

# Topical Corticosteroid Phobia Among Healthcare Professionals Using the TOPICOP Score

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**Corticophobia is a major problem in adherence to therapy. This study examined corticophobia among healthcare professionals using the Topical Corticosteroid Phobia (TOPICOP) questionnaire. The TOPICOP questionnaire was adapted for use with professionals (TOPICOP-P). Four groups of professionals: pharmacists, paediatricians, general practitioners and dermatologists were observed. The mean  $\pm$  standard deviation global TOPICOP score was  $41.9 \pm 14.9\%$ . Pharmacists had the highest scores for corticophobia: a global score of  $48.5 \pm 13.9\%$ , followed by general practitioners,  $46.0 \pm 13.5\%$ , paediatricians  $39.7 \pm 14.5\%$ , and dermatologists  $32.3 \pm 12.1\%$ . Overall, there was a statistically significant difference in the mean score between the 4 groups ( $p < 0.05$ ). In conclusion, there is prominent corticophobia among healthcare professionals, especially among pharmacists and general practitioners, which is probably based on insufficient knowledge of topical corticosteroids. In order to improve patient compliance, re-education of healthcare providers is suggested.**

*Key words:* atopic dermatitis; corticophobia; pharmacist; general practitioner; paediatrician; dermatologist.

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Topical corticosteroids (TCS) are used in many skin diseases, especially in atopic dermatitis (AD) (1–4). Fear of using corticosteroids, known as corticophobia, is a universal problem in developed countries. It is one of the main reasons for poor adherence to treatment (5–7). In chronic diseases, such as atopic dermatitis (AD), adherence to topical treatment is a key issue. Lack of adherence may result in treatment failure and use of alternative treatments, such as phototherapy and/or immunosuppressive treatments, which may have more serious side-effects (3).

Possible causative factors for corticophobia among patients include personal experiences of previous side-effects, but also misinformation from media or healthcare providers (7–13). This can be caused by corticophobia among healthcare professionals (14–17).

The Topical Corticosteroid Phobia (TOPICOP) score measures corticophobia, and can be completed by patients or their parents (18). The score is based on 12 items

## SIGNIFICANCE

Fear of using corticosteroids (corticophobia) is a universal problem and one of the main reasons for poor treatment compliance. This study examined corticophobia among healthcare professionals (pharmacists, paediatricians, general practitioners and dermatologists) using the Topical Corticosteroid Phobia (TOPICOP) questionnaire. Pharmacists had the highest scores for corticophobia ( $48.5 \pm 13.9\%$ ), followed by general practitioners ( $46.0 \pm 13.5\%$ ), paediatricians ( $39.7 \pm 14.5\%$ ) and dermatologists ( $32.3 \pm 12.1\%$ ). In conclusion, there is prominent corticophobia among healthcare professionals, especially among pharmacists and general practitioners, probably based on insufficient knowledge of topical corticosteroids. In order to improve patient compliance, re-education of healthcare providers is suggested.

assessing 3 different dimensions of TCS phobia (beliefs, fears/worries and reluctance to use topical steroids), each scored on a 4-point Likert scale. A higher score means more corticophobia. The score has good psychometric properties, and was recently translated into other languages, including Dutch, and validated for international use (19–21).

The TOPICOP questionnaire was adapted for professionals and used in the current study to compare the attitudes of Belgian pharmacists, general practitioners, paediatricians and dermatologists to the use of TCS.

## METHODS

This prospective study was conducted at different dermatological symposia in Flanders, Belgium, in 2015. Before the start of the symposia attending healthcare providers were asked to complete the questionnaires on a voluntary basis. For each professional group this study aimed to collect 100 questionnaires.

The TOPICOP questionnaire was adapted for professionals, with retention of the meaning of the questions (TOPICOP-P). Like the original scale the TOPICOP-P questionnaire includes 12 items; 6 items concerning knowledge-beliefs, 3 items concerning worries and 3 items concerning behaviours about TCS, each scored on a 4-point Likert scale. Depending on the question, the scale was from never to always (0=never, 1=sometimes, 2=often, 3=always) or from totally disagree to totally agree (0=totally disagree, 1=do not really agree, 2=almost agree, 3=totally agree). However, in contrast to the original scale, where scores of 3 mean more reluctance, the re-wording resulted in the inverse interpretation for the final question, where scores from 3 to 0 were attributed. In contrast to the original scale, which was intended for use in daily practice, the TOPICOP-P scale is not intended for use in the

clinic, but only as a research goal. Therefore, as only a re-wording of the original questions was performed, and this was discussed with the developers of the scale, extensive validation was not considered necessary.

To interpret the results of the TOPICOP score, 2 additional questionnaires were completed. The first concerned demographic data (age, sex, personal/familial history of eczema, year of graduation, mean number of patients a day with a prescription for TCS, education by whom and source of information concerning TCS). The second questionnaire contained 5 additional questions about behaviour concerning TCS.

The answers were collected in Excel. Missing data were not replaced. Despite the fact respondents were asked to choose one option, some respondents (5 pharmacists, 1 GP and 3 dermatologists) ticked 2 answers. For these answers, the mean was used in order to calculate the total sum.

The global TOPICOP score and domain subscores for each participant were calculated as a percentage, calculated as the sum of all responses divided by the maximum possible sum for the included questions, multiplied by 100, resulting in a score of 0–100% TCS phobia. Comparative statistics were performed on the TOPICOP-P data. Statistical analyses were conducted using SPSS 25. The 4 groups were compared using one-way analysis of variance (ANOVA) (results were normally distributed). Subgroup comparisons were made using the Tukey *post-hoc* test. Statistical significance for all analysis was set at  $p < 0.05$ .

The study was approved by the local ethics committee.

## RESULTS

A total of 600 questionnaires were printed, and approximately 550 were distributed, although the number of professionals attending the symposia was not the same for all groups. The largest group were the pharmacists, where approximately 160 attended; for the other groups it was between 100 and 140.

Among the 550 questionnaires distributed, 441 were returned (138 pharmacists, 120 paediatricians, 81 general practitioners and 102 dermatologists). Thus, the approximate response rate for those attending the symposia was 80%. Participants who were still students (11 pharmacists, 18 paediatricians, 1 general practitioner and 9 dermatologists), who did not meet the professional requirements (7 pharmacists (3 assistants, 2 industrial pharmacists, 1 pharmacist who did not complete the profession data and 1 pharmacist who was recently graduated and unemployed) and 1 “dermatologist”, who did not complete the profession data) and who did not complete the TOPICOP questionnaire (2 pharmacists and 2 paediatricians) were not included.

### Demographic data

The final analysis includes responses from 118 pharmacists, 100 paediatricians, 81 general practitioners and 92 dermatologists. In the Flemish region of Belgium there are approximately 385 dermatologists, 600 paediatricians, 2,500 pharmacists and 8,500 general practitioners; hence we investigated 24% of the dermatologists, 17% of the paediatricians, 5% of the pharmacists and 1% of the general practitioners. Overall, 103 were male

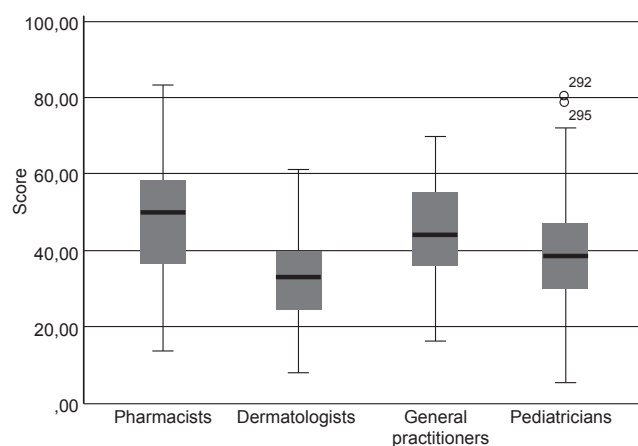
(26.3%). The mean age was 41.7 years. The mean number of patients a day with a prescription for TCS is 6.2, 0.9, 1.2 and 12.0 in pharmacists, paediatricians, general practitioners and dermatologists, respectively. Of the respondents, 49.62% (194/391) had a personal or familial history of eczema. Concerning paediatricians (77%), general practitioners (86.6%) and dermatologists (85.9%), most of the respondents received their education on TCS at university from dermatologists. The majority of the pharmacists got their education from a pharmacist (36.4%), although 32.2% of the pharmacists, especially the elder ones, did not remember having lessons about TCS. Of the pharmacists, 37.3% (44/118) reported that they sometimes changed the prescription.

The major source of information regarding TCS is, within all groups, meetings with dermatologists. Dermatologists and paediatricians also regularly obtain information from peer-reviewed professional journals.

### Main outcome

In the full population the mean  $\pm$  standard deviation (SD) global TOPICOP score was  $41.94 \pm 14.93\%$ , the subscores were  $45.70 \pm 18.04\%$  for knowledge-beliefs,  $45.4 \pm 19.9$  for worries and  $31.1 \pm 18.6\%$  for behaviours. **Fig. 1** shows the global score for the different professions.

The global TOPICOP score for pharmacists was  $48.5 \pm 13.9\%$ , with subscores of  $56.3 \pm 18.5\%$  for knowledge-beliefs,  $49.8 \pm 17.3\%$  for worries and  $31.7 \pm 17.9\%$  for behaviours. The global TOPICOP score for paediatricians was  $39.7 \pm 14.5\%$ , with subscores of  $41.1 \pm 16.9\%$  for knowledge-beliefs,  $45.2 \pm 19.4\%$  for worries and  $31.4 \pm 19.6\%$  for behaviours. The global TOPICOP score for general practitioners was  $46.0 \pm 13.5\%$ , with subscores of  $45.5 \pm 12.8\%$  for knowledge-beliefs,  $53.4 \pm 22.4\%$  for worries and  $39.8 \pm 18.1\%$  for behaviours. The global TOPICOP score for dermatologists was  $32.3 \pm 12.1\%$ ,



**Fig. 1. Boxplot: global Topical Corticosteroid Phobia (TOPICOP) questionnaire score for different professions.** The box is the interquartile range which represents the 75<sup>th</sup> minus the 25<sup>th</sup> percentile, the line in the box represents the median, the ends of the whiskers represent the maximum and minimum of the data and the outliers are shown as dots.

**Table 1. Comparison of main results of Topical Corticosteroid Phobia (TOPICOP-P) Professionals questionnaire scores between healthcare providers subgroups**

Subgroup	Compared with	Mean diff. TOPICOP	SE	Significance
General practitioners	Dermatologists	13.69	2.07	0.000
	Paediatricians	6.36	2.03	0.010
	Pharmacists	-2.50	1.96	0.580
Dermatologists	General practitioners	-13.69	2.07	0.000
	Paediatricians	-7.34	1.96	0.001
	Pharmacists	-16.19	1.89	0.000
Paediatricians	General practitioners	-6.36	2.03	0.010
	Dermatologists	7.34	1.96	0.001
	Pharmacists	-8.86	1.85	0.000
Pharmacists	General practitioners	2.50	1.96	0.580
	Dermatologists	16.19	1.89	0.000
	Paediatricians	8.86	1.85	0.000

diff.: difference; SE: standard error.

with subscores of  $37.3 \pm 16.1\%$  for knowledge-beliefs,  $32.8 \pm 14.9\%$  for worries and  $22.3 \pm 14.7\%$  for behaviours.

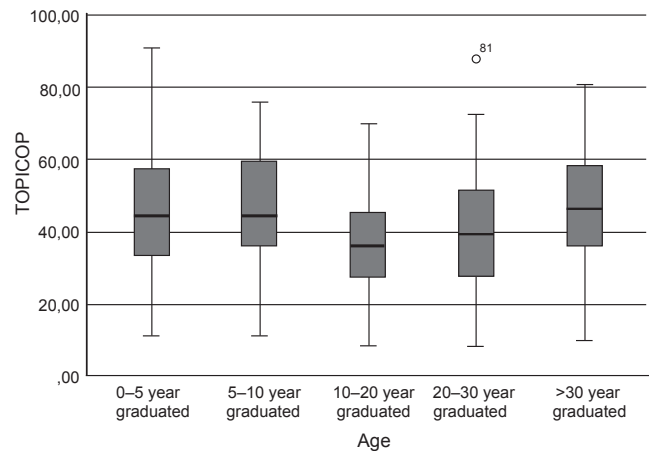
Overall, there was a statistically significant difference in the mean score between the 4 groups ( $p < 0.05$ ), pharmacists and general practitioners being most corticophobic. Comparison between the groups individually shows a statistically significant difference between dermatologists and the other professions ( $p \leq 0.001$ ), and between paediatricians and the other professions ( $p \leq 0.10$ ), but differences between general practitioners and pharmacists were not statistically different ( $p = 0.580$ ) (Table 1).

### Secondary outcomes

Regarding knowledge-beliefs, pharmacists and paediatricians are mostly afraid of skin damage, followed by TCS passing into the bloodstream and causing systemic side-effects. General practitioners and dermatologists mostly distrust TCS because they may lead to infections.

Regarding worries, pharmacists, paediatricians and general practitioners are more worried about using TCS on certain zones, such as the eyelids than about using too much TCS, in contrast to dermatologists.

Regarding behaviour, all the professionals advised stopping TCS as soon as possible more than waiting as long as possible before treating with TCS. Dermatologists are the professionals who reassure patients the most about the use of TCS, followed by paediatricians, pharmacists and general practitioners. The use of TCS in babies is often or always discouraged by 20.3% of pharmacists, 21.0% of paediatricians, 39.0% of general practitioners and 10.9% of dermatologists. Regarding the duration of treatment, most pharmacists (48.3%), dermatologists (59.8%) and general practitioners (34.1%) advise using TCS until the eczema is completely healed, which is the correct attitude. On the other hand, the biggest portion of the paediatricians, 39.0%, mostly advises using them maximum 1 week. Concerning the amount of TCS needed, only 21.2% of pharmacists, 31% of paediatricians, 24.4% of general practitioners, and 38%



**Fig. 2. Boxplot: global Topical Corticosteroid Phobia (TOPICOP) questionnaire score by age group.** The box is the interquartile range which represents the 75<sup>th</sup> minus the 25<sup>th</sup> percentile, the line in the box represents the median, the ends of the whiskers represent the maximum and minimum of the data and the outliers are shown as dots.

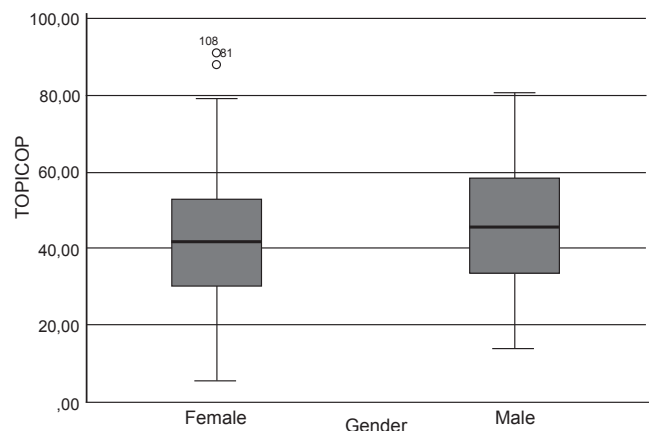
of dermatologists use the fingertip method. Most of the professionals advise using TCS in moderation.

Answering the question regarding how long a 30 g tube of TCS should last for an adult with eczema on the elbow- and knee-folds (4% of body surface area), 55.1% of pharmacists, 37.0% of paediatricians, 43.9% of general practitioners and 58.7% of dermatologists answered correctly (2 weeks when used 2 times a day). Paediatricians underestimated the quantity needed.

Confidence in TCS was not related to age (length of experience) or sex (Figs 2 and 3).

## DISCUSSION

Corticophobia in patients has been well described in multiple studies (9–13). Possible causative factors for TCS phobia include misinformation provided by health-



**Fig. 3. Boxplot: global Topical Corticosteroid Phobia (TOPICOP) questionnaire score by sex.** The box is the interquartile range which represents the 75<sup>th</sup> minus the 25<sup>th</sup> percentile, the line in the box represents the median, the ends of the whiskers represent the maximum and minimum of the data and the outliers are shown as dots.

care providers (7, 8), which may be due to TCS phobia among healthcare professionals (14–17).

Comparing the results of this study with those of an international study with 1,564 patients, of whom 153 were Belgian (results in parentheses), which revealed a mean  $\pm$  SD global TOPICOP score of  $44.7 \pm 20.5\%$  (44.2%) with subscores of  $37.0 \pm 22.8\%$  (47.4%) for knowledge-beliefs,  $54.7 \pm 27.8\%$  (41.9%) for worries and  $50.1 \pm 29.1\%$  (43.8%) for behaviours, it can be concluded that global corticophobia among healthcare professionals is comparable, even higher in pharmacists and general practitioners, but lower in paediatricians and dermatologists (19). Patient scores for knowledge-beliefs are lower than those of healthcare professionals, which may appear contradictory, but may be explained by the fact that the phrase “when correctly used” was not included in every question. Scores for worries and behaviours are considerably higher in patients. Professionals, as well as patients, are most afraid of using TCS on the eyelids, followed by using too much TCS. Regarding behaviour, patients wait longer to start TCS treatment and will also stop more quickly than professionals advise. When these results are compared with a Japanese study, which showed a mean global TOPICOP score of  $41.0 \pm 18.0\%$  in patients, it still can be concluded that corticophobia in pharmacists and general practitioners is higher than in patients (20).

**Table II** shows a comparison of the TOPICOP scores from studies using the TOPICOP questionnaire.

Recently, a Dutch study examined corticophobia in professionals involved in caring for children with atopic dermatitis (public health care nurses, general practitioners, public health care physicians and paediatricians) and demonstrated that healthcare nurses had the highest levels, and paediatricians and public healthcare physicians the lowest levels of corticophobia (21). Using our adapted TOPICOP score we also evaluated corticophobia in different healthcare providers, pharmacists, paediatricians, general practitioners and dermatologists, and demonstrated that it is prominent and statistically different between the different professions. A unique aspect of this study is the comparison between diffe-

rent healthcare providers and the comparison of their knowledge of and attitude towards TCS. Overall, mean global TOPICOP score was highest among pharmacists and general practitioners and lowest among dermatologists. These results are in agreement with an Australian study, in which corticophobia was examined in parents of children with atopic dermatitis. All parents had been told that TCS were dangerous, mostly by friends, but in 44% of cases, by pharmacists, and in 25% by general practitioners (15). This is also the conclusion of 2 other studies, by Smith et al., that patients are scared by family, friends and the Internet, but also by pharmacists and general practitioners, which may influence patients feelings about the safety of TCS (22, 23). Another study, which examined general practitioners' knowledge of TCS, showed that general practitioners unintentionally frighten patients when they prescribe TCS (24).

In our study, the subscore for knowledge and beliefs was also highest in pharmacists and general practitioners, which suggests that insufficient knowledge can result in corticophobia. An Australian study showed that fear of TCS can be influenced by teaching about use, the mode of action and side-effects of TCS (17).

Pharmacists and general practitioners play an important role in informing patients about TCS, and their attitude has a high impact on patients. In a British study 78% of pharmacists reported that patients with dry skin sought their advice on a weekly basis (25). It is interesting (and worrying) to note that 37.3% (44/118) of pharmacists reported that they sometimes changed the prescription. Further investigation of how prescriptions are changed is beyond the scope of the current study. A previous study, which surveyed 292 pharmacists, showed that 6% of responders suggested an alternative frequency of treatment (17).

These findings suggest several actions. First, re-education of healthcare professionals is an important issue. There should be more attention paid to education, especially when almost one-third of pharmacists do not recall receiving lessons about TCS.

For professionals, it is important to be aware of patients' concerns, but also of their personal attitude

**Table II. Comparing the Topical Corticosteroid Phobia (TOPICOP) questionnaire scores of this study with other studies**

Study	N	Global TOPICOP score, % Mean $\pm$ SD	Knowledge-beliefs, % Mean $\pm$ SD	Worries, % Mean $\pm$ SD	Behaviour, % Mean $\pm$ SD
Our study	391 professionals	41.9 $\pm$ 14.9	45.7 $\pm$ 18.0	45.4 $\pm$ 19.9	31.1 $\pm$ 18.6
	Pharmacists	48.5 $\pm$ 13.9	56.3 $\pm$ 18.5	49.8 $\pm$ 17.3	31.7 $\pm$ 17.9
	General practitioners	46.0 $\pm$ 13.5	45.5 $\pm$ 12.8	53.4 $\pm$ 22.4	39.8 $\pm$ 18.1
	Paediatricians	39.7 $\pm$ 14.5	41.1 $\pm$ 16.9	45.2 $\pm$ 19.4	31.4 $\pm$ 19.6
	Dermatologists	32.3 $\pm$ 12.1	37.3 $\pm$ 16.1	32.8 $\pm$ 14.9	22.3 $\pm$ 14.7
Stalder et al. 2017 (19)	1,564 patients	44.7 $\pm$ 20.5	37.0 $\pm$ 22.8	54.7 $\pm$ 27.8	50.1 $\pm$ 29.1
Futamura et al. 2016 (20)	287 patients	41.0 $\pm$ 18.0			
Bos et al. 2019 (21)	191				
	Parents	44.0			
	Public healthcare nurses	44.0			
	General practitioners	39.0			
	Public healthcare physicians	31.0			
Paediatricians	31.0				

SD: standard deviation.

towards TCS and how they transfer information to patients. It is essential to take sufficient time to inform patients, to gain their trust and, by the wording they use, not to induce undue fears. In the long-term, this will reduce uncontrollable outbreaks of eczema and thus save time and prevent the necessity of using systemic medication, which is potentially more dangerous.

This study has some limitations. First, we recruited professionals who were present at a symposium about dermatology. These persons may have more interest in this subject and thus may be more familiar with TCS. Secondly, the adapted questionnaire has not been validated. The questionnaire was adapted slightly for this study concerning the respondent (healthcare provider instead of patient), but no other alterations were made, in order not to deviate too much from the validated English questionnaire. This was discussed with the developers of the scale. Discussing the outcome subsequently with some participants, we realized that, for these professionals, adding "when correctly used" would probably have lowered the corticophobia score.

In conclusion, prominent corticophobia exists among healthcare professionals, especially among pharmacists and general practitioners, probably based on insufficient knowledge of TCS. This may lead to mistrust among patients, as they frequently discuss their treatment with these professionals. Therefore, it is important to continue to provide education about topical treatments to all concerned professionals in order to improve patients' confidence in using these products.

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