

UNIVERSITI TEKNOLOGI MARA

**EFFECTS OF SUPERVISED
MODERATE AEROBIC EXERCISE
INTERVENTION ON
TOBACCO WITHDRAWAL
DURING TEMPORARY SMOKING
ABSTINENCE**

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Thesis submitted in fulfilment
of the requirements for the degree of
Doctor of Philosophy
(Epidemiology)

Faculty of Medicine

December 2021

AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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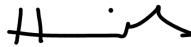
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Thesis Title : Effects of Supervised Moderate Aerobic Exercise
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Temporary Smoking Abstinence

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Date : 6 December 2021

ABSTRACT

Exercise is an adjunct therapy for smoking cessation to improve tobacco withdrawal symptoms (TWS). The TWS occurs following smoking abstinence and is a barrier to quit smoking. This study investigates the effects of exercise intervention on TWS, physiological symptoms, psychological symptoms, and stress-pleasure related hormones, including serum cortisol, serum beta-endorphin, and plasma adrenaline. The selected hormones are potentially involved in regulating TWS. This study was also exploring the experience of an exercise intervention on abstinence-related feelings. This study consists of three phases: validation of the study instrument, an intervention and qualitative study. Validation study involves the validation process for the intervention study instruments, including the Subjective Experience Exercise Scale (SEES), Theory of Planned behaviour (TPB) for smoking cessation and Smoking Cessation Quality of Life (SCQoL). The intervention study was carried out USING a convenience sampling method. Thirty healthy smokers (n=30) were recruited for a moderate aerobic exercise intervention programme three times per week for two months and detraining for two weeks. Then, the 14 smokers (n=14) who underwent the intervention programme were interviewed for the qualitative study based on the Health Belief Model constructs. For the validation study, (n=152) smokers participated in the SEES questionnaire, (n=185) smokers in TPB for smoking cessation and (n=258) for SCQoL. The data underwent exploratory and confirmatory factor analyses. The intervention study measures including psychological, physiological symptoms and stress-pleasure related hormones were analysed using Repeated Measure ANOVA for measuring the impact of exercise at baseline, post-intervention and post-detraining, and correlation at the post-intervention. The result of the qualitative study was analysed using thematic analysis. This study produces a valid and reliable instrument for this study. The intervention study found a significant reduction in TWS (craving component) $F_{(2, 58)} = 5.26, p < 0.01, \eta^2 = 0.15$, significant reduction of desire to smoke in QSU Brief $F_{(1.39, 40.42)} = 4.18, p < 0.05, \eta^2 = 0.12$, improved mood using SEES including significant increase in positive well-being $F_{(1.64, 47.6)} = 4.02, p < 0.05, \eta^2 = 0.12$, reduction of psychological distress $F_{(1.30, 37.75)} = 3.93, p < 0.05, \eta^2 = 0.12$, reduced fatigue $F_{(1, 29)} = 3.70, p < 0.05, \eta^2 = 0.11$, significant increase in peak exploratory rate $F_{(2, 58)} = 7.46, p < 0.001, \eta^2 = 0.21$ and significant increase adrenaline $F_{(2, 56)} = 4.42, p < 0.05, \eta^2 = 0.14$. Unfortunately, this study found a significant reduction in the intention to quit post-exercise intervention $F_{(1, 29)} = 3.00, p < 0.01, \eta^2 = 0.54$. The qualitative study found that most participants perceived benefits and self-efficacy toward an exercise intervention on TWS. In conclusion, supervised moderate aerobic exercise intervention significantly improves craving in TWS, psychological symptoms, physiological symptoms and stress-pleasure related hormones. Thus, this type of exercise possibly aids in reducing TWS and their related symptoms during actual smoking cessation, and it is recommended to be considered when designing the future smoking cessation programme.

ACKNOWLEDGEMENTS

Alhamdulillah, praise be to Allah, the Most Gracious and Merciful. First and foremost, I want to thank Allah for allowing me to pursue my PhD and for successfully completing this long and difficult journey. Allah's love far exceeds my expectations.

My heartfelt thanks go to Prof. Dr Mohd Hamim Rajikin, my main supervisor, for his encouragement and guidance. Thank you to all my co-supervisors, especially Associate Prof. Dr Siti Munira Yasin, for your constructive feedback and guidance. She is the one who is crucial to keeping my momentum going during this arduous PhD journey. You are always a source of energy for me. May Allah reward you for your generosity. Thank you so much to Dr Mohamad Rodi Isa for his assistance, guidance, and constructive comments. Your advice gives me the confidence to proceed and learn a lot from you. Thank you for your assistance in the laboratory, Dr Nadzimah Mohd Nasir. Your smile makes me tough. Not to mention gratitude to the Ministry of Higher Education for funding through the Fundamental Research Grant Scheme (FRGS) and the Director of the Ministry of Health for allowing this study to be conducted in their facilities.

My heartfelt gratitude goes to:

My husband, Halimi Muhamad Rusli, for his bravery and blessing.

My mum, Jamilah Sani Sulong, for your prayers, love, and support. Your desire to see me in a "burger cap" always motivates me.

My father, Ruslan Ismail, your confidence and support in my academic journey have always made me feel safe.

My children, Hidayah, Hassan, Hussain, and Abu Bakar. Sorry, and thank you for everything and every second you lent me.

My siblings and other family members.

Thank you to my colleagues and friends for their assistance with this research. Thank you to all the participants for agreeing to take part in this study.

To all that are involved in this study, May Allah blesses you.

Finally, this victory is dedicated to my lovely late grandma (Mek and Tok ma) for your love, kindness, and prayer. Finally, I completed the task that I had begun. This research is merely a starting point for further investigation. The pursuit of knowledge is a never-ending journey.

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