

**UNIVERSITI TEKNOLOGI MARA**

**REVISITING RENAL TRANSPLANT  
MTAC QUESTIONNAIRE ON  
IMMUNOSUPPRESSIVE  
MEDICATIONS KNOWLEDGE IN  
POST KIDNEY TRANSPLANT  
RECIPIENTS: ITEM GENERATION  
& CONTENT VALIDATION**

**NIK AISYAH NAJWA BT NIK MUSTAFFA  
SHAPRI**

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## ABSTRACT

**Objectives:** Kidney transplant recipients who have better knowledge of immunosuppressants have higher adherence to immunosuppressants and are associated with better overall treatment outcomes. Questionnaires are commonly used to evaluate kidney transplant recipients' immunosuppressant knowledge either as the primary or surrogate measured endpoints to educational interventions both in practice and clinical research. Several questionnaires are available to evaluate immunosuppressant knowledge, but all showed insufficient content validity. The questionnaire used in Renal Transplant Medication Therapy Adherence Clinic (RTMTAC) is not yet validated. This study aims to revise the content of the RTMTAC questionnaire (RTMTACq). **Method & study design:** Firstly, preliminary items were generated based on domains and sub-domains that were previously identified. Secondly, the items' content was validated in a 3-round Delphi study by an expert panel of 11 renal pharmacists. The experts rated the items' relevance, comprehensibility, and comprehensiveness. Items with  $\geq 75\%$  of experts' agreement were considered relevant. Finally, the relevant items were translated into the dual language of Bahasa Malaysia and English through a forward-backward translation process by 3 external translators and 2 researchers. **Results:** A total of 24 preliminary items were generated. From 17 experts approached, 12 (71%) agreed to participate and 11 out of the 12 (92%) completed the 3-round Delphi study. In Round 1 Delphi study, 20 out of 24 preliminary items were relevant and 9 new items were suggested. In Round 2, 13 preliminary items were rated of which 8 were relevant. In Round 3, 5 preliminary items were rated and 1 was relevant. The final experts' revision produced 27 items. **Conclusion:** This study laid the foundation for a validated questionnaire on immunosuppressive medications in kidney transplant recipients through the identification of a set of relevant and comprehensive items. A content-validated RTMTACq consisting of 27 items were produced. Future studies should continue with face validity assessment through cognitive interviews with kidney transplant recipients. Accurate evaluation of immunosuppressant knowledge through a validated questionnaire will help to formulate tailored educational interventions for better treatment outcomes.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Research Background**

Chronic kidney disease (CKD) remains a public health threat with 697.5 million cases recorded globally (Bikbov et al., 2020). It is a crucial contributory factor to poor health outcomes linked to major non-communicable diseases (NCD) (Couser et al., 2011) with substantial morbidity and mortality impacts. The proportion of patients who progress from CKD to end-stage-kidney disease (ESKD) is alarming with estimated 144 individuals per million general population newly diagnosed in 2019 alone (Thurlow et al., 2021). For ESKD patients, the treatment modalities of renal replacement therapy consist of either dialysis or kidney transplantation with the latter preferred as the treatment of choice according to the KDIGO guidelines (KDIGO, 2020). Kidney transplantation is regarded as the gold standard treatment in ESKD as it is associated with significantly lower mortality and substantially better quality of life than dialysis (Tonelli et al., 2011).

In Malaysia, the prevalence of CKD increased from 9.07% in 2007 to 15.48% in 2018 (Saminathan et al., 2020). This steep rise is primarily attributed to the rising prevalence of NCD like hypertension and diabetes as well as shifts in population demographic with an ageing population and a higher prevalence of obesity (Saminathan et al., 2020). In 2015, 261 per million general population (ppm) and 4 ppm were recorded for dialysis and kidney transplantation respectively (Goh BL et al., 2016a).

After kidney transplantation, kidney transplant recipients (KTR) are prescribed with long-term treatment of immunosuppressive medications to prevent graft rejection. This anti-rejection treatment consists of a combination of drugs which includes calcineurin inhibitor (CNI), antiproliferative agents, mammalian target of rapamycin inhibitor (mTORi) and corticosteroid as recommended by KDIGO Clinical Practice Guideline for the Care of Kidney Transplant Recipients 2009. The combination of immunosuppressants (IS) is a strategy to achieve adequate immunosuppression while keeping the toxicity at a minimal level (KDIGO, 2009). The complex multi-drug