approaches the question of distress from the patient perspective. The author's ambition is to suggest more integrated health policies that would place the psychosocial wellbeing of the person with chronic illness as a priority. Realizing the amount of emotional burden that people on dialysis have to endure, especially those with high levels of multimorbidity, can secondarily influence the adherence to the treatment as well as the level of compliance with the medical regime. Ethical considerations of when to terminate a chronic hemodialysis treatment can be better understood if the negative impact of living with renal failure is thoroughly examined.

Qualitative research is necessary in order to address the psychological difficulties of the ESRD patient. Questions of whether distress is a chronic or an episodic concern for these patients are actualized. "How much distress can a person endure without significant impact on the quality of life or without the risk of developing a clinical depression?". These are challenging questions for clinical psychologists working with patients with chronic medical conditions. The medical paradigm is suggesting a problem-cure perspective in the way of treating people with chronic medical conditions. Treating the problem with the right medication and technical expertise ameliorates the life expectancy of these patients. However, this approach remains inadequate. Medical expertise can guarantee some more years of life for an end-stage renal patient, however health professionals should also secure that this life is worth living. Questions of whether life is worth living under the prerequisite of severe distress and chronic hemodialysis, are what patients in stage five of renal failure constantly reflect on. These questions are not easy to raise with family members or even with their doctors. Talking about the possibility of dying is a perspective that raises a great deal of distress among the patients as well as health professionals working with this patient group.

Focusing on the distress experienced by the patient can contribute to a better health care providing by other professionals. Realizing the amount of psychological burden the ESDR patient has to endure can help medical professionals understand and

adjust treatment to the patient's needs. Aspects of noncompliance with the hemodialysis treatment may be better understood if the question of the distress is examined.

As pointed out at the beginning of this report, the decision of not continuing with dialysis is a decision that many patients consider taking. "Is this decision an action of active suicide or a reaction to the severe distress that these patients go through?". Health professionals have an ethical responsibility to address questions about how holistic the level of care provided to the people with chronic medical diseases is. Psychological issues in renal patients during the last stage of renal failure are an important challenge for those psychologists willing to work with this patient group.

Kimmel (2002) writes that the rates of hospitalization are higher for renal patients with depression. Thus, addressing the question of distress and its correlation to multimorbidity is also a matter of cost-effective health policies. Screening for distress is important in order to prevent depressive episodes or potential hospitalizations as a consequence of psychological instability in this patient group. Patients with end-stage renal failure have to come to terms with existential questions of life and death. They also have to deal with the absolute dependency on the dialysis regime especially if the option of renal transplantation is excluded. These crucial living conditions make psychological interventions very relevant so as to ameliorate the quality of life of these people.

The results of the current study point out the importance of working interdisciplinary in order to provide a holistic care for these patients. Future research should focus on strengthening the resilience of this specific population especially those with high levels of multimorbidity while regarding psychological knowledge as a powerful tool to help individuals who suffer from chronic medical problems. Short-termed psychotherapy may be an option for patients with chronic renal failure, especially when pharmacotherapy is contraindicated because of its multiple complications.

In conclusion, psychological distress is a significant existing problem for individuals undergoing hemodialysis treatment. The psychological distress is partially related to multimorbidity in patients with chronic renal insufficiency. The association between distress and multimorbidity remains significant even when other covariates such as age, sex and living conditions are taken into consideration. The results of the study regarding the moderate association between multimorbidity and distress, indicate the necessity to identify individuals with high levels of multimorbidity in order to provide extra support and counseling to them. It seems that psychological distress is influenced by the severity of the disease when measured in multimorbidity. The results of the study are also important for promoting patient centered perspective in health care policies.

The aim of the study was to provide valuable information about the psychological status of the patients utilizing dialysis with the hope of improving the providing care for this patient group. Questions that are raised are: ". Is there a limit to how much distress a person with a chronic disease can endure?, "What is the role of personality traits in dealing with a medical condition that is life threatening?". These questions are relevant for psychologists interested in working with individuals with chronic renal diseases.

Methodological limitations

The instruments used in the study have some limitations. The Psychological Distress Kessler scale K (10) has not been previously used in the Swedish context. Moreover, the scale was not tested regarding the validity of its translation in Swedish. In addition, the scale has not been validated for the specific renal clinical population in Sweden. These are methodological weaknesses that influence the quality and external validity of the results.

One can also hypothesize that the patients who had the highest scores of multimorbidity were those that did not fill out the questionnaire, either because they did not want to or because there were too tired to do so. Thus a big part of the sample was lost. Almost 21 % of those patients receiving hemodialysis treatment in the three dialysis units that were part of the study do not have good knowledge of Swedish and come from a different cultural background. These patients were excluded from the sample. As a consequence, the sample is not representative for the whole clinical population. Another methodological weakness of the current study is that it relies on self reported evaluations (self-reported bias). Moreover, it can be hypothesized that the individuals who were more distressed were those who did not want to participate in the study or those who were abstaining from dialysis because of noncompliance problems.

Assessing distress among persons with chronic medical diseases is a challenging task. Some of the symptoms the Kessler Psychological Distress Scale K (10) measures such as tiredness can be related to illness related tiredness. There is empirical research that presents chronic diseases as indicators of depression. However, it is important that the instrument used to assess different variables is validated in the clinical population studied. Research allows the usage of the scale in patients with medical conditions (Brooks et al. 2006) but validation studies have not been carried out on samples with chronic renal failure.

Medical factors related to the clinical picture of end-stage renal disease such as nausea, headaches, vomiting (Rosenberg et al., 2014) etc. can have a significant interference in understanding the results of the current study. According to the recent findings in renal medicine, the reason that renal failure stage five is documented as important in order to assess the medical burden of the disease. In many cases, it is difficult to identify the exact reason of the end-stage renal failure. This exacerbates the feelings of hopelessness and distress of the person affected. In addition, chronic renal disease can be asymptomatic for a long period of time. As a consequence, a gradual progression of the kidney function is not noticed by the individual from the beginning. The disease can cause irreparable damage to the kidney until symptoms become apparent and the person seeks doctor advice. Consequently, in many cases persons in dialysis have difficulties understanding the severity of their medical condition until they are dependent on artificial hemodialysis. Anemia is another clinical parameter characterizing persons with end-stage renal failure (Rosenberg et al., 2014). Low levels of hemoglobin are usually reversed with blood transfusions during dialysis sessions but the effect of the anemia in terms of tiredness cannot be underestimated. This may be a medical factor that interferes with the aspect of tiredness that the Kessler scale measures.

The study was based on a single measurement of Psychological Distress and there was no control group. The cross-sectional design of the study is also a methodological limitation. The study's design does not allow conclusions about causal relationships among the parameters. The sample size is also relatively small so some associations may be showed by chance.

The instrument used to measure multimorbidity has some limitations. More specifically, the maximum score on the CIRS scale is not determined in the scale. However, it can be theorized that high score of multimorbidity is not compatible with life (Miller & Towers, 1991). The instrument to assess multimorbidity was chosen based on previous medical research about the patterns of multimorbidity in patients with End-stage renal failure. However, there was some clinical information gathered from the patients' records that could not be categorized because they were not included in the manual of the scale (Miller & Towers, 1991). This was probably the case because the scale has not been validated in the specific subpopulation of the end-stage renal patient. The evaluation of multimorbidity in accordance to CIRS instrument was partially based on the clinical judgment of the author of this report. Medical conditions such as psoriasis and chronic pain were not included in the categories and were as a consequence not taken into consideration during the evaluation of the multimorbidity. Thus, some factors that affect the medical burden of the disease were not taken into consideration because they did not exist as categories in the measuring instrument. This is an important methodological restriction that should be addressed in future studies.

More research should be done to develop instruments that are validated in specific clinical populations, such as patients with chronic renal failure. Research should also focus on contextual factors that are relevant for renal patients, such as the possibility of renal transplantation or the potential consequences of an unsuccessful renal transplantation. In this study, the aspect of renal transplantation was not examined as an important factor that influences the experience of distress felt among the patients. Apart from the medical factors that can influence the well-being/adjustment of these patients, it is important to take environmental factors such as family support or support from health professionals into consideration as distress alleviating. Family environment with high levels of expressiveness is reported to counterbalance feelings of distress and anxiety among patients in dialysis (Christensen & Ehlers, 2002). This aspect was not examined in this study either.

Moreover, the compliance of the patients to the treatment was not taken into consideration as a relevant aspect of the amount of distress they might experience. The patients that did not come to their dialysis session were not included on the study. It would have been interesting to include the patients who voluntarily choose to abstain from some dialysis session i.e. those with adherence problems.

Psychological distress is an ongoing issue when a person tries to cope with a life-debilitating disease like chronic renal failure. The dependency of the person to the dialysis even after renal transplantation imposes great amount of psychological burden on the individual. Future research should focus on emotion regulation capacities or coping approaches of patients with chronic renal failure. Contextual factors such as social support should be thoroughly examined in order to explore whether they buffer or exacerbate the psychological distress. Longitudinal studies are also of utmost importance in order to assess the level of distress over time.

References

Aarts, S. (2012). *Multimorbidity in general practice: Adverse health effects and innovative research strategies* (Doctoral Dissertation School for public Health

- and Primary Care (CAPHRI) and the school for Mental Health and Neuroscience (MHeNS). Maastricht University. Maastricht.
- Akman, B., Ozdemir, F.N., Sezer, S., Miçozkadioglu, H., & Haberal, M. (2004). Depression levels before and after renal transplantation. *Transplantation Proceedings*, 36(1), 111–113.
- Anderson, M. T., Sunderland, M., Andrews, G., Titov, N., Dear, F., B., & Sachdev, S. P. (2013). The 10-item Kessler psychological distress screening instrument in older individuals. *The American Journal of Geriatric Psychiatry*, 21, 596-606.
- Andersson, I. S., & Ekelund, A. L. (2007). Elucidating issues stressful for patients in predialysis and dialysis, from symptom to context. *Journal of Health Psychology*, 12(1) 115-126.
- Andrews, G., & Slade, T (2001). Interpreting scores on the Kessler psychological distress scale (K10). *Australian and New Zealand Journal of Public Health*, 25, 494-497.
- Australian Bureau of Statistics. National Survey of Mental Health and Wellbeing, 2007. Cat. No. 4326.0. Canberra: ABS, Commonwealth of Australia; 2008.
- Boyd, C., Leff, B., Weiss, C., Wolff, J., Clark, R., & Richards, T. (2010). *Multimorbidity pattern analyses and clinical opportunities: chronic renal failure/end-stage renal disease*. Center for Health Care Strategies, Inc.
- Brace, N., Kemp, R., & Snelgar, R. (2009). *SPSS for psychologists*. (4:e ed.) Basingstoke: Palgrave Macmillan.
- Brooks, T. R., Beard, J. & Steel, Z. (2006). Factor structure and interpretation of the K10. *Psychological Assessment*, 18(1), 62-70.
- Byles, E. J., Robinson, I., Banks, E., Gibson, R., Leigh, L., Rodgers, B.,... Jorm, L. (2013). Psychological distress and comorbid physical conditions: disease or disability. *Depression and Anxiety*, 00, 1–9.
- Carnike, C. L. M. (1997). Is social desirability associated with symptom distress in organ transplant candidates? *Psychology, Health and Medicine*, 2, 243- 250.
- Carnike, C. L. M., McCracken, L. M., & Aikens, J. E. (1996). Social desirability, perceived stress, and PACT ratings in lung transplant candidates: A preliminary investigation. *Journal of Clinical Psychology in Medical Settings*, 3(1) 57-67. doi: 10.1007/BF01989289.
- Christensen, A. J., & Ehlers, S. L. (2002). Psychological factors in end-stage renal disease: an emerging context for behavioral medicine research. *Journal of Consulting and Clinical Psychology*, 70(3), 712-724.
- Cukor, D., Cohen, S. D., Peterson, R. A., & Kimmel, P.L. (2007). Psychosocial aspects of chronic disease: ESRD as a paradigmatic illness. *Journal of the American Society of Nephrology*, 18, 3042-3055.
- Cukor, D., Coplan, J., Brown, C., Friedman, S., Newville, H., Safier, M., ..., Kimmel, P. L. (2008). Anxiety disorders in adults treated by hemodialysis: a single-center study. *American Journal of Kidney Diseases*, 52(1), 128-136.
- Davison, S. N. (2003). Pain in hemodialysis patients: prevalence, cause, severity, and management. *Journal of Renal Care*, 42(6), 1239-1247.
- De Groot, V., Beckerman, H., Lankhorst, J. G., & Bouter, L. M. (2003). How to measure comorbidity: a critical review of available methods. *Journal of Clinical Epidemiology*, 56(3), 221-229.

- DeJean, D., Giacomini, M., Vanstone, M., Brundisini, F. (2013). Patient experiences of depression and anxiety with chronic disease: a systematic review and qualitative meta-Synthesis. *Ontario Health Technology Assessment Series, 13*(16), 1–33.
- Devins, M., G., Beanlands, H., Mandin, H., & Paul, C., E. (1997). Psychological impact of illness intrusiveness moderated by self-concept and age in end - stage renal disease. *Health Psychology, 16*(6), 529-538.
- Drapeau, A., Marchand, A., & Beaulieu-Prévost, D. (2012). *Epidemiology of psychological distress*. In: Labate L., (ed.) *Mental Illnesses- Understanding, Prediction and Control*. Rijeka, Croatia: InTech. 105–134. Retrieved from <http://cdn.intechopen.com/pdfs-wm/25512.pdf>.
- Finkelstein, F.O., Wuerth, D., & Finkelstein, S. H., (2009). Health related quality of life and the CKD patient: challenges for the nephrology community. *Kidney International, 76*(9), 946-952.
- Fortin, M., Bravo, G., Hudin, C., Lapointe, L., Dubois, M., & Almirall, J. (2006). Psychological distress and multimorbidity in primary care. *Annals of Family Medicine, 4*(5), 417-422.
- Furukawa, T. A., Kessler, R. C., & Slade, T. (2003). The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine, 33*, 357-362.
- Gunn, M. J., Ayton, R. D., Densley, K., Pallant, F. J., Chondros, P., Herrman, E. H., & Dowrick, F. C. (2012). The association between chronic illness, multimorbidity and depressive symptoms in an Australian Primary care cohort. *Social Psychiatry and Psychiatric Epidemiology, 47*, 175-184.
- Horwitz, A., (2007). Distinguishing distress from disorder as psychological outcomes of stressful social arrangements. *Health (London), 11*(3), 291-299.
- Hudon, C., Fortin, M., & Soubhi, H., (2007). Abbreviated guidelines for scoring the Cumulative Illness Rating Scale (CIRS) in family practice. *Journal of Clinical Epidemiology, 60*(2), 212.
- Kessler, R.C., Andrews, G., Colpe, L.J., Hiripi, E., Mroczek, D.K., Normand, S.N.,...Zaslavsky, A.M.,(2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine, 32*(6), 959-976.
- Kessler, R.C., Barker, P.R., Colpe, L.J., Epstein, J.F., Gfroerer, J.C., Hiripi, E.,...Zaslavsky, A.M., (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry, 60*(2), 184-189.
- Kimmel, P.L., Peterson, R.A., Weihs, K.L., Simmens, S.J., Alleyne, S., Cruz, I., & Veis, J.H. (2000). Multiple measurements of depression predict mortality in a longitudinal study of chronic hemodialysis outpatients. *Kidney International, 57*(5), 2093–2098.
- Kimmel, P., L., & Peterson, A. R., (2005). Depression in end-stage renal disease patients treated with hemodialysis: tools, correlates, outcomes, and needs. *Seminars in Dialysis, 18*(2), 91-97.
- Kimmel, L.P. (2002). Depression in patients with chronic renal disease. What we know and what we need to know. *Journal of Psychosomatic Research, 53*(4), 951-956.
- Kosidou, K., Dalman, C., Lundberg, M., Hallqvist, J., Isacson, G., & Magnusson, C., (2011). Socioeconomic status and risk of psychological distress and depression in the Stockholm public health cohort: a population-based study. *Journal of Affective Disorders, 134*, 160-167.

- Kuntz, K. K., & Bonfiglio, V. B. D. (2011). Psychological distress in patients presenting for initial renal transplant evaluation. *Journal of Clinical Psychological Medical Settings, 18*, 307-311.
- Levenson, L. J., & Glocheski, S. (1991). Psychological factors affecting end-stage renal disease. *Psychosomatics, 32*(4), 383-388.
- Levey A. S., De Jong, P. E., Coresh, J., El Nahas, M., Astor, B. C., Matsushita, K.,... Eckardt, K.U. (2010). The definition, classification and prognosis of chronic kidney disease: a KCIIGO controversies conference report. *Kidney International, 80*(1), 17-28.
- Marengoni, A., Winbland, B., Karp, A., & Fratiglioni, L., (2008). Prevalence of chronic diseases and multimorbidity among the elderly population in Sweden. *American Journal of Public Health. 98*(7), 1198-1200.
- Miller, D. M., Paradis, F.C., Houck, R.P., Mazumdar, A., Stack, A. J., Rifai, H.A.,...Reynolds, F.C. (1992). Rating chronic medical illness burden in geropsychiatric practice and research: application of the Cumulative Illness Rating Scale. *Psychiatric Research, 41*(3), 237-248.
- Miller, M. D., & Towers, A. (1991). *Manual of guidelines for scoring the cumulative illness rating scale for geriatrics (CIRS-G)*. Pittsburg, Pennsylvania: University of Pittsburgh.
- Miskulin, D. (2005). Characterizing comorbidity in dialysis patients: principles of measurement and applications in risk adjustment and patient care. *Peritoneal Dialysis International, 25*(4), 320–332.
- Payton, A. R., (2009). Mental health, mental illness, and psychological distress: same continuum or distinct phenomena. *Journal of Health and Social Behaviour, 50*(2), 213-227.
- Peterson, R. A., Kimmel, P. L., Sacks, C. R., Mesquita, M. L., Simmens, S., J., & Reiss, D. (1991). Depression, perception of illness and mortality in patients with end-stage renal disease. *International Journal of Psychiatry in Medicine, 21*(4), 343-354.
- Ramirez , S. P., Macêdo D. S. , Sales, P. M., Figueiredo, S. M., Daher, E. F. , Araújo, S. M., ... Carvalho, F. I. (2012). The relationship between religious coping, psychological distress and quality of life in hemodialysis patients. *Journal of Psychosomatic Research, 72*(2), 129–135.
- Reid, K., Morris, M., Cormack, M., & Marchant, K. (2012). Exploring the process of adjusting to diabetic kidney disease. *Journal of Renal Care, 38*(1), 30-39.
- Rosenberg, M., Curhan, C. G., & Sheridan, M., A. (2014). *Overview of the management of chronic diseases in adults*. Retrieved 15 April 2014 from <http://www.uptodate.com/contents/overview-of-the-management-of-chronic-kidney-disease-in-adults>.
- Schokker, C. M., Links, P. T., Luttik, L., M., & Hagedoorn, M. (2010). The association between regulatory focus and distress in patients with a chronic disease: the moderating role of partner support. *British Journal of Health Psychology, 15*, 63-78.
- Shih, M., & Simon, A. P., (2008). Health-related quality of life among adults with serious psychological distress and chronic medical conditions. *Quality of Life Research, 17* (4), 521–528.

- Smyth, A., Glynn, L. G., Murphy, A. W., Mulqueen, J., Canavan, M., Reddan, D. N., & O'Donnell, M., (2013). Mild chronic kidney disease and functional impairment in community-dwelling older adults. *Age and Ageing*, 42(4), 488-494.
- SNR (2013). *Svenskt Njurregister Årsrapport 2013*. Skövde, Sweden.
- Taylor, A., Chittleborough, C., Gill, T., Winefield, H., Koster, C., & Hornibrook, L. (2009) *Consensus Statement on Chronic Disease and Psychological Distress*. The Assessment of the Determinants and Epidemiology of Psychological Distress (ADEPD) Study. Discipline of Psychiatry, University of Adelaide.
- Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L. P....Goldsmith, C. H. (2010). A tutorial on pilot studies: the what, why and how. *BMC Medical Research Methodology*, 10, 1.
- Theorell, T., Konarksi – Svensson, J. K., Ahlmén, J., & Perski, A. (1991). The role of paid work in Swedish chronic dialysis patients-a nationwide survey: paid work and dialysis. *Journal of Internal Medicine*, 230 (6), 501-509.
- Travis, A. C. (2008). *Stress, Coping and Psychological Distress: An examination into the experience of Individuals Utilizing Dialysis for End-Stage renal disease*. Dissertation submitted to the faculty of Drexel University .Retrieved from http://idea.library.drexel.edu/bitstream/1860/2826/1/Cos_Travis.pdf?origin=publication_detail.
- Van den Akker, M. Buntinx, F., Metsemakers, J. F., & Knottnerus J. A. (2000). Marginal impact of psychosocial factors on multimorbidity: results of an explorative nested case-control study. *Social Science & Medicine*, 50(11), 1697-1693.
- Victorian Population Health Survey. Melbourne: Department of Human Services, Victoria; 2001.
- Wheaton, B. (2007). The twain meets: distress, disorder, and the continuing conundrum of categories (comment on Horwitz). *Health*, 11(3), 303-319.
- White, C., & McDonell, H., (2014). Psychosocial distress in patients with end-stage kidney disease. *Journal of Renal Care*, 40(1), 74-81.
- World Health Organization innovative Care for Chronic Conditions. Available at http://whqlibdoc.who.int/hq/2002/WHO_NMC_CCH_02.01.pdf?ua=1.
- Zalai, D., Szeifert, L., & Novak, M., (2012). Psychological distress and depression in patients with chronic kidney disease. *Seminars in Dialysis*, 25(4), 428-438.



GÖTEBORGS UNIVERSITET

”Information om en studie”

Hej!

Mitt namn är Christina Sfyrikou och jag läser tionde terminen på psykologprogrammet vid Göteborgs Universitet. Jag kommer i början av februari besöka dialysmottagningen för att genomföra en studie om välbefinnande i relation till njursjukdom. Studien är en del av det examensarbete som ligger som avslutning på det femåriga psykologprogrammet.

Studien ska delvis baseras på en enkätundersökning. Jag kommer därför be dig att fylla i en enkät under ditt besök på mottagningen. Det kommer inte ta mer än 5-10 minuter att fylla i enkäten och jag kommer finnas på plats för att besvara dina eventuella frågor.

Syftet med min studie är att få mer information om hur du mår, din livssituation samt hur eventuella sjukdomar påverkar ditt upplevda hälsotillstånd. Jag kommer behöva komplettera information med datamaterial från din journal. Jag vill därför be dig om tillåtelse att ta fram information från din journal.

Det är frivilligt att delta i studien och all information som samlas in kommer bearbetas konfidentiellt och enligt Vetenskapsrådets forskningsetiska principer. Du har rätt att avbryta din medverkan när du vill, utan att lämna någon anledning till detta. Dina svar kommer att sammanställas med andra deltagares svar när studiens resultat ska presenteras. Dessutom kommer all insamlad information endast användas för studiens syfte.

Jag tackar på förhand,

Med vänlig hälsning,

Christina Sfyrikou

Christina Sfyrikou

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APPENDIX B

SAMTYCKESFORMULÄR

”Studie om ditt välbefinnande i relation till njursjukdom”

”Jag har läst informationen och fått tillfälle att ställa kompletterande frågor angående min medverkan i denna studie. Jag är medveten om att mitt deltagande är frivilligt och att jag när som helst och utan närmare förklaring kan avbryta mitt deltagande”.

Datum

Underskrift

Namnförtydligande

Kod:

FRÅGEFORMULÄR:

TILL DIG SOM GENOMGÅR DIALYS PÅ DIALYSMOTTAGNINGEN

Frågorna i den här enkäten handlar om ditt välmående under den senaste månaden. För varje fråga uppmanas du att ange ditt svar genom att ringa in det alternativ som motsvarar hur ofta du har känt dig på ett särskilt sätt.

1. Hur ofta har du under den senaste månaden känt dig trött utan någon särskild anledning?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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2. Hur ofta har du under den senaste månaden känt dig nervös?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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3. Hur ofta har du under den senaste månaden känt dig så nervös att ingenting kunde få dig att slappna av?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
-----------	-----------	-----------	----------------	---------------

4. Hur ofta har du under den senaste månaden känt att det inte finns något hopp för dig?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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5. Hur ofta har du under den senaste månaden känt dig rastlös?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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6. Hur ofta har du under den senaste månaden känt dig så rastlös att du inte kunde sitta stilla?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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7. Hur ofta har du under den senaste månaden känt dig nedstämd?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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8. Hur ofta har du under den senaste månaden känt att allting känns som en ansträngning?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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9. Hur ofta har du under den senaste månaden känt dig så nedstämd att ingenting kunde få dig att må bättre?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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10. Hur ofta har du under den senaste månaden känt dig värdelös?

1. Aldrig	2. Sällan	3. Ibland	4. Ganska ofta	5. Hela tiden
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BAKGRUNDSUPPGIFTER

1. Kön : 1. Man 2. Kvinna

2. När är du född? År/Månad/ Dag

3. Civilstånd: 1. Gift
 2. Skild
 3. Sambo
 4. Ogift
 5. Änka/änkling

4. Bor du tillsammans med någon?

1. Nej ensam 2. Ja, med partner 3. Ja, med barn

4. Ja, med annan/andra (Obs! flera alternativ kan anges!)

5. Vilken utbildning har du?

1. Grundskola 2. Gymnasium 3. Universitet/Högskola

6. Tar du för närvarande regelbundet någon medicin som hjälp vid psykiska besvär?

1. Ja Vilket/vilka slags hjälp?

Från år till år.....

2. Nej

7. Jag samtycker att information om min medicinska anamnes hämtas från min journal: 1. Ja 2. Nej

8. Ange ditt personnummer om du har svarat Ja på ovanstående fråga:

9. Hur länge har du genomgått dialysbehandlingen?

10. Hur många gånger i veckan kommer du hit för dialys?

TACK FÖR ATT DU DELTOG I DEN HÄR STUDIEN!