What's on your mind?
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Due to improvements in medical and surgical procedures and immunosuppressive medications, the clinical outcomes and survival of liver transplantation patients have improved over the past decades. As a consequence of this, other outcomes such as health-related quality of life and psychosocial consequences of transplantation have become increasingly important targets of evaluation.¹

So far, the emphasis of psychosocial research in the field of transplantation has been mainly on health-related quality of life, the functional capacities involved in performing everyday tasks, and on a return to daily living. Relatively little attention has been paid to the psychological functioning of liver transplant patients.² Therefore, knowledge about the psychological functioning of this patient group is limited. In order to provide appropriate care to transplant candidates and recipients, it is important to understand the problems patients encounter, and to know what their opinions are regarding the provision of care. This emphasizes the need for empirical data on psychological problems and opinions of liver transplant candidates and recipients, the main focus of this thesis.

The psychological functioning of liver transplant recipients was examined in the “Psychological Aspects of Transplantation”-study that comprised two studies: 1) a prospective cohort study, in which liver transplant patients from all three liver transplant centers in the Netherlands were followed during the waiting-list period up until two years after transplantation; and 2) a cross-sectional study among all patients transplanted at the University Medical Center Groningen between 1979 and October 2009.

Exploring the opinions of transplant candidates and recipients enable transplant professionals to adapt the provision of care or, if necessary, to advocate changes in policies. Knowledge of the opinions of transplant candidates and recipients regarding transplant-related topics that are of interest to them is scarce. Therefore, the cross-sectional study “Communication about Donation” was performed to examine the opinions of transplant patients regarding the principle of anonymity of organ donation and shared decision making at the time of the organ offer.

**MAIN FINDINGS**

**Psychological Aspect of Transplantation-study**

In this study, we focused on the prevalence, associated variables, and impact on outcomes of three psychological problems: symptoms of anxiety, depressive symptoms and posttraumatic stress symptoms. Symptoms of anxiety, such as feeling tense, upset, or worried, may interfere with the daily functioning of transplant patients. Symptoms of depression, such as persistent feelings of sadness and worthlessness, and loss of interest in previously enjoyed activities, affect how people feel, think, and behave. This may lead to a variety of emotional and physical problems but can also be caused by physical illness. Symptoms of posttraumatic stress, such as intrusive memories, avoidance of reminders of the event, hopelessness, and hyper-arousal, can be seen as a failure to adapt to extreme stress and may lead to a posttraumatic stress disorder (PTSD). The main findings of the “Psychological Aspect of Transplantation”-study are presented in Figure 1.
**Figure 1.** Main findings regarding prevalence rates “Psychological Aspects of Transplantation”-study.
Prevalence rates
In the prospective study, we examined the course of symptoms of anxiety and depression of liver transplant patients during the waiting-list period and in the first two years after transplantation (Chapters 6 & 8). The results showed that 34% of the transplant candidates had symptoms of anxiety slightly above clinical level throughout the waiting-list period, and 15% had symptoms of anxiety high above the clinical level (Chapter 6). When the post-transplant period was also taken into account, we found that 23% of the recipients showed persistent symptoms of anxiety above the clinical level (Chapter 8). Regarding depression, 28% of the transplant candidates showed depressive symptoms slightly above the clinical level and 6% high above the clinical level throughout the waiting-list period (Chapter 6). After transplantation, 29% of the transplant recipients showed persistent symptoms of depression above the clinical level (Chapter 8).

With respect to posttraumatic stress, we found that 32% of the transplant candidates showed symptom levels above the clinical level, 10.5% of them fulfilled the criteria for full PTSD, and 6.3% fulfilled the criteria for partial PTSD. In the first year after transplantation, about 15% of the transplant recipients showed posttraumatic stress symptom levels above the clinical level, but no new onset of full PTSD was found. New onset of partial PTSD was found in six patients (6.3%) (Chapter 7).

In the cross-sectional study, we found that clinically relevant symptom levels of anxiety, depression, and posttraumatic stress were most present in the first 2 years after transplantation (Chapter 2). Regarding symptoms of anxiety and depression, the prevalence rates decreased in the years thereafter; a slight, but not significant, increase was shown in the patient groups in the long-term after transplantation. Posttraumatic stress symptoms remained at the same symptom level during the first 5 years but decreased in the years thereafter (Chapter 2).

Generally, we found that psychological problems are more common in transplant candidates than in transplant recipients. This implies, one the one hand, that the majority of transplant recipients are capable of successfully processing the transplant experience and that the transplantation itself provides health benefits regarding psychological functioning for a subset of the transplant recipients. On the other, a significant subset of transplant recipients encounters psychological problems, and may be in need of supportive care or psychological counseling.

However, the prevalence of PTSD in the transplant population can easily be overestimated due to the overlap between symptoms of PTSD and disease- and treatment-related symptoms, such as sleeping disorders and concentration problems, and with symptoms of anxiety and depression. Because it is difficult to disentangle differences between them, psychological problems other than PTSD should be kept in mind when PTSD is suspected.

When compared to Dutch population norms for lifetime prevalence rates, the prevalence rates of anxiety exceed the population norms of 19.6%,3 in both transplant candidates and transplant recipients. Regarding depression, the percentage of transplant patients with symptom levels above the clinical level exceeds the population norm of 20.2%3 before transplantation, shortly after, and in the long run after transplantation.
With respect to posttraumatic stress, the prevalence rates exceed the lifetime prevalence rate of 7%-8% during the waiting-list period, as well as in the first 5 years after transplantation, but in the long-term these prevalence rates are comparable.

Demographic, clinical, and individual variables associated with psychological problems
As depicted in Figure 2, several clinical and individual variables, but no demographic variables, were found to be associated with symptoms of anxiety, depression, and/or posttraumatic stress.

Regarding clinical variables, the most important risk factors for anxiety and depression seem to be the severity of the liver disease symptoms as experienced by the transplant candidates and the number of side-effects of the immunosuppressive medication after the transplantation. Among liver transplant candidates, experiencing more liver-disease symptoms was associated with the trajectories of anxiety and depression with symptom levels above the clinical level (Chapter 6). The number of side-effects from the immunosuppressive medication, was found to be associated with the trajectories of anxiety and depression after transplantation in the prospective study (Chapter 8) as well as with symptoms of anxiety, depression and posttraumatic stress regardless of time since transplantation in the cross-sectional study (Chapter 2). Furthermore, the length of hospital stay after the transplant surgery and of re-hospitalizations seem to play a role. Although transplant-related medical problems and primary liver diseases, such as viral hepatitis and alcoholic liver disease, were found to be associated with psychological problems in the cross-sectional study, these results were not confirmed in the prospective study.

With respect to individual variables, we found that a lower level of personal control, making more use of emotional coping, and making less use of task-oriented coping were associated with the trajectories of higher levels of symptoms of anxiety and depression in transplant candidates (Chapter 6) and with trajectories of persistent symptoms of anxiety or depression after transplantation (Chapter 8). In addition, disclosure about having had a transplant was associated with the trajectories of persistent symptoms of anxiety and depression after transplantation (Chapter 8). Life events other than the transplantation were also associated with psychological problems, in both the prospective and the cross-sectional study (Chapter 2 & 8).

In contrast to the literature, we found no associations of demographic variables with psychological problems after liver transplantation.

These results indicate that individual variables, such as coping style and sense of control, but also the severity of physical complaints (eg, disease symptoms or medication side-effects) are important risk factors in relation to the psychological well-being of transplant candidates and recipients. Interventions aimed at improving psychological well-being should, therefore, focus on effective disease management and side-effect management, and on empowering transplant recipients by strengthening coping skills and/or sense of control.
Associated variables

**Clinical variables**
- Severity of liver disease symptoms (A,D)
- Number of side-effects ISM (A,D)
- Length of stay hospital re-admissions (A)
- Biliary complications (A)
- Viral hepatitis (A,D,PTS)
- Length of stay hospital after transplant surgery (D)
- Number of transplant-related medical problems in past year (D)

**Individual**
- Emotional coping (A,D)
- Task-oriented coping (A,D)
- Personal control (A,D)
- Emotional coping (A,D)
- Task-oriented coping (A)
- Personal control (A,D)
- Disclosure about the transplant (A,D)
- Worry about the transplant (D)
- Number of life events (A,D)

**Number of life events (A,D,PTS)**

A = anxiety, D = depression, PTS = posttraumatic stress, ISM = immunosuppressive medication

**Figure 2.** Main findings regarding associated variables “Psychological Aspects of Transplantation”-study.
Influence of psychological problems on outcomes after transplantation
Transplant recipients within the trajectory of persistent symptoms of either anxiety or depression reported a significant lower level of adherence to the immunosuppressive medication and a significant lower level of health-related quality of life at two years after transplantation (Chapter 8).
This indicates that transplant recipients who show symptoms of anxiety or depression above the clinical level before and in the first two year after transplantation seem to benefit less from the transplantation in terms of quality of life. In addition, they are more at risk of medical complications, such as rejection, due to their medication non-adherence.

The emotional response to the receipt of a donor organ
To be able to examine patient reported outcomes, it is necessary to have valid and reliable research instruments. So far, no Dutch research instrument has been made available to measure the emotional response of transplant recipients to the receipt of a donor organ. Therefore, the Transplant Effects Questionnaire (TxEQ) was translated and validated for the adult Dutch liver transplant population. The Dutch version of the TxEQ was found to be an adequate fit with the original version of the TxEQ, showed acceptable validity, and was found to add a new dimension to the measurement of psychological functioning of transplant recipients (Chapter 3).

Communication about Donation-study
Opinions on anonymity of organ donation
Regarding anonymity of organ donation we found that a slight majority (53%) of the patients agreed with this principle, mainly out of respect for the donor (Chapter 4). Despite this opinion, the majority (65%) of transplant recipients would like to receive some information about their donor. A minority (19%) favoured direct contact with the donor’s family. Respondents with a higher level of positive affect were less in favour of the principle of anonymity of organ donation, whereas respondents without a partner and those younger than 40 years or older 60 years were more in favour of anonymity or organ donation. Respondents with a higher level of education and those transplanted for alcoholic liver disease felt less need to get in touch with the donor’s family, whereas respondents with more feelings of guilt towards the donor doubted more about direct contact.
Based on our results there is no need to advocate for a change in the current legislation on anonymity of organ donation. However, most liver transplant recipients would like to receive some general information about their donor. Therefore, clear guidelines on the sharing of donor data with recipients need to be established.

Need for information about donor related risk and shared decision making
The majority of patients (60%-75%) would like to be informed about donor-related risk at the time of the offer of a donor organ (Chapter 5). A small majority (53%) would like to be involved in the process of decision making on the acceptance of an organ offer, 80% of them preferred an active role in the decision making process whether to accept
or not to accept the organ offer. Transplant candidates, younger patients, and those with a higher level of education were found to be more willing to be involved in shared decision making. Therefore, patient preferences regarding the provision of information regarding donor-related risk and their wish for shared decision making needs to be assessed. Besides this, education and decision aid tools need to be provided to enable transplant patients to make informed decisions.

METHODOLOGICAL CONSIDERATIONS

The strengths and limitations of the studies are described in more detail in the separate chapters of this thesis. A short overview of the main issues is presented below. The strength of the “Psychological Aspects of Transplantation”-study was the use of different approaches to gain insight into psychological problems of liver transplant candidates and recipients. In the cross-sectional study, we were able to examine clinically relevant symptom levels of anxiety, depression, and posttraumatic stress, in the short-, intermediate-, and long term after liver transplantation. Data on long-term psychological problems are especially scarce, and so ours have added value to the body of knowledge concerning psychological problems of liver transplant recipients. Another strength is the use of a prospective, longitudinal, multi-center design to study the course of psychological problems over time. Studies measuring psychological problems in the same liver transplant patient group before and at several time-points after transplantation are scarce. Therefore, little is known about the course of symptoms of psychological problems over time. By using a prospective design, we were able to identify different trajectories of symptoms of anxiety and depression, both during the waiting-list period and throughout the first two years after transplantation. Moreover, examining the influence of demographic, as well as clinical, and individual variables on psychological functioning jointly enhances the understanding about which aspects influence the psychological functioning of transplant patients the most.

The response rates in the separate studies were satisfactory; respectively, 69.5% (260/378) in the prospective cohort study and 75% (281/373) in the cross-sectional study of the PATx-study, and 73% (179/244) in the “Communication about Donation”-study. Compared to sample sizes in other prospective, longitudinal studies on psychological functioning in the field of liver transplantation, with sample sizes between 25 and 186 respondents, the sample size in our study was reasonable. Despite the satisfactory response rates and the reasonable size of the study population, the sample sizes were still small from a statistical point of view. Given the number of variables associated with psychological problems in the transplant population, a larger sample is needed to be able to examine all demographic, clinical, and individual variables jointly. Furthermore, by using a time-group and trajectory approach, we limited ourselves as to the number of variables that could be taken into account because of the small sample sizes in some of the time-groups and trajectories. These aspects limit the generalizability of our results. Therefore, replication of our analyses in a larger cohort is
warranted so as to be able to generalize the results to the liver transplant population. Our sample size was also too small to make any inferences about the impact of psychological functioning on outcomes after transplantation in terms of survival and graft survival. The multi-center approach used in the prospective study added to the representativeness of this study for adult Dutch liver transplant patients. However, the representativeness of our studies may be limited for liver transplant candidates and recipients with a different cultural background. Of the transplant candidates, 6% could not be included because of a language barrier and only ~7% of our study population originated from other countries. Therefore, no inferences about differences based on cultural background could be made. Besides this, the cross-sectional studies were only performed among transplant candidates and recipients of the UMCG, which may limit the generalizability of our results. Another limitation of this study is that only self-report measurements were used. Although validated research instruments were used, only prevalence rates based on clinically relevant symptoms levels could be determined. Studies using clinician-ascertained diagnosis of depression, for instance, often show lower prevalence rates. Therefore, additional evaluation of psychological functioning by a clinician may provide added value in future research.

**CLINICAL IMPLICATIONS**

The prevalence rates of symptoms of anxiety, depression, and posttraumatic stress in our studies, showed the burden of psychological problems among liver transplant candidates and recipients. Our results emphasize the importance of a psychosocial evaluation and psychosocial support in the routine care of transplant recipients throughout the transplant process. Psychosocial care should begin early in the transplant process, with the assessment of psychological problems and associated risk factors during the screening for transplantation, followed by continuous monitoring of psychological problems throughout the transplant process. Based on these assessments, psychosocial interventions to optimize the psychological well-being of transplant candidates and recipients can be undertaken. Furthermore, the incorporation of a psychologically- or psychiatrally-oriented healthcare professional in the transplant team is recommended. A structured pre-transplant psychosocial assessment during the screening for a transplant can be used to identify possible risk factors associated with adverse outcomes after transplantation. In the literature, several instruments to assess psychosocial risk factors have been described, of which the “Stanford Integrated Psychosocial Assessment for Transplantation” (SIPAT) seems the most promising. Implementing a structured pre-transplant assessment gives transplant professionals not only the opportunity to identify possible psychosocial risk factors that influence outcomes after transplantation, such as coping style, social support, and psychological functioning, but also the opportunity to optimize the psychosocial situation of transplant candidates by provid-
Assessment of psychological problems should be part of an on-going process of the provision of information both before and after transplantation. This information should preferably be provided by the patient before each appointment at the outpatient clinic. However, measuring psychological problems by means of standardized research instruments is time consuming, and may be a burden for patients to complete on a regular basis. Making use of modern research techniques such as, the Patient-reported Outcomes Measurement Information System® (PROMIS®), developed by the National Institute of Health (USA), seems auspicious to obtain information about “what is the matter” in a way that reduces the burden for patients, and provides transplant professionals with information on problem areas. PROMIS® is an information system designed to measure generic health-related quality of life across multiple chronic diseases. In PROMIS® measurements computer adaptive testing is used, in order to customize the items a participant sees, by choosing each successive item based on the response to the proceeding item. For example, when a participant indicates having depressive feelings, extra items are provided to gain additional information about these depressive feelings. A recent study among heart transplant candidates showed promising results for the use of PROMIS® in the transplant population, although the item bank needs to be adjusted to encompass the specific problems of the transplant population.

Based on the assessment of psychological functioning by either SIPAT or routine screening, the transplant patient can be referred for an intake by a psychologist, psychiatrist, or a psychiatrically trained nurse practitioner, and, if needed, treatment can be offered to the patient. The type of treatment –pharmacological or non-pharmacological- will depend upon the severity of the symptoms and underlying causes. Moreover, preventive measures can also be undertaken.

In the literature, several interventions aimed at reducing psychological distress in transplant candidates and recipients are mentioned, for example, providing sensory and procedural information, enhancing coping skills, and stress management training. However, evidence regarding effective psychosocial interventions in transplant candidates and recipients is lacking. So far, only a few studies have reported on (preliminary) findings regarding psychosocial interventions in transplant candidates and recipients, which show that these interventions may be effective in reducing distress. Therefore, further research is required concerning the effectiveness of non-pharmacological interventions in addressing the psychological needs of transplant patients. Based on our results the need for psychological counseling is evident. However, within the transplant team counseling by a psychologist or psychiatrist is often provided on an as-needed basis and a psychologists is not an integral part of the transplant team. Incorporating a psychologically oriented healthcare professional into the transplant team (eg, health psychologist, psychiatrically-oriented nurse practitioner) may provide added value, because this professional can not only design and carry out interventions to enhance psychological well-being, but can also could advise and support other transplant-team members. In what way such a healthcare professional can possibly be embedded in the transplant team in an effective and efficient way needs to be examined.
However, to fully integrate psychosocial care into the routine care of transplant candidates and recipients, a re-design of current clinical practice may be needed. In a recent report on the psychosocial care for patients with serious somatic diseases by the Ministry of Health, Welfare and Sport in the Netherlands, it was emphasized that psychosocial care should be an integral part of somatic care, be of high quality, and be tailored to the patient’s needs. However, at the same time, it was stressed that, at the moment, the organization of care and the reimbursement of the costs of psychosocial care do not sufficiently address the psychosocial care needs of patients with serious somatic diseases.\textsuperscript{17}

In the field of transplantation, care for transplant patients is usually provided by a multidisciplinary team, but the focus here is mainly on the detection and treatment of somatic problems both before and after transplantation.\textsuperscript{18,19} In this traditional care approach, based on an acute care model, not only has less attention been given to psychosocial care, preventive measures, and effective self-management,\textsuperscript{19} but optimal clinical outcomes may also not be achieved.\textsuperscript{18} Moreover, transplant recipients trade a chronic disease for a chronic condition. Therefore providing care from a biopsychosocial model might better address the needs of transplant candidates and recipients. This might be best addressed by a model of care based on the principles of the Chronic Care Model\textsuperscript{20} (Figure 3): a “Transplant Care Management System.”

\begin{figure}[h]
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\includegraphics[width=\textwidth]{chronic-care-model.png}
\caption{The Chronic Care Model.}
\end{figure}
This Transplant Care Management System could be based on the principles of the Chronic Illness Management (CIM) model. Chronic Illness Management is based on the principles of the Chronic Care Model and combines the following components: 1) ensuring access to and continuity of care; 2) increasing opportunities for patients and their families to participate in the care process; 3) coordinating care between care settings, and 4) providing continuous self-management support. The basis of the success of CIM in improving long-term outcomes is the building of relationships between informed, motivated, and involved patients and their families, a dedicated transplant team, and well-informed partners in care. In CIM, patient participation is crucial in the provision of care and the decision-making process. Therefore, integration of preferences and opinions of transplant candidates and recipients into care and policies is an integral part of the care process.

CIM is not a “one-size-fits-all concept” but can be adjusted to the patient’s individual circumstances. The level of care needed, may depend upon the complexity of care. For most patients, provision of self-management support will be sufficient to fulfill their needs, whereas patients with complex care needs probably require intensive case management.

In CIM, nurses play a pivotal role in terms of treatment and coordination of care, improvement in outcomes, and in reducing healthcare costs. The nurse, as a member of the multidisciplinary team, spends the most time with patients and is capable of maintaining an affective bond with patients and their families. In a recent study, Bisonnette et al. showed that a collaborative care approach, led by an advanced practice nurse in the care of kidney transplant recipients, was successful in targeting clinical outcomes (blood pressure control, diabetes control, adherence) better than the usual care approach.

Psychological well-being may benefit from CIM as well, by establishing a partnership between the patient and the transplant professional, providing supportive care, and enhancing the perceived control over health and daily life.

Patient preferences, for instance with respect to shared decision making, can be put into practice within the CIM model. As shown in the “Communication about Donation” study, liver transplant recipients do have different opinions about transplant-related topics and are willing to participate in shared decision making. However, to be able to make informed decisions, patients need to be educated about relevant topics, such as donor-related risks, and decision aid tools need to be developed. Also guidelines about the provision of information to patients need to be developed.

Effective integration of psychosocial care in the care of transplant patient will also depend upon the funding of this type of care. In the Netherlands, funding of healthcare is based on, so called, DBC’s. (in Dutch: Diagnose Behandel Combinatie). A DBC is a predefined average care package, with a fixed price based on a specific medical diagnosis (www.nza.nl). In the DBC for liver transplantation, supportive care for transplant recipients is taken into account. However, the reimbursement of psychosocial care may be insufficient when it becomes a more integral part of the care for transplant patients. Therefore, the reimbursement needed for supportive care for transplant patient needs to be reconsidered.
FUTURE RESEARCH

Future studies on psychological aspects of transplantation in transplant candidates during the waiting-list period should focus on gaining a deeper understanding of the psychological functioning of transplant candidates in relationship with their illness and the concept of waiting for a transplant.

In future studies, the role of the social environment of the transplant patient also needs to be taken into account. Not only the influence of the support from significant others (eg, partner or family) on psychological problems of the transplant patient needs to be examined, also the psychological well-being of those family members themselves needs to be examined.

For transplant recipients, future studies should focus on the effect of psychological problems on clinical outcomes after transplantation, such as patient survival, graft survival, adherence, and health-related quality of life. Furthermore, the impact of psychological problems on outcomes in the long term after transplantation needs to be determined. So far, few studies have studied the impact of psychological distress on these outcomes, and those that have, have shown inconclusive results. Psychological problems after transplantation, especially depression, seem to influence outcomes more than psychological distress before transplantation, but additional research is warranted.

Furthermore, interventions to improve psychological health in transplant candidates and recipients need to be designed and evaluated. In these studies, not only does the effectiveness of the intervention need to be established, but also the question as to which interventions have beneficial outcomes for which patients needs to be answered. Patient preferences regarding the provision of care also need to be determined, not only regarding interventions, but also regarding the provision of information and resources. Also, the effect of educational programs and/or the use of decisions aid tools on the process of shared decision making need to be evaluated.

When a Transplant Care Management System, based on the principles of Chronic Illness Management, is implemented, the effects of this model of care also need to be examined. The results of studies examining the effects of CIM on outcomes in chronically ill patient populations seem promising. However, evidence as to their effectiveness in a transplant population is limited. Future studies should focus on the embedding of a CIM model in the care of transplant patients, as well as on the effectiveness of specific parts of the care model in achieving the set goals, and on the effects on clinical outcomes for both transplant candidates and recipients.

CONCLUDING REMARKS

This thesis has addressed several topics related to the emotions and perceptions of liver transplant candidates and recipients. Therefore, for a large part we now know “What’s on their mind”. From the studies included in this thesis we know that:
• Symptoms of anxiety and depression are prevalent in adult Dutch transplant patients, especially during the waiting-list period (~49%, and ~34%, respectively) and to a smaller extent after transplantation (~23%, and ~29%, respectively);
• Distinct trajectories of symptoms of anxiety and depression can be distinguished in both transplant candidates and recipients;
• PTSD is more prevalent in transplant candidates than in transplant recipients, but can be easily overestimated due to the overlap between symptoms of PTSD and disease- and treatment-related symptoms, and other psychological problems;
• Symptoms of anxiety and depression are mainly influenced by clinical variables, such as the severity of disease symptoms and the number of side-effects of the immunosuppressive medication, as well as individual variables, such as personal control and coping;
• Transplant recipients with persistent symptom levels of anxiety or depression within the first two years after transplantation report lower medication adherence and a lower level of health-related quality of life at two years after transplantation;
• The majority of liver transplant recipients is in favour of anonymity of organ donation. Although the majority of transplant recipients would like to receive some information about their donor, only a small subset of transplant recipients would like direct contact with the donor’s family;
• A significant subset of transplant candidates and recipients would like to be informed about donor-related risks and would like to be involved in shared decision making regarding the acceptance a donor organ.

To address these topics that are on the minds of transplant patients, it is necessary to integrate psychosocial care into the routine transplant care. The time has come to proceed from “What is the matter” to “What matters”. In this thesis several recommendations have been made:

• Use a structured assessment tool to identify psychosocial risk factors in the screening process of liver transplant candidates;
• Monitor psychological problems on a routine basis throughout the transplant process. Preferably, this should be done by modern research techniques using computer adaptive testing;
• Incorporate a psychologically and/or psychiatrically-oriented healthcare professional into the multidisciplinary transplant team;
• Design and evaluate interventions to address the psychological needs of transplant patients;
• Implement a model of care based on the principles of a Chronic Illness Management to better address the needs of transplant patients;
• Assess patient preferences and incorporate these in the provision of care;
• Provide education and decision aid tools to enable transplant patients to make informed decisions;
• Establish guidelines on the sharing of donor data with recipients;
• Reconsider the costs of psychosocial care in the DBC for liver transplantation.
To conclude, medical and technological progress has led to improved procedural and survival outcomes after liver transplantation, but the success of transplantation can no longer be determined solely by an extended life span. It is the quality of that life span that matters too. The integration of psychosocial care into the care for transplant candidates and recipients, by using a biopsychosocial model of care, can offer a valuable contribution to the healthy ageing of the transplant population.
REFERENCES


