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## INTRODUCTION

Incorrect inhaler use and poor adherence drive uncontrolled asthma. Pharmacist education can correct technique and improve satisfaction, which may translate to better adherence and control.

## OBJECTIVE

Evaluate whether pharmacist-led education increases satisfaction with metered-dose inhalers (FSI-10) and its association with adherence (TAI-12) and asthma control (ACQ-7).

## METHODOLOGY

- **Design/Setting:** Cross-sectional study at PIMS, Islamabad; ERB approval SZABMU/220M.
- **Participants:** Adults with asthma using pMDIs  $\geq 6$  months; informed consent.
- **Intervention:** One pharmacist-led inhaler education + hands-on demo + brochure.
- **Measures:** FSI-10 (satisfaction), TAI-12 (adherence), ACQ-7 (asthma control).
- **Timing:** Baseline assessment; repeat after  $\sim 60$  days.
- **Analysis:** Paired t-test (pre/post FSI-10);  $\chi^2$  for associations;  $p < 0.05$ .
- **Ethics:** Conducted per guidelines; institutional ERB oversight.

## RESULTS

- **Very low satisfaction at baseline:** only 4.8% highly satisfied; 95.2% low satisfaction. After education, high satisfaction increased to 58.5%. Mean FSI-10 improved  $27.84 \pm 8.03 \rightarrow 42.15 \pm 7.12$ ;  $p < 0.001$ .
- **Adherence association** (post-intervention): Satisfaction correlated with TAI-12 ( $\chi^2 p = 0.039$ ).
  - Poor adherence: 44.4% low-sat vs 27.1% high-sat
  - High adherence: 6.8% low-sat vs 15.7% high-sat
- **Asthma control association** (post-intervention): Satisfaction strongly linked with ACQ-7 categories ( $\chi^2 p = 0.001$ ).
  - High satisfaction group had more well/controlled asthma and fewer poorly/extremely poorly controlled cases versus low satisfaction.
- **Effect size:** Education produced a large effect on post-intervention satisfaction (partial  $\eta^2 \approx 0.19$ ).

Table 1. Comparison of patients' satisfaction pre-intervention and post-intervention

Outcome-Variable	Mean(SD)	Difference from-baseline	95% Confidence Interval (C.I)		t- statistic (df)	t	p- value*
			Lower bounds	Upper bounds			
Satisfaction							
Pre-intervention	27.84 ± 8.03	-14.31 ± 6.20	-15.17	-13.47	1,206	-33.198	<0.001
Post-intervention	42.15 ± 7.13						

- Big jump in satisfaction after education: mean FSI-10 rose from  $27.84 \pm 8.03$  to  $42.15 \pm 7.12$ – $7.13$ ; paired  $t = -33.198$ ,  $p < 0.001$ .
- The mean increase  $\approx 14.31$  points with 95% CI  $[-15.17, -13.47]$ .

Table 2. Association of satisfaction with inhalers (FSI-10) with asthma control (ACQ-7)

Variable	Categories	N (%)	Well Controlled Asthma	Controlled Asthma	Not Well Controlled Asthma	Poorly Controlled Asthma	Extremely Poorly Controlled Asthma	P value (Pearson Chi-Square)
Feeling of Satisfaction FSI scores (Post Intervention)	Low Satisfaction	118 (57%)	12 (5.8%)	27 (13.0%)	41 (19.8%)	37 (17.9%)	01 (0.5%)	0.001
	High Satisfaction	89 (43%)	26 (12.6%)	20 (9.7%)	32 (15.5%)	11 (5.3%)	00 (0.0%)	

Higher satisfaction aligned with better control: distribution across ACQ-7 categories differed significantly ( $\chi^2 p = 0.001$ ).

- Post-intervention, satisfaction was **significantly associated** with adherence ( $\chi^2 p = 0.039$ ): among *low-satisfaction* patients, **44.4%** were poorly adherent vs **27.1%** in *high-satisfaction*; *high adherence* was **6.8%** (low-sat) vs **15.7%** (high-sat).
- Before education, most patients had **poor control**: ACQ-7 *poorly controlled* **56.5%**, *extremely poorly* **10.6%**.
- Post-intervention FSI-10 varied by **years using MDI** (ANOVA  $p < 0.001$ ): highest for **0–5 yrs** (**46.25 $\pm$ 3.93**), lowest for **>15 yrs** (**34.16 $\pm$ 7.54**).

## CONCLUSIONS

Pharmacist-led education substantially increased inhaler satisfaction and was significantly associated with better adherence and better asthma control within  $\sim 2$  months. Embedding structured pharmacist counselling and hands-on technique training into routine asthma care can meaningfully improve patient-reported and clinical outcomes.

## REFERENCES

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