# UNIVERSITY TEKNOLOGI MARA

# KNOWLEDGE, ATTITUDE, AND PRACTICE OF PRE-PREGNANCY CARE (PPC) TO WOMEN OF CHILDBEARING AGE AND FACTORS ASSOCIATED WITH ITS DELIVERY AMONG PRIMARY CARE PHYSICIANS (PCPs) IN KLANG VALLEY, MALAYSIA

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# ABSTRACT

**Introduction:** Pre-pregnancy care (PPC) is a key strategy to improve maternal and neonatal outcomes by addressing health risks before conception. Despite national recommendations, PPC implementation in Malaysian primary care is inconsistent, often due to knowledge gaps and system-level barriers. This study aimed to (i) adapt and validate a knowledge, attitude, and practice (KAP) questionnaire for use among primary care physicians (PCPs) in Malaysia, (ii) assess their knowledge, attitudes, and practices related to PPC, and (iii) identify factors associated with the delivery of good PPC in Klang valley, Malaysia.

**Methods:** A two-phase study was conducted. Phase 1 involved the cultural adaptation, validation, and reliability assessment of the Preconception Care Knowledge, Attitude, and Practice (PCC-KAP-Andarg-Ethio) questionnaire for use among Malaysian PCPs. Phase 2 administered this instrument in a cross-sectional online survey in 227 PCPs from government health clinics. Descriptive statistics, single and multiple logistic regression identified predictors of good PPC practice.

**Results:** Phase 1 yielded a validated and reliable instrument through acceptable content and face validation findings with excellent internal consistency. In Phase 2, 26.9%, 60.4% and 12.8% of the participants demonstrated good, moderate, and poor knowledge regarding PPC, respectively. The majority of participants demonstrated a positive attitude (71.4%) with good or moderate PPC practice (73.6%). Multivariate analysis showed that PCPs with moderate knowledge (adjusted odds ratio [AOR] = 38.19, 95% confidence interval [CI] = 2.09, 698.77), good knowledge (AOR = 13.79, 95% CI = 1.40, 135.62), and those that received formal training in PPC education and counselling (AOR = 49.20, 95% CI = 2.37, 1019.64) were more likely to have good PPC practice. The observed negative association with postgraduate qualifications (GCFM/DFM) (AOR = 0.03, 95% CI = 0.001, 0.60), however, should be interpreted cautiously due to the small subgroup size and wide confidence interval, and is considered a tentative finding rather than a firm conclusion.

**Conclusion:** Moderate to high PPC knowledge and formal training are associated with good PPC delivery among PCPs. By contrast, the tentative finding of a negative association with postgraduate qualifications likely reflects sample limitations rather than a true effect. Given the inherent limitations of the KAP model (e.g., attitudes do not always translate into practice), these findings should be interpreted with care and confirmed in larger sample-sized studies.

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# CHAPTER I
# INTRODUCTION

Pre-pregnancy care (PPC), or preconception care, comprises a suite of biomedical, behavioural, and psychosocial interventions delivered before conception to optimise maternal health and improve pregnancy and neonatal outcomes (1). By enabling early identification and management of risk factors, particularly non-communicable diseases (NCDs), micronutrient deficiencies, and other preventable conditions, PPC occupies a pivotal role within the reproductive health continuum (1). The U.S. Centers for Disease Control and Prevention (CDC) defined the target population for PPC as women aged 15–49 years, underscoring the breadth of individuals who stand to benefit from systematic preconception interventions (2). In Malaysia, antenatal care is well-integrated within the public primary healthcare system, supported by structured maternal and child health (MCH) services (3). The integration of PPC services was formally implemented in 2012 (3).

Although elements of PPC are embedded in the 2020 Maternal and Child Health Guidelines by the Ministry of Health, the implementation of PPC remains suboptimal and inconsistently practised (4). To address service inconsistencies, initiatives such as the Women's Health Screening Form (*Borang Saringan Kesihatan Wanita*, BSSK) form and family planning integration efforts have been rolled out to enhance PCP-level screening and early risk identification (3). A study by Sutan et al. highlighted that while most MCH providers acknowledged the importance of PPC, structured training was lacking, further contributing to its underutilization (4).

Maternal mortality in Malaysia remains a pressing concern, with the maternal mortality ratio (MMR) standing at 22.3 per 100,000 live births in 2014 (5). A proportion of the maternal deaths were considered preventable, attributing them to undiagnosed medical conditions, hypertensive disorders of pregnancy, and severe postpartum haemorrhage (5). These adverse outcomes are compounded by the rising prevalence of NCDs, particularly diabetes, hypertension, and obesity, within the childbearing population (6). Structured delivery of PPC has been shown to reduce maternal mortality by addressing conditions such as hypertensive disorders, anaemia, and undiagnosed NCDs, conditions implicated in over 60% of preventable maternal deaths in Malaysia (5, 6). Therefore, providing timely PPC delivery in the primary care services is pivotal to achieving this.