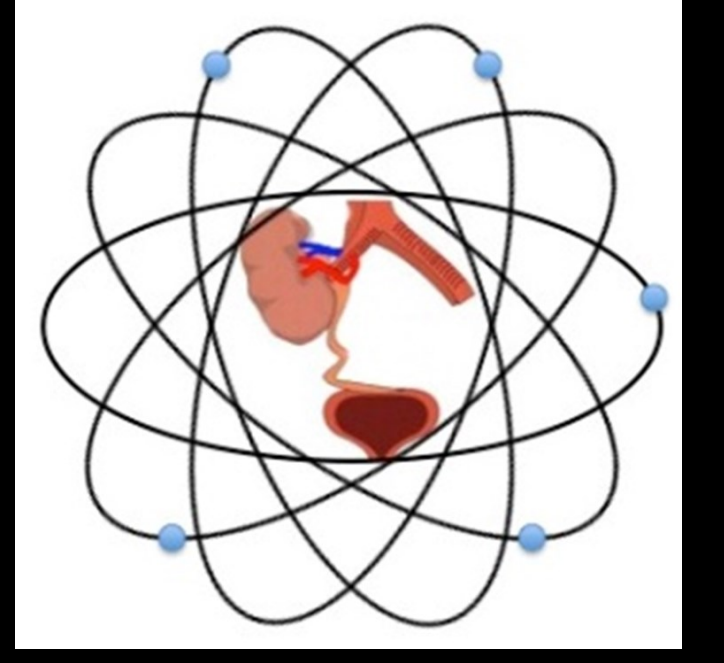


The effects of kidney alone or simultaneous pancreas and kidney transplant on quality of life and health status: Findings from ATTOM programme cohorts with (true) baseline data

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Introduction

Transplantation is widely viewed as the best treatment option for long-term survival for the majority of people with advanced kidney disease. Prior studies have focused on the impact of transplantation on patient-reported outcomes, but researchers often misinterpret data from health status (HS) tools as if they were measuring quality of life (QoL) [1-5]. As part of the NIHR-funded Access to Transplantation and Transplant Outcome Measures (ATTOM) programme, we investigated both QoL and HS over time in patients who went on to receive a kidney alone (KA) or simultaneous pancreas-kidney (SPK) transplant and those still awaiting KA or SPK transplant.

Methods

A sub-study of ATTOM measured QoL and HS in patients who were wait-listed for KA (WL for KA) or SPK transplant (WL for SPK), and in those who had a subsequent KA or SPK transplant.

Quality of Life: RDQOL (3m post-recruitment/pre-transplant (Tx) & 12m/post-Tx)

◆ Average Weighted Impact (AWI) scores of the Renal-Dependent Quality of Life (RDQoL) questionnaire [8], from -9 (most negative impact) to +3 (most positive).

Health status: EQ-5D-5L [6] (recruitment/pre-Tx & 12m/post-Tx)

◆ **Utility values:** patient responses to the 5 dimensions were converted using the 2014 health-state value set for England [7]; scores range from 1 (perfect health) to (death).

◆ **Visual Analogue Scale (VAS):** Rating of health today from 0 (worst health you can imagine) to 100 (best health).

Analysis and presentation:

◆ 2x2 mixed ANOVAs and one-way ANCOVAs assessed differences within/between transplant groups & compared with their respective wait-listed groups. Box & whisker plots include median and interquartile range (see Figures 1-3).

Table 1. No. of participants and % having significant positive (+ve), stable (=) or negative (-ve) change in RDQoL AWI scores, EQ-5D utility values, and EQ-5D VAS ratings over time.

Participants	KA (n = 40)	WL for KA (n = 98)	SPK (n = 22)	WL for SPK (n = 19)
RDQoL AWI Scores				
+ve change	33%	4%	56%	0%
= (within +/- 1.70)	60%	80%	33%	50%
-ve change	7%	16%	11%	50%
Utility values				
+ve change	11%	6%	42%	33%
= (within +/- 0.10)	78%	55%	42%	17%
-ve change	11%	39%	16%	50%
VAS Ratings				
+ve change	29%	6%	75%	17%
= (within +/- 16.00)	64%	67%	25%	50%
-ve change	7%	27%	0%	33%

Figure 1. Boxplot showing RDQoL AWI scores across groups at 3m/ pre-Tx and at 12m post-recruitment/post-Tx. RDQoL AWI scores range from -9 to +3 (0 = no impact of renal condition on QoL).

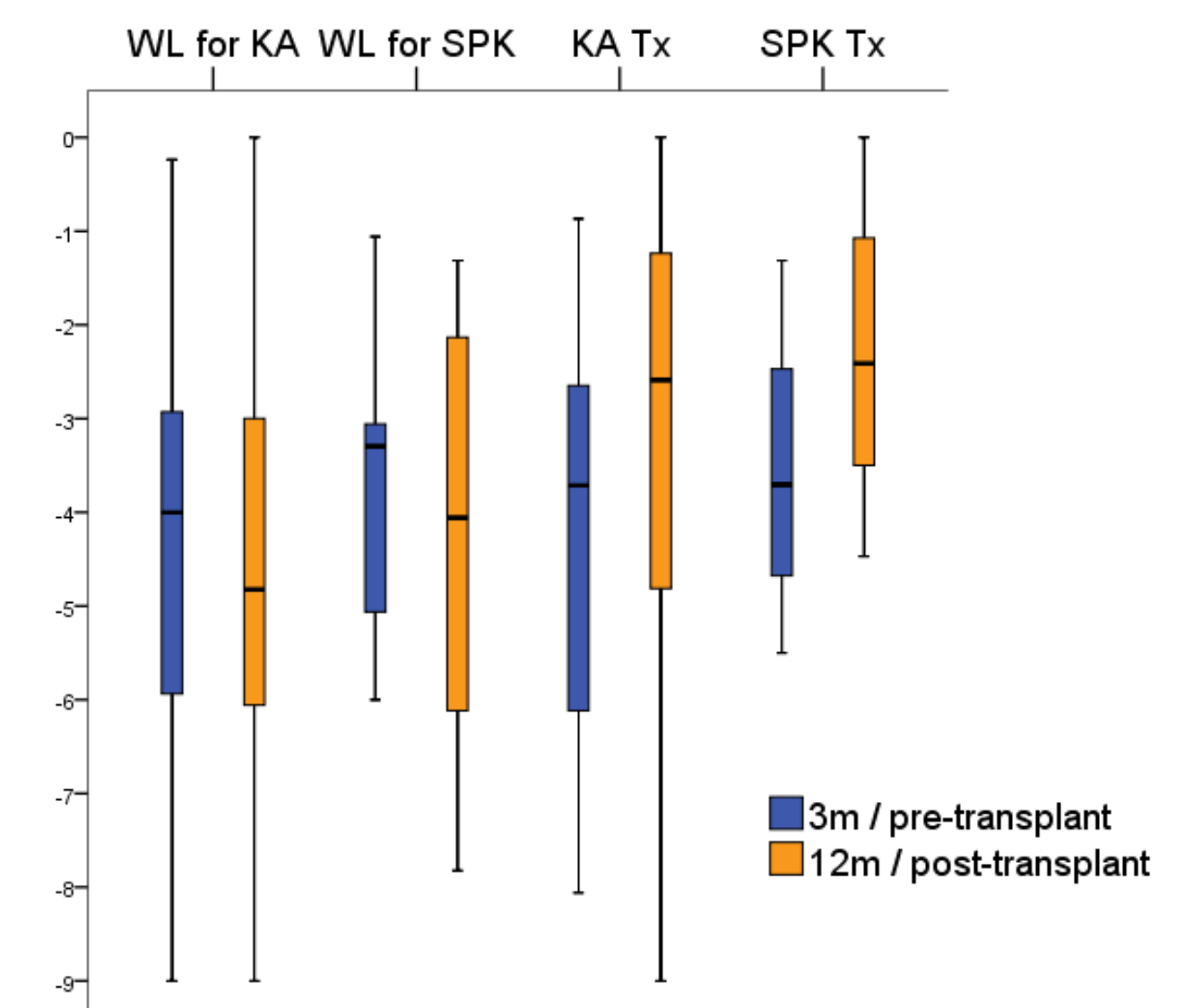


Figure 2. Boxplot showing mean utility values across groups at recruitment/pre-Tx and at 12m post-recruitment/post-Tx.

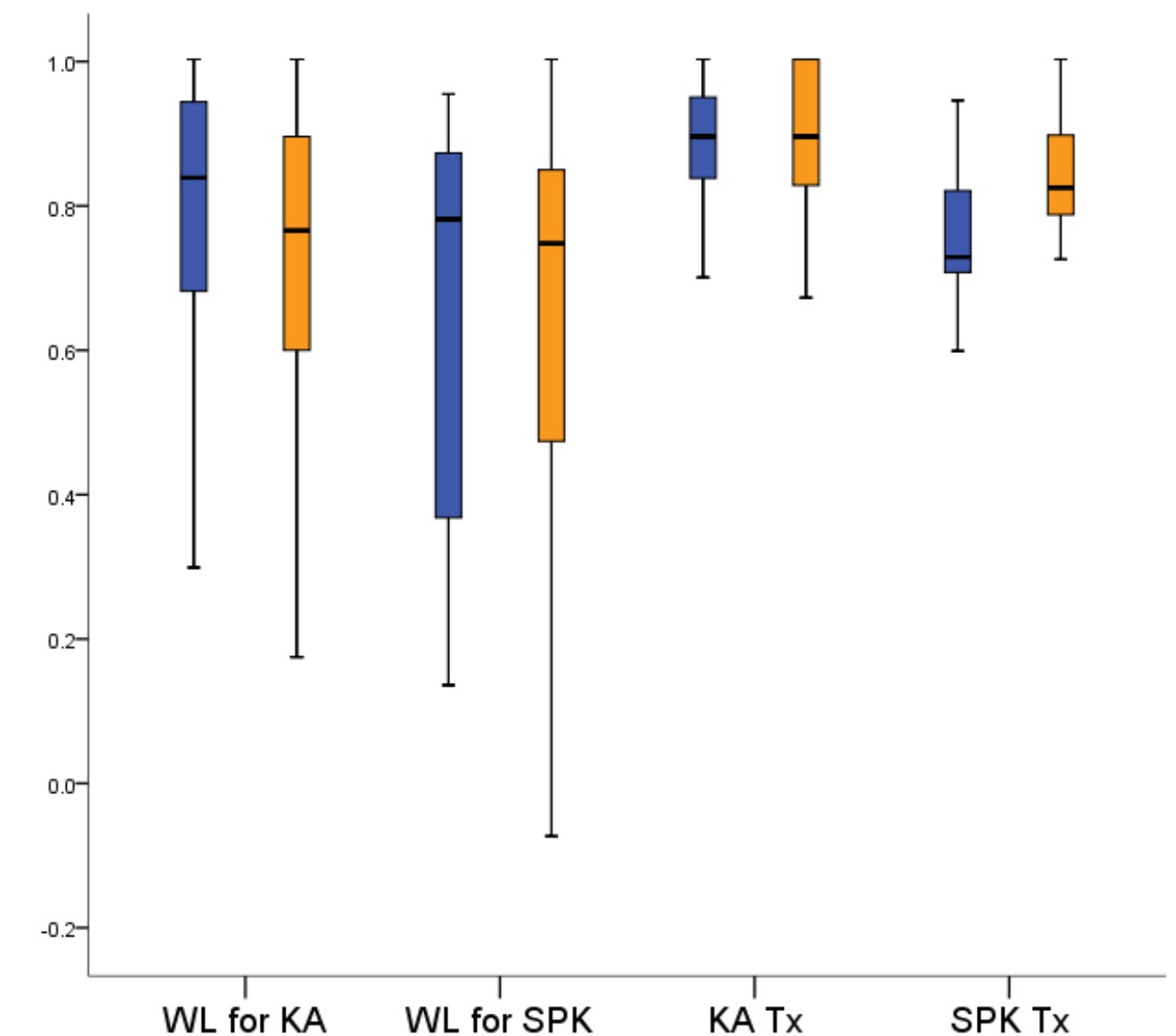
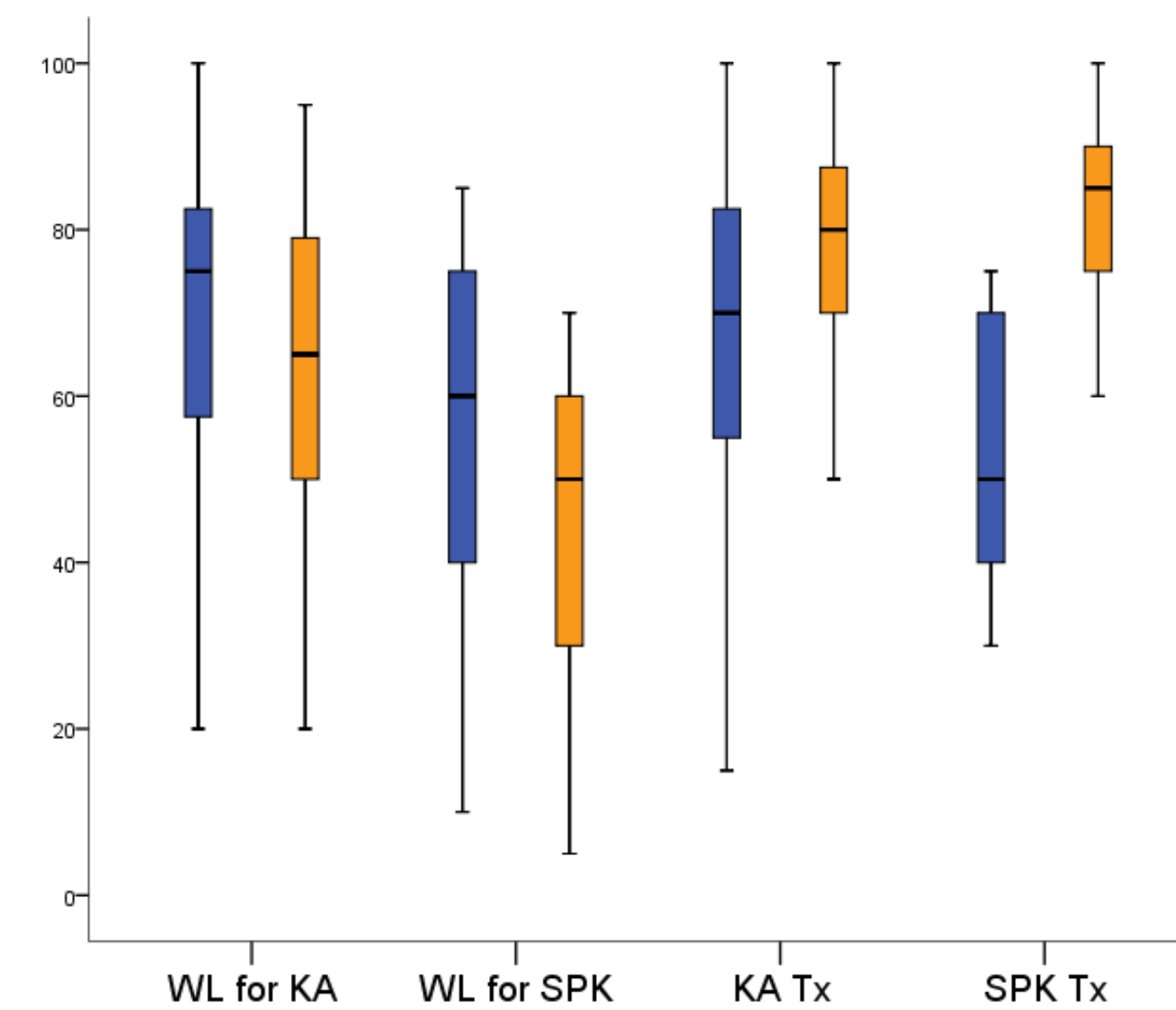


Figure 3. Boxplot showing mean VAS ratings across groups at recruitment/pre-Tx and at 12m post-recruitment/post-Tx.



Results

Quality of Life (RDQoL AWI scores)

- ◆ AWI QoL scores did not differ between groups at baseline.
- ◆ AWI QoL scores improved following KA or SPK but remained stable or deteriorated in those still wait-listed ($p < 0.05$).

Health status (EQ-5D-5L)

- ◆ **EQ-5D utility scores** suggested better health at recruitment in those going on to receive KA ($M = 0.87$) compared with those who continued to be wait-listed for KA ($M = 0.77$; $p = 0.009$). Those who went on to receive an SPK transplant showed a similar trend to better baseline utility scores than those still wait-listed for SPK ($p = 0.076$).
- ◆ No changes in utility scores over time for SPK recipients or wait-list patients ($p = 0.493$).
- ◆ Controlling for baseline scores, there was a trend for higher utility values in those who had received a KA, 12m after transplant ($M = 0.79$) compared with those continuing on the waiting list ($M = 0.72$; $p = 0.068$), but both those who had received a KA and those wait-listed for a KA transplant showed worsening utility scores over time ($M = 0.82$ to $M = 0.77$; $p = 0.003$).
- ◆ **EQ-5D VAS scores** did not differ between groups at baseline.
- ◆ Unlike the utility values, VAS scores improved following transplant but deteriorated for those wait-listed ($p < 0.001$).

Positive improvements were experienced for AWI scores and VAS ratings in transplant recipients, particularly SPK recipients, but improvements were less apparent for utility values (see Table 1).

When controlling for age and for those not on dialysis when wait-listed, the results were similar, although the KA and wait-listed for KA groups reported stable utility scores over time.

Implications

Surprisingly, EQ-5D utility scores suggested a deterioration in health status in both KA transplant and waiting patients with no change in SPK transplant recipients or those awaiting SPK transplant. In contrast, the VAS ratings showed the expected health improvement following transplantation. Renal-related QoL improved 12m post-KA/SPK transplantation, compared with pre-transplant or with those still wait-listed.

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