

Community Pharmacists Knowledge Attitude and Practice on Rational Dispensing of Topical Corticosteroids: Pre-and Post-Intervention Study

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ABSTRACT

Background: Community pharmacists have an important role in dispensing topical corticosteroids only with prescription. They should be aware about the uses and the potential side effects associated with misuse of topical corticosteroids. It is necessary to educate the community pharmacist regarding the clinical aspects of the topical corticosteroids. Therefore, our study aims to assess, evaluate the Knowledge, Attitude, and Practice (KAP) among Community Pharmacist regarding dispensing of topical corticosteroids and educating community pharmacists. **Materials and Methods:** A Prospective Pre-Post study carried out among Community Pharmacist. A Self-prepared and validated KAP questionnaires were distributed to the community Pharmacist through face-to-face interview were done after seminar was conducted using audio-video visuals is given then post study was done after 1 month with the same set of questionnaires. **Results:** Out of 116 Community Pharmacist men made up 80.17% more participants than women. The percentage of people aged 20 to 30 was 33.62%. Most of the participants were diploma holders (Diploma in Pharmacy) with 76.72%. The participants in our study are experienced around 24.14% were having more than 21 years of experience. Pre-test knowledge, attitude, and practice among the pharmacists was less with mean \pm standard deviation (46.7 \pm 10.33), (65 \pm 8.38), (59.83 \pm 14.45) compared with post-test knowledge, attitude, and practice was high with mean (87.74 \pm 11.03), (87.79 \pm 6.56), (82.50 \pm 9.50). Post-test showed significant improvement in Knowledge Attitude and Practice score respectively compared to pre-test ($p < 0.05$). **Conclusion:** Educating community pharmacists regarding topical corticosteroids reduces the misuse of topical corticosteroids by increasing knowledge about topical corticosteroids.

Keywords: Attitude, Community Pharmacist, Knowledge, Practice, Topical corticosteroids.

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INTRODUCTION

Topical Corticosteroids (TCs) are one of the major pharmacotherapies for skin diseases and are now indicated for various conditions, such as eczema, psoriasis, and dermatitis since being introduced into the market.¹ In relation to the use of TCs, various Adverse Drug Events (ADEs) ranging from local skin atrophy to severe systemic reactions such as Cushing's syndrome have been reported.² Even though topical corticosteroids are prescription only drugs, they are widely used and freely available to the general population in the country. Rational use of these medications is necessary to reduce the adverse effects, but Irrational use of topical corticosteroid medications is one of the main concerns. Topical corticosteroids give a quick symptomatic relief in most of the inflammatory dermatoses.³ Because of this, it

is one of the most frequently recommended topical medications, which have been around for roughly 60 years at this point. Sulzberger and Witten initially presented it as compound F in 1952. (hydrocortisone).⁴ Strong topical corticosteroids, including clobetasone, fluticasone, and mometasone, are only permitted to be marketed in India with a qualified medical practitioner's prescription under Indian rules and regulations.⁵ All steroids are listed in Schedule H of the Drugs and Cosmetics Rules of 1945, but topical preparations and eye ointments are mysteriously left off the list in a footnote even though there are no oral formulations of these medications. This suggests that these pharmaceuticals are, for all intents and purposes, deemed to be available over the counter. This requires immediate revision.⁶

In India, topical corticosteroids are easily available as over the counter medications sometimes even in the absence of proper prescriptions.⁷ Community pharmacist has an important role in eradicating misuse of topical corticosteroid in the general population.⁸ Studies have shown that patients lack education regarding topical corticosteroids, which in turn leads to its



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irrational use.⁹ Community pharmacists have a major role in confirming the patients understanding regarding the medication as they are the last ones who are coming in direct contact with the patient.¹⁰ Community pharmacists should be aware of the uses and the potential side effects associated with topical corticosteroids thus it is necessary to educate them regarding the clinical aspects of the drug.¹¹

In the recent years, it has been noticed that there is an increase in Topical corticosteroid misuse in the community.¹² Topical corticosteroids abuse is quite common with varied presentations most commonly on face.¹³ There is need to take urgent remedial steps and increase awareness about this problem in community pharmacist using Topical Corticosteroids.¹⁴ Keeping this in view our study aims to create awareness among community pharmacist through seminar using audio video visuals and comparing KAP of pre-test scores with post-KAP scores assess the Knowledge, Attitude and Perception (KAP) regarding Topical Corticosteroids in a sample of community pharmacists.¹⁵

In the recent years, it has been noticed that there is an increase in topical corticosteroid misuse in the community and the dermatological department. As a result, the adverse effect of the drug is also increasing among the population due to lack of knowledge regarding the medication. Since community pharmacists have direct contact with the general population, they play an important role in the rational use of medication. The doctors in the dermatological department have suggested that assessing the knowledge of community pharmacist and counselling them might improve the rational use of topical corticosteroid medicine in the community. In this way dispensing topical corticosteroids as OTC medication can be minimised.

MATERIALS AND METHODS

Study design and settings

A prospective interventional study was conducted among community pharmacists at Belagavi, Karnataka. Pre-Survey was conducted by using Knowledge, attitude and practice questionnaires among community pharmacists. Prior to Pre-survey the study was approved by human ethical committee with Institutional Ethical Clearance (IEC) number (Ref no: KAHER/EC/21-22/023) from KLE academy of higher education and research, Belagavi, Karnataka, India. After Pre-survey we found there is a knowledge gap among community pharmacists so on the event of World Pharmacist Day, 25th September 2022 with the theme of "Pharmacy united in action for a healthier world" as a one-day training programme in 500 seated halls of KLE centenary convention centre, KLE academy of higher education and research, at Belagavi city, Karnataka. Registered licence pharmacists under Karnataka state pharmacy council from various pharmaceutical outlets across the Belagavi district of Karnataka were enrolled in this study. The Pharmacies dealing as wholesale distributors were excluded from the study. The pharmacist information leaflet

was distributed in English. Pharmacist information leaflet we took the permission for using standardized subject information leaflet provided by British Association of dermatology on awareness of topical corticosteroids. A seminar was given on the topic awareness on rational dispensing of topical corticosteroids which is educational intervention in our study. After one month post-test was connected using same set of knowledge, attitude and practice questionnaires.

Questionnaire design

A structure interview study was conducted using self-framed and validated KAP questionnaire by the department of Pharmacy Practice, KLE college of Pharmacy among the pharmacists of Belagavi district. The questionnaire was framed with the questions of yes or no type and using five-point Likert scale. The questionnaire was divided into four sections each section contains 10 questions which includes demographic details, knowledge, attitude and perception. A pilot study was conducted prior to conduct of the main study where the questionnaire was validated and reliability was found to be good (Cronbach's alpha i.e., $\alpha \geq 0.9$).

Study Participants

In this study a group of selected stake holders like medical experts from the field of community pharmacist, Deputy Drugs Controller (DDC), Assistant Drugs Controllers (ADC) were invited. The study was conducted as a part of training programme by department of Pharmacy Practice, KLE college of Pharmacy, Belagavi in association with regional office of Deputy Drugs Controller, Belagavi, India on various pharmacists which includes Community Pharmacists, across the Belagavi district, Karnataka, India. Around 200 community pharmacists were attended and 116 pharmacists were participated in our study. Most of the pharmacists where D Pharm (Diploma in Pharmacy), B Pharm (Bachelor of Pharmacy), M Pharm (Master of Pharmacy). Informed consent was obtained from each of the community pharmacists about the study participation, voluntary involvement and confidentiality. The pharmacists were asked to sign in both survey consent form and structured questionnaires.

Sample size calculation

$$n = \frac{z^2_{1-\alpha/2} SD^2}{(20\% \text{ of } SD)^2} * 1.1 \quad n = \text{sample size}$$

95% confidence interval, z value will be 1.96.

SD = Standard deviation

$$n = \frac{(1.96)^2}{(0.2)^2} * 1.1 = 105$$

$$n = 105$$

Note: 10% attrition is added to compensate the study subject's dropout.

$$105+11=116$$

Statistical analysis

The data was entered and tabulated using Microsoft Excel (Microsoft Corporation, CA, USA). The data results were analysed for descriptive statistics by t test, p values and with 95% confidence interval using SPSS (Statistical Package for Social Sciences) software version 22.0. The schematic representation of the study has been depicted in the Figure 1.

RESULTS

Demographic details of the pharmacists

A total of 116 community pharmacists were enrolled into the study. The age group of community pharmacists were 33.62% (39) in between 21-30 years, 28.45% (33) were in between 31-40 years, 26.72% (31) were in between 41-50 years and 11.21% (13) were above 51 years. Out of 116 community Pharmacist majority were males 80.17% (93) and 19.83% (23) were females. The majority of the participants were Diploma holders (Diploma in Pharmacy) 76.72% (89) followed by undergraduates (Bachelor of Pharmacy) 16.38% (19) and others (Master of Pharmacy) 6.90% (8). Most of the Participants were having above 21 years of experience 24.14%

(28), 11 to 15years of experience 18.97% (22), 2 to 5 years of experience 18.10% (21), 6 to10 years of experience 17.24% (20), below 1year of experience 12.07% (14) followed by 16 to 20 years of experience 9.48% (11). As shown in Table 1.

Knowledge wise response

On assessment, the levels of knowledge were classified into low level (<50%), average level (50-75%) and high level (>=76-100%). In Pretest 70 (60.34%) had low level, 46 (39.66%) had average level and in Post-test 21 (18.10%) had average level, 95 (81.90%) had high level. The value for z is found be 8.9372, which shows significance difference after the intervention of pre-test and post-test knowledge. Which shows significant improvement in knowledge score in post-test score compared to pre-test score after intervention. The comparison of pre-test and post-test levels of knowledge is shown in Table 2.

Attitude wise response

In attitude parameter, the levels of attitude were classified into low level (<50%), average level (50-75%) and high level (>=76-100%). In pre-test 1 (0.86%) had low level, 99 (85.34%) had average level,

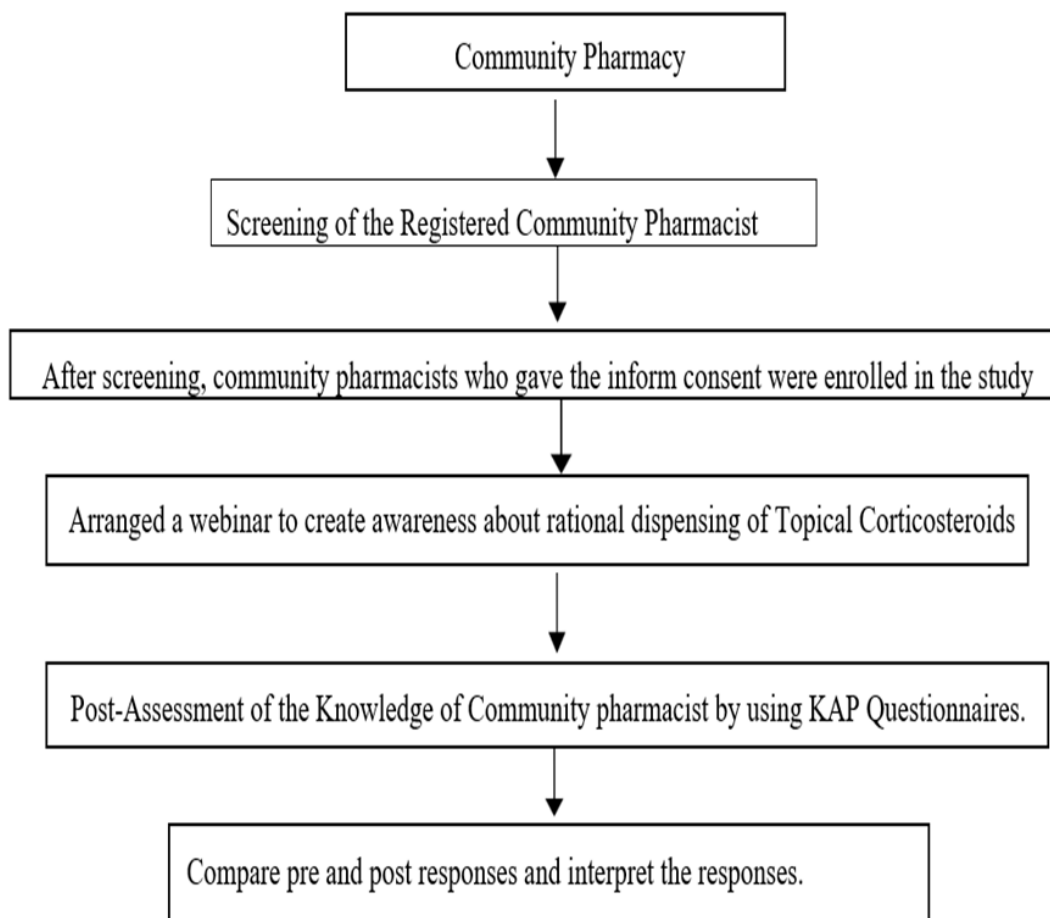


Figure 1: Schematic representation of methodology.

Table 1: Demographic profile of respondents.

Demographic profile	No of respondents	% of respondents
Age groups		
21-30 yrs	39	33.62
31-40 yrs	33	28.45
41-50 yrs	31	26.72
>=51 yrs	13	11.21
Mean	37.0	
SD	10.9	
Gender		
Male	93	80.17
Female	23	19.83
Qualifications		
D Pharma	89	76.72
Pharma B	19	16.38
Others	8	6.90
Experience		
<=1 yr	14	12.07
2-5 yrs	21	18.10
6-10 yrs	20	17.24
11-15 yrs	22	18.97
16-20 yrs	11	9.48
>=21 yrs	28	24.14
Mean	12.9	
SD	10.2	
Total	116	100.00

16 (13.79%) had high level and in post-test 5 (4.31%) had average level, 111 (95.69%) had high level. The value for z is found be 8.4630, which shows significance difference after the intervention of pre-test and post-test attitude. Which shows significant improvement in Attitude score in post-test score compared to pre-test score after intervention. The comparison of pretest and post-test levels of attitude is shown in Table 3.

Practice wise response

Whereas in Practice parameter, the levels of practice were classified into low level (<50%), average level (50-75%) and high level (>=76-100%). In pre-test 20 (17.24%) had low level, 81 (69.83%) had average level, 15 (12.93%) had high level and in post-test 22 (18.97%) had average level, 94 (81.03%) had high level. The value for z is found be 8.1008, which shows significance difference after the intervention of pre-test and post-test Practice. Which shows significant improvement in practice score in post-test score compared to pre-test score after intervention. The comparison of pretest and post-test levels of practice is shown in Table 4.

Comparison of pre-test ad post-test KAP scores

On assessment of Knowledge parameter, the time points in the pre-test of the mean 46.70 and SD 10.33, the post-test of the mean 87.74 and SD 11.03. In attitude parameter, the time points in the pre-test of the mean 65.70 and SD 8.38, the post-test of the mean 87.79 and SD 6.54. Whereas in Perception parameter, the time points in the pre-test of the mean 59.83 and SD 14.45, the post-test of the mean 82.50 and SD 9.50. The *p*-value (<0.001) among the parameters of knowledge, attitude and perception was found a significant improvement between the pre-test scores and post-test scores by using dependent test as shown in the Table 5.

Table 2: Comparison of pre-test and post-test levels of knowledge.

Levels of knowledge	Pre-test		Post-test	
	No	%	No	%
Low level (<50%)	70	60.34	0	0.00
Average level (50-75%)	46	39.66	21	18.10
High level (>=76-100%)	0	0.00	95	81.90
Total	116	100.00	116	100.00

Wilcoxon matched pairs test, $Z=8.9372$, $p<0.001$, HS.

Table 3: Comparison of pre-test and post-test levels of attitude.

Levels of attitude	Pre-test		Post-test	
	No	%	No	%
Low level (<50%)	1	0.86	0	0.00
Average level (50-75%)	99	85.34	5	4.31
High level (>=76-100%)	16	13.79	111	95.69
Total	116	100.00	116	100.00

Wilcoxon matched pairs test, $Z=8.4630$, $p<0.001$, HS.

Table 4: Comparison of pre-test and post-test levels of practice.

Levels of practice	Pre-test		Post-test	
	No	%	No	%
Low level (<50%)	20	17.24	0	0.00
Average level (50-75%)	81	69.83	22	18.97
High level (>=76-100%)	15	12.93	94	81.03
Total	116	100.00	116	100.00

Wilcoxon matched pairs test, $Z=8.1008$, $p<0.001$, HS.

Table 5: Comparison of pre-test and post-test KAP scores by dependent t test.

Parameters	Time points	Mean	SD	Mean Diff.	SD Diff.	t-value	p-value
Knowledge	Pre-test	46.70	10.33	-41.04	14.90	-29.6713	<0.001, HS
	Post-test	87.74	11.03				
Attitude	Pre-test	65.70	8.38	-22.09	8.26	-28.7882	<0.001, HS
	Post-test	87.79	6.56				
Practice	Pre-test	59.83	14.45	-22.67	14.41	-16.9487	<0.001, HS
	Post-test	82.50	9.50				

$P < 0.001$, HS

DISCUSSION

In a country like India where people have very less information about drug like topical corticosteroid, pharmacists have a key role in educating them and minimize their irrational use.^{16,17} For this, community pharmacists should be well knowledgeable regarding its indication, potential side effects and other drug related information.^{18,19} Lack of knowledge can lead to misleading information while counselling.^{20,21} In our study, we tried to assess and educate community pharmacists about corticosteroids.²²

In a similar study conducted by Jaiurun *et al.*, analyzed the pharmacy curriculum regarding topical corticosteroid use and safety, revealed that some community pharmacists who participated in their study do not have a detailed understanding regarding the indications of topical corticosteroids similarly in our study pre-test scores indicates low level (<50%) knowledge scores around 60.34% (70) which shows many community pharmacists are having less knowledge on topical corticosteroids.^{23,24}

In a study conducted by Karalikkattil *et al.*, among pharmacy students, it showed that there was a significant difference in the information related to the side effects and classes of topical corticosteroids. In our study only 72% of the community pharmacists have knowledge about the side effects of corticosteroids and only 59% of the community pharmacists know about the classes of corticosteroids. This highlights that there is a need to conduct several educational programs for the community pharmacists.^{8,25}

Lau *et al.*, showed that 63% of the pharmacists did not know the potency grading of the corticosteroids. Data from our study shows that only 29% of the community pharmacists have knowledge

about the potency of corticosteroids. This percentage has increased to 74% in the post study data collected after educating them. Lau *et al.*, also showed that the community pharmacists did not counsel the patient regularly regarding corticosteroids, where as our study demonstrated that only 41% of the pharmacists regularly counselled the patients.^{22,26}

Kang *et al.*, concluded that the frequency of sales without prescription was 68.5%, where as our data showed a 63% rate of without prescription sales by the community pharmacist. Our study also shows that among 116 samples only 3 community pharmacist reported patient having topical corticosteroid side effects and none of them reported to these side effects to higher authorities. This number is much less when compared to the study by Kang *et al.*, 18.5% of the community pharmacist reported topical corticosteroid side effects. Similarly, Kang M J *al.* also showed a 48.9% rate of patient counselling was done by the community pharmacist, where as our study shows that 70% of the patients were counselled by the community pharmacist. Among the participants of our study 80% where D Pharm graduates which could be the reason for poor knowledge about topical corticosteroids.^{1,27}

Mahdy *et al.*, in their study they tested the knowledge, attitude and practices of topical corticosteroids use in patients in the UAE and found poor results, which is similar to the findings of our study were also majority of the community pharmacist showed low to average regarding topical corticosteroid use.^{28,29}

Smith *et al.*, in a study tested pharmacists' knowledge about use of topical corticosteroids in atopic dermatitis and found that non-adherence in the treatment was major factor for its failure. They also compared pre and post continuing professional

education behavior amongst the pharmacists which showed marked improvement in the form that the number of pharmacists advising patients to stop medications pre-maturely decreased whereas the numbers of those advising to continue until the full remission increased. This finding is similar to the findings of our study where we compared knowledge, attitude, and practices of the community pharmacists' pre and post education with the study material and found that there is a significant improvement in the KAP of community pharmacists in the post education category irrespective of their experience in the field.³⁰

CONCLUSION

From this study we conclude that pre-test results revealed a significant knowledge, attitude, and practice gap among the community pharmacists. Significant improvement in knowledge, attitude, and perception absorbed in post-test scores after seminar using audio video visuals. Hence educating community pharmacists with educational tools, workshops, seminars, and role plays conducted will be beneficial. Our study also shows the importance of periodic re-education of practicing community pharmacist in the form of better and more rational drug dispensing and proper patient counselling done by the community pharmacists. Thus, there is a need of re-education programs to be conducted from time to time for the community pharmacist.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

KAP: Knowledge, Attitude and Perception; **TCs:** Topical Corticosteroids; **OTC:** Over the Counter; **IEC:** Institutional Ethical Committee; **SPSS:** Statistical Package for Social Sciences; **SD:** Standard Deviation.

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