

# PD5: The Effect of Work Stress and Smoking Towards the Sperm Quality among Infertile Male

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## ABSTRACT

**Introduction:** Infertility is defined as the inability of a couple to conceive after 12 months of unprotected regular sexual intercourse and it is estimated to affect 10%–15% of all couples. Recently, the pivotal role that lifestyle factors play in the development of infertility has generated a considerable amount of interest. Lifestyle factors such as work stress and smoking are modifiable habits and ways of life that can greatly influence overall health and well-being, including fertility. Therefore, this research is to determine the influence of work stress and smoking status towards sperm quality through the mean of DNA compaction and DNA damage among male infertile patients. **Method:** A total of 210 Medically Assisted Contraceptive (MAC), HUKM patients were selected. Demography, stress levels, DNA compaction and damage were obtained. **Results:** Result shows there is significant correlation between work stress and smoking habit ( $r = 0.395$ ,  $n=107$ ,  $p<0.01$ ) and smoking habits shows a significant correlation towards sperm DNA damage by the means of DNA integrity among infertile patients. There is a strong correlation between smoking and immature histone ( $r= 0.485$ ,  $n=107$ ,  $p <0.01$ ) and incomplete protamination ( $r= 0.775$ ,  $n=107$ ,  $p<0.01$ ). Smokers in the research was found to have a much lower sperm count ( $\chi^2 = 116.193$ ,  $df = 1$ ,  $p <0.01$ ) compare to nonsmokers. **Conclusion:** In conclusion, this research revealed that work stress and smoking could alter the integrity of DNA and increase the vulnerability of the sperm DNA towards damage. However, this scenario can be prevented as work stress and smoking are modifiable.

## KEY WORDS:

*DNA, infertile male, sperm quality*

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# PD6: Radiotherapy Undersupply in SEA Countries: Estimation of the Need in 2025 and 2035

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## ABSTRACT

**Introduction:** The prevalence of cancer is rising. As about 50% of cancer patients may require radiotherapy, the demand of radiotherapy as the main treatment to treat cancer is likely to rise as well especially in low and middle income countries. This study aims to quantify the radiotherapy demand in Malaysia and countries in Southeast Asia (SEA) by 2025 and 2035. **Methods:** SEA country-specific cancer prevalence by tumour site for 2025 and 2035 was extracted from the GLOBOCAN database. The optimal radiotherapy utilisation rate model by Wong K et al. (2016) is used to calculate the optimal numbers for radiotherapy courses and fractions per treatment course in respected countries. Data on currently available machines were extracted from the IAEA's Directory of Radiotherapy Centres (DIRAC) which were compared to estimate the number of machines required. **Results:** The incidence of cancers in SEA countries are expected to increase in 2025 (1,137,896 cases) and 2035 (1,448,523 cases) in comparison to 2015 (853,052 cases). The number of radiotherapy fractions needed in 2025 and 2035 are 11,113,967 and 14,147,898, respectively. In terms of number of radiotherapy linear accelerators (LINAC) required, a total number of LINACs needed for year 2025 and 2035 in SEA countries are 387 and 807, respectively. This is an addition to 228 machines currently available. Indonesia has markedly the highest number of machines needed which are 153 (2025) and 322 (2035) compared to 25 currently available. However, for countries such as Brunei and Timor Leste, each has represented a remarkably unchanged number of machines needed when the number remain to be equipped only one from 2015 to 2025 in Brunei, even though the current number is two. While in Timor Leste, noted only one additional machine needed from year 2015 to year 2025 and 2035. Malaysia needs 21 machines in 2025 and 47 machines in 2035 in addition to 48 available now. **Conclusion:** Estimation for number of machines required can be obtained from the data of optimal number for radiotherapy courses. This will be a guide for future acquisition of new LINACs in SEA countries.

## KEY WORDS:

*Radiotherapy, radiotherapy demand, cancer prevalence, optimal utilization, radiotherapy equipment*