

UNIVERSITI TEKNOLOGI MARA (UiTM)

**ASSESSMENT OF INHALATION TECHNIQUE
USING METERED DOSE INHALER AND DRY
POWDER INHALER AMONG THIRD AND
FOURTH YEAR PHARMACY STUDENTS, UiTM
PUNCAK ALAM CAMPUS: PRE AND POST
EDUCATION**

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**Dissertation submitted in partial fulfilment of the requirements for
the Bachelor of Pharmacy (Honours)**

2015

Acknowledgement

First of all, Alhamdulillah and praise to Allah SWT, who give me the strength to finish this research completely and successfully. Here, I would happily express my sincere gratitude to my best supervisor, Dr Nahlah Elkudssiah Ismail Al- Masry, for her endless guidance in completing this thesis and also for her continuous motivation. Her guidance helped me in all time of research and writing of this thesis. I could not have imagined having a better supervisor for my final year project.

My sincere thanks also go to the Research Ethics Committee, Research Management Institute (RMI), UiTM, for the ethics approval of this study. Besides that, thanks to my research partners, Nursyazana Binti Husin and Atikah Nadhirah Binti Johari, for helping and spending time together in finishing the study.

Last but not the least; I would like to say a big thank-you to my beloved family for their support and motivation for me during completing this research.

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ABSTRACT

Asthma and chronic obstructive pulmonary disease (COPD) are common respiratory diseases that require correct and proper inhalation techniques to control their symptoms. Metered dose inhaler (MDI) and dry powder inhaler (DPI) are the devices which can be used to transfer a specific dose of medication to the airways. The incorrect use of both can impact the amount of inhaled drugs being deposited in the lungs consequently not exerting their therapeutic effects needed by patients. That is why asthma and COPD patients need to receive counselling on how to use inhalers correctly. As the pharmacist-wannabes, undergraduate pharmacy students from third and fourth year must be trained to counsel patients on the correct way of using inhalers. The main objective of this study was to determine the MDI and DPI mainly turbuhaler and accuhaler techniques among third and fourth year pharmacy students (pre- and post- education). The knowledge levels of asthma and COPD among third and fourth year pharmacy students were assessed. The selected study variables that differentiate, associate, correlate, and predict the scoring of inhaler techniques when using MDI and DPI were also investigated. The study recruited a total of 233 pharmacy students; 114 students were from Year 3 and 119 from Year 4. All respondents were recruited from the Faculty of Pharmacy, UiTM Puncak Alam. A questionnaire which consisted of two different parts was completed by the respondent post signed consent. For part one, there were self-administered items consisted of basic socio-demographic of students and basic knowledge of asthma (Asthma Knowledge Questionnaire (AKQ)) and COPD (Bristol COPD Knowledge Questionnaire (BCKQ)). The second part was separated and hidden from the students. It consisted of the checklist of inhaler techniques for MDI and DPI (accuhaler and turbuhaler). The pharmacy students were asked to demonstrate the inhalation techniques for the three devices verbally (pre-education). If there was any mistake, short education was given by the researcher and after that they were asked to demonstrate the inhalation techniques again (post-education). These sessions were recorded by the researcher. Reliability and validity of AKQ and BCKQ were determined using Rasch analysis (Bond&Fox software). Using Rasch analysis, both AKQ and BCKQ were fitted in the Rasch Model hence reliable and valid to be used in this current research setting. The data obtained were analysed using SPSS (version 20). P-value of < 0.05 was considered significant. There were significant differences in the marks of turbuhaler and accuhaler between males and females in both pre- and post- education. In post-education, the Year 4 pharmacy students significantly scored higher MDI technique than Year 3 pharmacy students. Similar pattern observed in students aged > 22 years old that significantly scored higher MDI technique than students aged of 22. Students that demonstrated MDI and turbuhaler techniques to family member obtained significant higher marks than those who used only during practical session at the faculty in pre- and post- education session respectively. There were significant differences of MDI, accuhaler and turbuhaler scores between pre- and post-education among Year 3, Year 4 and overall students. During pre-education, different grouping of cGPA and highest completed level of study illustrated significant differences in the score of turbuhaler technique. Different confidence level demonstrated significant differences in the marks of MDI and accuhaler techniques. For year 3 pharmacy students there was a significant association between confident level assessing/counselling asthma and COPD patient

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Asthma is affecting 30 million people around the world (GINA, 2013). According to World Health Organization (WHO), more than 3 million people died due to chronic obstructive pulmonary disease (COPD) in 2005.

Asthma is generally defined as chronic inflammatory disorder that affects the airways, which there are a lot of cells and also cellular elements that play role in respiration (Kim & Mazza, 2011). There are a lot of factors which lead to the development of asthma among the children and adolescence. The combination of the environment and genetic factors such as family history or allergen exposure increase the chances of developing asthma. COPD is characterized by persistent limitation of airflow (GOLD, 2014). The symptoms may be cough and shortness of breath. Occupational exposure and smoking are the major causes of COPD (Eisner et al., 2010).

Asthma and COPD can be controlled by pharmacological management particularly with inhaled drugs (Melani et al., 2011). Inhalation is the preferred route of administration for treatment of asthma and COPD (Virchow et al., 2008). The inhaled route offers more rapid onset of action as therapeutic agents are delivered