

UNIVERSITI TEKNOLOGI MARA

**SERUM VITAMIN D LEVELS AND SLEEP QUALITY AMONG
INFERTILE POPULATION**

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ABSTRACT

Background: Infertility is one of the major health issues that affects a large number of populations worldwide. Infertility can be defined as having trouble conceiving after 12 months or more of unprotected sexual intercourse. Many factors contribute to infertility, including lifestyle habits, environment, and socio-demographic background. Vitamin D can be obtained from food or supplements. Low serum vitamin D affects infertility as it impairs the function of the uterus and ovary in women and sperm quality in men. Sleep quality on the other hand also associated with infertility as it increases the stress hormone and eventually decreases the production of reproductive hormones. **Objective:** The aims of this study are: 1) To determine serum vitamin D levels in the infertile population. 2) To investigate sleep quality among the infertile population. 3) To determine the relationship between serum vitamin D and sleep quality among the infertile population. **Method:** A cross-sectional study was conducted at Fertility Clinic of Hospital Al-Sultan Abdullah, UiTM Puncak Alam and Sophea Fertility Clinic, Bangi. The participants involved in this study are the couples that receive consultation from the fertility clinic. This study is continued by giving a set of questionnaires consisting of socio-demographic background and the Pittsburgh Sleep Quality Index (PSQI). Then, serum vitamin D status is assessed through a serum 25-hydroxyvitamin D blood test. The data collected from this study will be statistically analyzed by using Statistical Package for Social Sciences (SPSS) software version 29. **Result:** A total of 140 participants completed the study, 54 men and 86 female. More than half of the participants (92.8%) have low serum vitamin D levels, insufficiency (n=43), and deficiency (n=87) which is lower than 74 nmol/L. Then, sleep quality was observed among the participants and it showed (48.5%) of participants had poor sleep quality with PSQI global score higher than 5. No relationship was found between serum vitamin D and sleep quality among the participants with a p-value higher than 0.05 for both males and females. **Conclusion:** These findings show that the infertile population mostly has low serum vitamin D and poor sleep quality. However, no relationship was found as it may contributed by low number of participants.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Infertility is one of the major worldwide issues faced by the population nowadays. World Health Organization (WHO) pointed out that 1 in 6 people faced infertility. In general, infertility refers to difficulty in conceiving following 12 months or longer of unprotected sexual intercourse (Carson & Kallen, 2021). Factors that lead to infertility include lifestyle habits such as diet intake, smoking status, alcohol consumption, and perception and belief towards fertility (Emokpae & Brown, 2021). Anatomical, genetic, and physiological factors are also among the components that trigger infertility (Rakhshanimehr, 2020). According to WHO, causes of female infertility vary from each country due to differences in the prevalence of Sexually Transmitted Infections (STI) and different age-studied populations.

Infertility can be categorized into primary and secondary infertility. Primary infertility occurs in individuals who have never experienced pregnancy and secondary infertility refers to individuals who have been pregnant before and currently have difficulty in conceiving. However, infertility treatment is still lacking in most countries. The socio-demographic background of a person can be a barrier to getting those treatments especially when coming from low low-income family and having difficulties in paying for treatment (Abdollahifard & Parandavar, 2014). High costs and a lack of necessary infrastructure for intervention lead to an increasing number of cases.

Vitamin D also contributes to reproductive health and proven that low serum vitamin D levels have been linked to infertility (Meng at al., 2023). It is involved in spermatogenesis, sperm quality, and others in the male reproductive system (Chen & Zhi, 2020). In females, serum vitamin D insufficiency is related to subfertility and changes in endometrium tissue (Heyden & Wimalawansa, 2018). The quality of sleep