

# Assessing the Knowledge of Community Pharmacists about the Correct Use of Inhaler Technique in Klang Valley, Malaysia

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## INTRODUCTION

Respiratory diseases share the main burden in the healthcare system. Among these, bronchial asthma and chronic obstructive pulmonary disease (COPD) are the most commonly encountered<sup>1</sup>. The current treatment strategies for asthma and chronic pulmonary disease stress the role of local administration of drugs by inhalation devices due to its rapid onset of action, maximal effectiveness at the level of airways and lowest side effects<sup>2,3</sup>. Metered dose inhaler (MDI) is the most widely used inhalation device<sup>2</sup>. The effectiveness of the metered dose inhaler is dependent on the proper inhaler technique which requires proper training of the patients<sup>1,4</sup>. The aim of this study was to evaluate the knowledge of correct use of metered dose inhaler inhalation technique among the community pharmacists in Klang valley, Malaysia.

## METHODS AND MATERIALS

**Study design:** A cross-sectional study

**Study sample:** Registered community pharmacists around Klang Valley

**Sampling technique:** Convenience sampling

**Study tool:** Evaluation of metered dose inhaler technique was based on a standard 11 points checklist adapted from the National Asthma Education and Prevention Program of America (NAEPP). Among which 6 steps are essential (critical) to cover (Table 1). Based on the critical steps outlined by NAEPP, five evaluation categories were formulated as follows; optimal technique, adequate technique, poor technique, totally unfamiliar with the device, and does not know.

**Data analysis:** Data was expressed as descriptive statistics such as mean, frequency and percentage, as well as inferential statistics. Spearman correlation was used to determine if there is a statistically significant relationship between the community pharmacists' socio-demographic and their ability to demonstrate proper metered dose inhaler technique. For the statistical analysis,  $p$ -value  $<0.05$  is considered significant.

Table 1. Checklist used to assess MDI inhaler technique

- 1\* Shake the contents well
- 2\* Remove the cap
- 3 Hold the inhaler upright
- 4 Tilt the head back slightly
- 5\* Breath out slowly
- 6\* Open mouth with inhaler 1 to 2 inches away or in the mouth with the lips tightly sealed around it
- 7\* Begin breath in slowly and deeply through the mouth and actuate the canister once
- 8\* Hold breath for 10-20 seconds
- 9 Exhale and wait one minute before the second dose
- 10 Shake again before the second dose
- 11 After use, replace the mouth piece cover

\* Critical Steps

## RESULTS

- Out of 164, 138 respondents gave their consent to participate and returned the questionnaires to the principle investigator. Therefore, the response rate of this study was 84.1 % (138/164) that surpassed the good index of response rate.
- Majority of the study sample was female (81; 58.7%) . Most of the participants were in an age range of 20-30 years (66; 47.8%) (Figure 1).
- The results of the study showed that 81.9% of pharmacists failed to complete the critical steps, 4.3% did not demonstrate any of the critical steps, 1.4% were unfamiliar with the device, 8% completed the steps and only 4.3% completed all the 11 steps (Figure 2).
- The results show a moderate positive correlation between the community pharmacists who had last training on MDI use and the MDI technique, it shows that the correlation was significant ( $r_s=0.432$ ;  $n=138$ ;  $p<0.001$ ) (Table 2)

Table 2. Cross tabulation between socio-demographics and correct demonstration of MDI Technique

Variable	Frequency (%)	$r_s$ ( $p$ -value)
<b>Practice setting</b>		
Pharmacy chain	120 (87.0)	0.008 (0.922)
Independently owned	18 (13.0)	
<b>Employment status</b>		
Pharmacy employee	88 (63.8)	0.107 (0.210)
Branch manager	38 (27.5)	
Partner proprietor	7 (5.1)	
Sole proprietor	5 (3.6)	
<b>Experience in community pharmacy</b>		
0-5 years	65 (47.1)	0.080 (0.354)
6-10 years	47 (34.1)	
11-15 years	21 (15.2)	
16-20 years	5 (3.6)	
<b>Last counseling of patient on MDI use</b>		
1 month	19 (13.8)	0.053 (0.540)
1-6 months	68 (49.3)	
6-12 months	34 (24.6)	
1-5 years	13 (9.4)	
6-10 years	4 (2.9)	
<b>Last training on MDI Technique</b>		
1 month	2 (1.4)	0.432 (0.000)
1-6 months	27 (19.6)	
6-12 months	53 (38.4)	
1-5 years	49 (35.5)	
6-10 years	7 (5.1)	

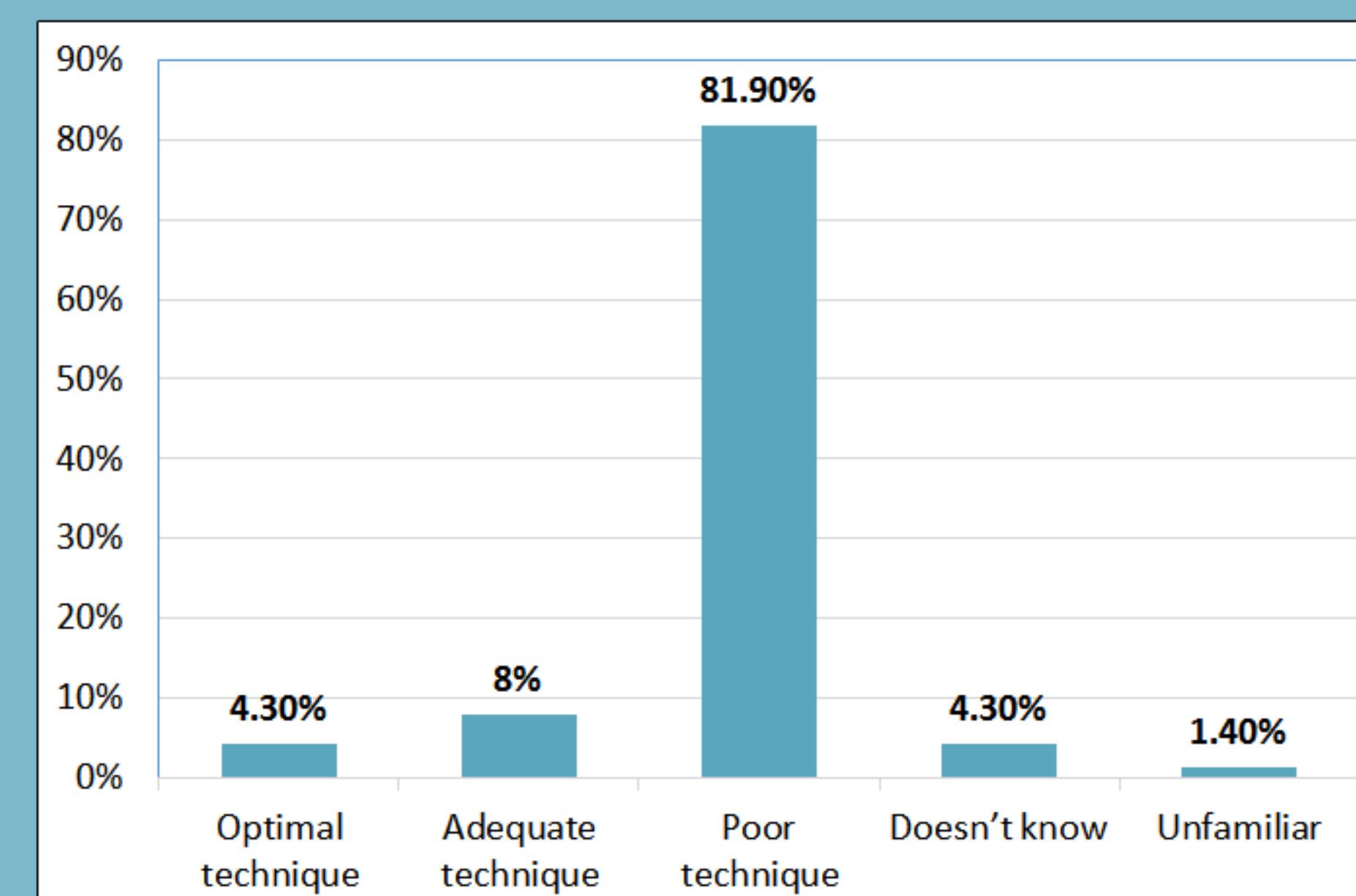
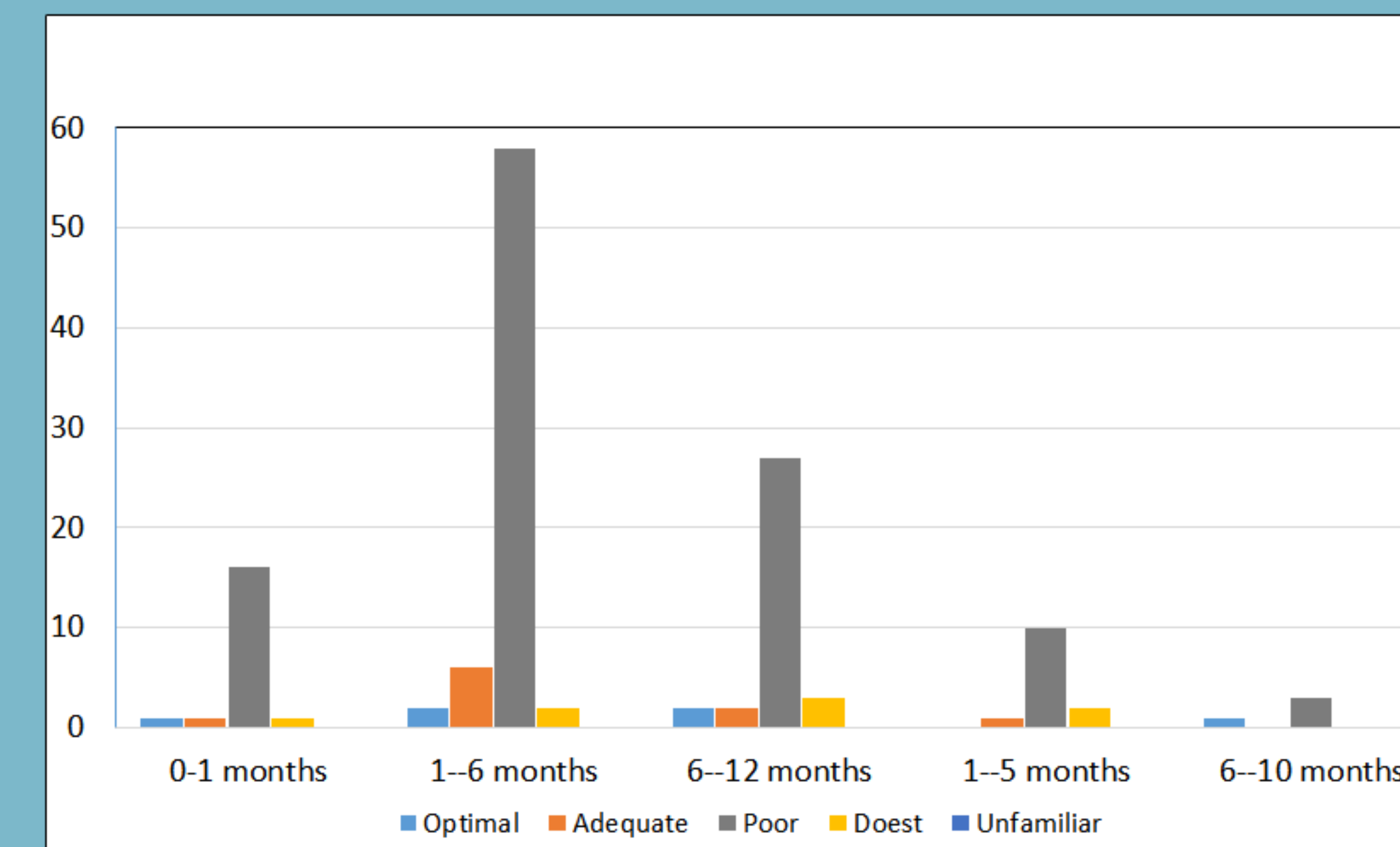


Figure 2. Technique of Metered dose inhaler use among community pharmacists



MDI technique of the community pharmacists and the last time they had training on MDI use

## DISCUSSION

- Lack of inhaler technique tends to be a significant feature in patients suffering from asthma and COPD needing hospital admission. It is extremely important to demonstrate the standardized recommended technique of MDI to patients<sup>2</sup>.
- Many studies found that critical steps were missed by pharmacists during the demonstration of MDI technique<sup>2,5,6</sup>. Missing these critical steps can lead to either little or no drug delivery to the target point, which have been associated with increase in emergency visits, and worsening of asthma<sup>7</sup>.
- Community pharmacists are ideally in a position to learn inhaler technique as they also health care provider. They should review their inhaler technique and must be fully aware of appropriate steps of using meter dose inhaler.

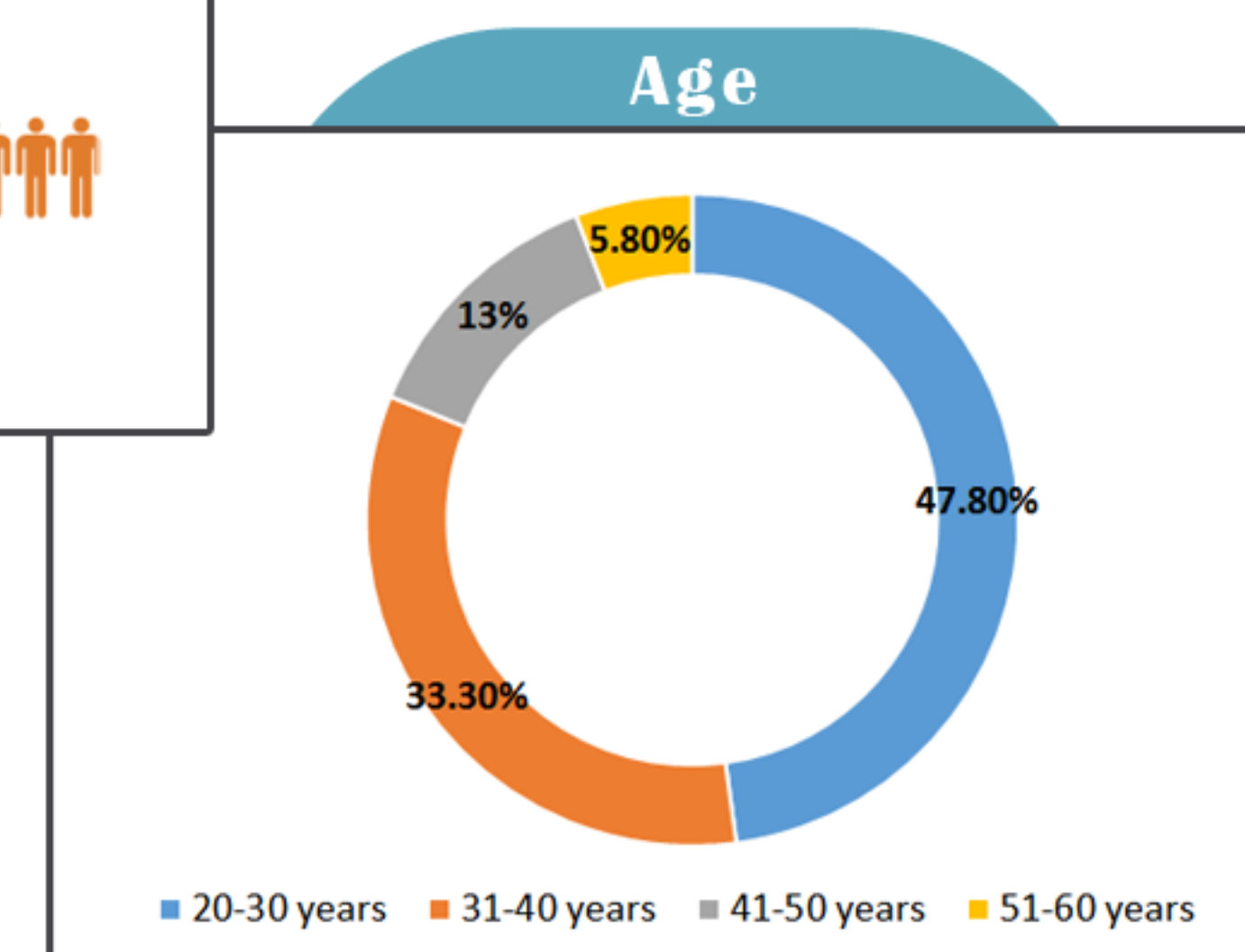
## ACKNOWLEDGEMENTS

The author would like to express sincere appreciation to MAHSA ethic committee, faculty of pharmacy and colleagues for their endless support and advices. I am extremely thankful and indebted to them for sharing their expertise, valuable guidance and encouragement with. Many thanks to all the pharmacists participated in the study.

## Gender

41.3% MALE  
58.7% FEMALE

Figure 1. Gender & Age distribution



## CONCLUSION

- The findings of this study shows that the majority of the community pharmacists in Klang Valley, Malaysia lack the basic knowledge and practical skills that are needed to demonstrate the correct metered dose inhaler technique.
- It was also seen that those community pharmacists who had recent training on metered dose inhaler demonstrated a better technique than those without recent training.

## LIMITATION

- Because of the cross-sectional study design, the findings from this study could not be generalized to the whole Malaysia and all other community pharmacists.
- Unwillingness and uncooperativeness of the respondents in participating in this study is another limitation.

## RECOMMENDATION

- Overall this study highlights the need to continuous pharmacist education when it comes to appropriate drug delivery in Asthma and COPD and serve as a reminder to policy maker in general of the importance to monitor inhaler technique often.
- Long term device programme is the one way towards improving the inhaler technique, thereby decreasing the morbidity and mortality in these two treatable, preventable and controllable diseases<sup>8</sup>.
- Pharmaceutical companies can play a part in such training by providing placebo metered dose inhaler devices and face-to-face training session with community pharmacists.

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