Social participation and employment status after kidney transplantation: a systematic review
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CRD summary
This review evaluated social participation of recipients of a successful kidney transplantation. There was very limited research on aspects of social participation and conclusions could not be drawn.

Authors’ objectives
To evaluate social participation of recipients of a successful kidney transplantation.

Searching
Six electronic databases were searched for studies published in English: MEDLINE (1980 to 2003); EMBASE (1989 to 2003); CINHAHL (1982 to 2003); PsycINFO (1980 to 2003); International Bibliography of the Social Sciences (1981 to 2003); and The Cochrane Library (search dates not reported). Search terms were reported. Reference lists of selected publications and reviews were checked for relevant studies.

Study selection
Studies exclusively of adult patients with a functioning graft after kidney transplantation or that had an identifiable and separately analysed subgroup of adult patients after kidney transplantation were eligible for inclusion. Studies were excluded if the population was only of patients with combined kidney-pancreas transplantation or patients after re-transplantation. The proportion of males in the included studies ranged from 45 to 74 per cent. Mean age was 27 to 48 years. The proportion of participants that had diabetes mellitus at the time of transplantation or diabetes mellitus reported as a case of renal failure ranged from 0 to 100 per cent, where reported. In the included studies, cadaveric kidney donation ranged from 0 to 100 per cent. Participants that undertook pre-transplant dialysis ranged from 79 to 100 per cent, where reported.

Studies that presented sufficient information based on patients’ self-reported data about variables considered to be indicators of social participation such as employment, return to work, schooling, household activities, leisure activities and social relations were eligible for inclusion. Studies in which relevant variables did not represent actual performance of participation, but which used the patients’ perception of participation, and studies that measured physiological rather than social aspects of activity participation (physical exercise/activity) were excluded. Studies in which employment status was the only indicator of social participation and was only described as a demographic characteristic were excluded. The main outcomes evaluated in the included studies were indicators of social participation operationalised as employment status (background variables) or other explanatory variables relating to outcome variables, such as health related quality of life (outcome variables).

Full research reports of observational studies that included description of the methods and measurements used and included characteristics of the study population with a mean follow-up period of at least one year after kidney transplantation were eligible for inclusion. The included studies were prospective studies and cross-sectional studies. Follow up varied between one year to more than 10 years after transplantation.

Study selection was performed independently by two reviewers. Disagreements were resolved by consensus.

Assessment of study quality
Validity was assessed with regard to confounding variables, selection bias and measurement error. Quality criteria were rated as positive, negative or unknown. Studies were given an overall score and separate scores for internal validity criteria and descriptive criteria (D score). Two reviewers independently performed the validity assessment. Disagreements were resolved by consensus, or by a third reviewer if agreement could not be reached.

Data extraction
The authors stated neither how the data were extracted for the review nor how many reviewers performed the data extraction.

**Methods of synthesis**
The studies were combined narratively by predictors of employment status and presented in a table allowing examination of differences between studies.

**Results of the review**
Seventeen observational studies (n=3,391) were included: six prospective (n=981) and 11 cross-sectional (n=2,410). Sample sizes ranged from 20 to 761 participants, with only six studies including more than 100 participants.

Overall quality scores ranged from 20 to 64 per cent (median 40 per cent); internal validity scores ranged between 0 and 50 per cent (median 20 per cent) and D scores ranged between 40 and 100 per cent (median 80 per cent).

**Employment rate:** The rate of post-transplantation employment as an indicator of social participation ranged from 18 to 82 per cent (which conflicted with pre-transplantation employment rate); five studies reported an increase in post-transplant employment rates; three reported a decrease; and one study reported no change.

The rate of employment compared to that before the onset of renal disease increased in two studies and decreased in three studies.

**Predictors of employment status:** Three studies found that pre-transplant employment status predicted post-transplant employment status. One study suggested that patients transplanted at an older age were less likely to be employed, however, two studies did not find that age was a predictor of employment status. One study found that diabetic kidney recipients were less likely to work after a kidney transplant. One study found that one year post-transplant was a predictor of post-transplant employment status. One study found that receiving a monthly disability cheque was negatively associated with post-transplant employment status.

Type of transplant or donor source and type of renal replacement therapy before transplantation were not found to predict employment status in two studies.

**Authors' conclusions**
Most studies reported employment status, but there was a paucity of evidence for other aspects of social participation. The quality and validity of the studies precluded definitive conclusions.

**CRD commentary**
The research question was clear and inclusion criteria were specified for participants, intervention, outcome and study design. The authors searched six appropriate electronic databases and other appropriate sources. Only English-language reports were sought and the authors' did not report any attempt to identify unpublished studies, which increased the possibility of language and publication bias. Study selection and validity assessment was conducted independently by two reviewers, minimising the risk of errors and bias in the review process, however, the authors did not state how the data were extracted. Validity of the included studies was assessed and the studies were combined in a narrative synthesis, which was appropriate considering the heterogeneity between studies (for example, the differences in defining categories of employment). The primary studies were generally of poor quality and this was highlighted by the authors. The authors' took the limitations in the research methodology and quality of the primary studies into consideration and their conclusions are likely to be reliable.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice

**Research:** The authors stated that future studies should fulfill methodological criteria as listed in the quality assessment checklist reported in the review. It was also important for researchers to identify potential prognostic demographic, personal and transplant-related factors and to use multivariate regression analysis to adjust for confounding variables to improve identification of patients at risk for decreased social participation after kidney transplantation. There was also a need for clear definitions of aspects of social participation for comparative purposes.
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