

**A SURVEY REPORT ON HEALTHCARE PROVIDERS' EXPERIENCES,
PRACTICES, AND PERCEIVED NEEDS REGARDING THE
TREATMENT AND MANAGEMENT OF GENERALIZED PUSTULAR
PSORIASIS (GPP): *Evidence from a survey carried in 2024***

Table of Contents

INTRODUCTION	3
Recruitment process for research participants	3
METHODOLOGY	3
RESULTS AND DISCUSSION	4
CONCLUSION	10
REFERENCES	11

HEALTHCARE PROVIDERS' EXPERIENCES, PRACTICES, AND PERCEIVED NEEDS REGARDING THE TREATMENT AND MANAGEMENT OF GENERALIZED PUSTULAR PSORIASIS (GPP)

INTRODUCTION

Generalized pustular psoriasis (GPP) is a rare, chronic, and severe inflammatory skin disorder characterized by sudden eruption of sterile pustules, often accompanied by systemic inflammation (Rivera-Diaz, 2023). As noted by Rivera-Diaz, the lack of standardized criteria in treatment guidelines makes the diagnosis and treatment of GPP difficult. We therefore carried out a survey to find out the experiences, practices and perceived needs of healthcare providers regarding the management of GPP. Being a rare condition, we also aimed to assess how often healthcare providers encounter it in their practice, especially in the last few years, the gender that is mostly affected by GPP, severity of the GPP cases, any treatment variations to identify common practices or gaps in treatment, and lastly identify any need for healthcare provider support.

Recruitment process for research participants

A six-question survey was developed using Google Forms to assess the experience of dermatologists in South Africa regarding GPP management. Initially, email addresses of dermatologists were sourced through various online platforms, and an invitation to participate in the survey was sent to 60 practicing dermatologists. Prior to the official distribution, a pilot version of the survey was shared with two clinicians to ensure clarity and relevance.

Despite the effort, the response rate was low, with only two initial replies. To increase participation, printed survey forms were distributed to several dermatology practices. Additionally, assistance was sought from a retired dermatologist in Cape Town, who has been involved in training specialists, and the administrator of the South African Dermatology Society to promote the survey to the broader clinical population. This led to a slight increase in responses.

Recognizing the need for further efforts, we decided to increase our response rate through face-to-face interactions at the national Dermatology Congress in Gqeberha in August. Veronica took advantage of this opportunity, which proved highly successful, adding 91 responses to the initial effort. Following this, we concluded the recruitment of participants.

METHODOLOGY

The methodology for this survey involved collecting data from healthcare providers regarding their experiences with the diagnosis and management of GPP. A structured

questionnaire consisting of six closed- and open-ended questions was distributed to assess the respondents' clinical exposure to GPP over the past year and the last five years. The survey also inquired about the predominant gender of GPP patients treated, the types of treatments prescribed, and the need for hospitalization. Additionally, healthcare providers were asked about their interest in receiving a practical guide for managing GPP in collaboration with nurses and other healthcare professionals. Responses were gathered from individuals who indicated whether they had encountered GPP cases and what resources they considered beneficial for improved patient care. Data were analyzed to identify trends in clinical exposure, treatment practices, and resource needs, providing insight into gaps in GPP management and the potential for developing standardized care guidelines.

RESULTS AND DISCUSSION

Overall, we received a total of 127 responses, with most dermatologists being based in South Africa and overall findings are summarized in Table 1. Additionally, we had 3 respondents from Namibia, 2 from Zimbabwe, and 1 from Mauritius. Out of the 127 responses, 52% of the dermatologists reported having seen and treated a patient with GPP, while 44.9% had not encountered any GPP patients in the past year, and the remaining respondents were uncertain. This is illustrated in Figure 1 below. Although the percentage of those who had treated GPP is slightly higher, the relatively small gap between the groups highlights the rarity and complexity of diagnosing and managing GPP. This finding underscores the importance of enhancing awareness and diagnostic capabilities among dermatologists, as some may not have recognized GPP cases or may require further training to identify and treat the condition effectively.

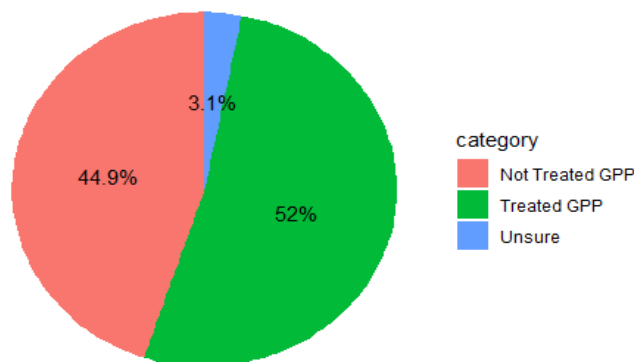


Figure 1: *Proportion of Dermatologists that have treated a GPP patient in the past year*

Table 1: Characteristics of Healthcare Provider Responses Stratified by Gender of GPP patients

Characteristic	Overall N = 127 ¹	Male N = 43 ¹	Female N = 47 ¹	Prefer not to say N = 37 ¹	p- value ²
Number of patients treated in the past year	66 (52%)	22 (51%)	25 (53%)	19 (51.3%)	0.8
Treatment prescribed					0.4
Topical steroids plus other meds	71 (56%)	21 (48.8%)	30 (63.8%)	20 (54.1%)	
Acitretin only	7 (8.2%)	3 (7.0%)	3 (6.4%)	1 (2.7%)	
Adalimumab only	3 (2.7%)	0 (0%)	3 (6.4%)	0 (0%)	
Cyclosporin only	9 (6.8%)	5 (11.6%)	1 (2.1%)	3 (8.1%)	
Methotrexate only	16 (12.6%)	6 (14%)	5 (10.6%)	5(13.5%)	
Other treatments	7 (8.4%)	5 (11.6%)	2(4.3%)	0 (0%)	
Neotigason only	5 (4.1%)	3 (7.0%)	0 (0%)	2 (5.4%)	
Number of patients requiring hospitalization					0.3
None	41 (31.7%)	12 (27.9%)	12 (25%)	17 (46%)	
Very few	43 (34.1%)	15 (34.9%)	18 (39%)	10 (27%)	
Most of the patients	43 (34.1%)	16 (37.2%)	17 (36%)	10 (27%)	
Number of individuals consulted in the last 5 years					0.024
1-2	50 (39.4%)	17 (39.5%)	16 (34%)	17 (46%)	
3-5	35 (27.6%)	13 (30.2%)	18 (38.3%)	4 (10.8%)	
6-10	11 (8.7%)	5 (11.6%)	5 (10.6%)	1 (2.7%)	
11-20	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
21-30	3 (2.4%)	1 (2.4%)	2 (4.3%)	0 (0%)	
Over 30	4 (3%)	2 (4.7%)	1 (2.1%)	1(2.7%)	
None	24(18.9%)	5(11.6%)	5(10.6%)	14(37.8%)	
Practical guides for care					0.4
Yes	103 (81.1%)	31 (72.1%)	39 (82.9%)	33 (90%)	
Maybe	20 (15.7%)	10(23.3%)	6 (12.8%)	4 (9.7%)	
Unknown	4 (3.2%)	2 (4.6%)	2(4.3%)	0 (0%)	

¹n (%): N=sample size, n=frequency: %=percentage

²Pearson's Chi-squared test; Fisher's exact test

In our study, 37% of patients treated for GPP were female, while males accounted for 33.9%. Additionally, 29.1% of healthcare providers chose not to disclose the gender of the patients treated for GPP, as illustrated in Figure 2. The slight difference in gender distribution suggests a comparable prevalence of GPP between males and females. This finding is further supported by a chi-squared test, which yielded a p-value of 0.8 (see Table 1), indicating no significant difference in the number of males and females treated for GPP over the past year. These results align with existing literature, which suggests that the overall prevalence of GPP is similar across genders (Sonderman et al 2020). However, some studies have highlighted differences in disease expression, impact, coping strategies, and the specific needs of male and female patients (Gonzalez-Cantero et al, 2023).

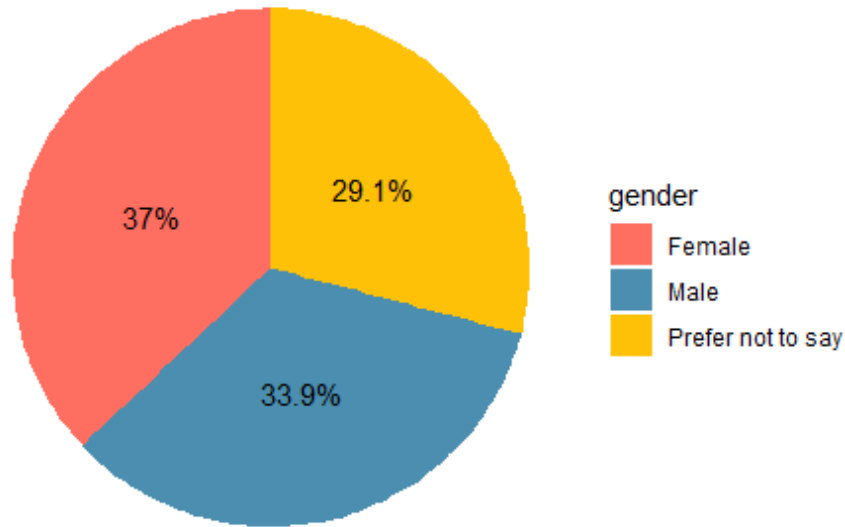


Figure 2: *Proportion of the predominant gender for the GPP patients*

The treatments administered for GPP were investigated through an open-ended question, enabling healthcare providers to list various treatment modalities. This approach aimed to identify patterns and variations in therapeutic strategies. A significant proportion of patients (56%) received a combination of medications, including topical corticosteroids, methotrexate, acitretin, and cyclosporin. In contrast, a smaller percentage of patients were treated with acitretin alone (8.2%), neotigason alone (4.1%), adalimumab alone (2.7%), cyclosporin alone (6.8%), or methotrexate alone (12.6%). Additionally, other treatments,

which comprised 9.6% of responses, included phototherapy, immunotherapy, biologicals, and infliximab. Notably, when stratified by gender, females predominated in the group receiving topical steroids combined with other medications as illustrated in Figure 3.

These findings align with existing literature, which highlights the importance of combination therapy in managing GPP, given its complex pathophysiology and the variability in treatment responses among patients (Hewitt et al., 2021; Mrowietz et al., 2018). Moreover, gender differences in treatment approaches and responses have been documented, suggesting that female patients may require tailored therapeutic strategies to optimize outcomes (Fischer et al., 2020).

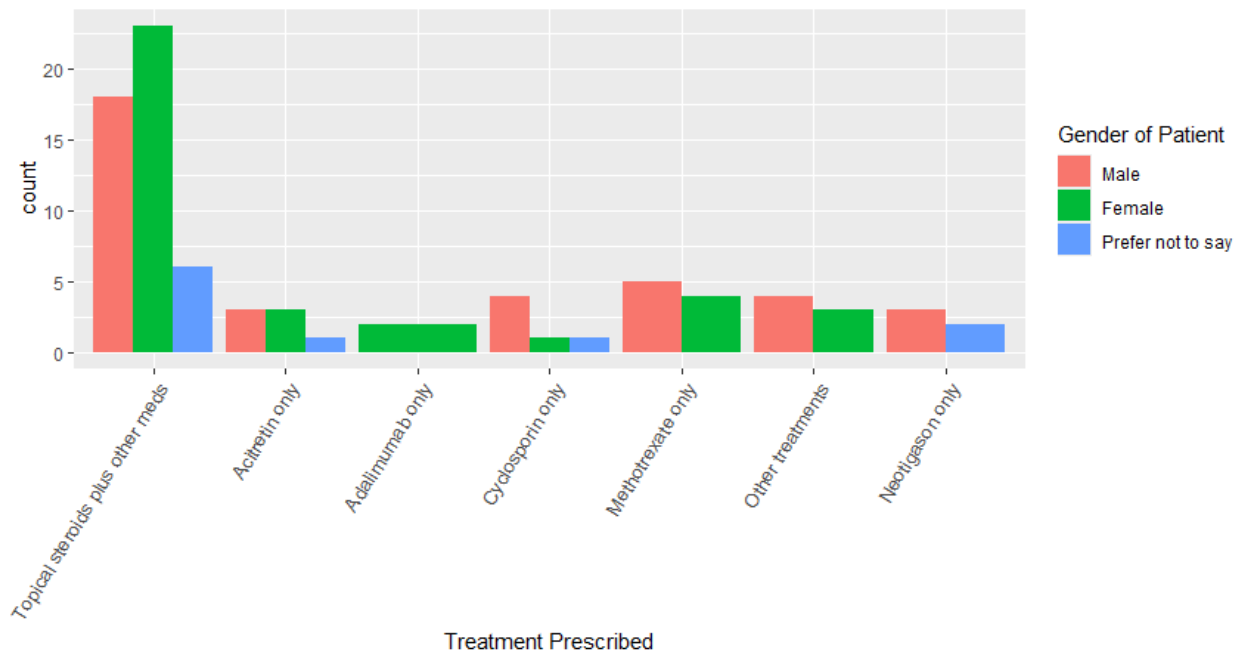


Figure 3: A bar plot showing treatments prescribed stratified by gender of the GPP patients.

As illustrated in figure 4, approximately 34.1% of healthcare providers indicated that only a few of their patients with GPP required hospitalization, while 31.7% reported that most of their patients needed hospital care. The remaining 34.1% stated that none of their GPP patients required hospitalization. These findings highlight the variable severity of GPP cases, as hospitalization is often necessary for patients experiencing acute flare-ups or complications such as systemic inflammation, infection, or organ dysfunction.

The decision to hospitalize GPP patients often depends on the extent of disease activity, patient comorbidities, and the potential for rapid deterioration, all of which are well-

documented in the literature. Hospitalization is typically indicated in cases where outpatient treatment with standard therapies such as methotrexate, acitretin, or cyclosporin fails to achieve adequate control, or where patients present with severe systemic symptoms requiring intensive care (Menter et al., 2019; Navarini et al., 2017). Additionally, this data underscores the need for personalized care plans, considering that some GPP patients may be successfully managed in an outpatient setting without requiring hospitalization.

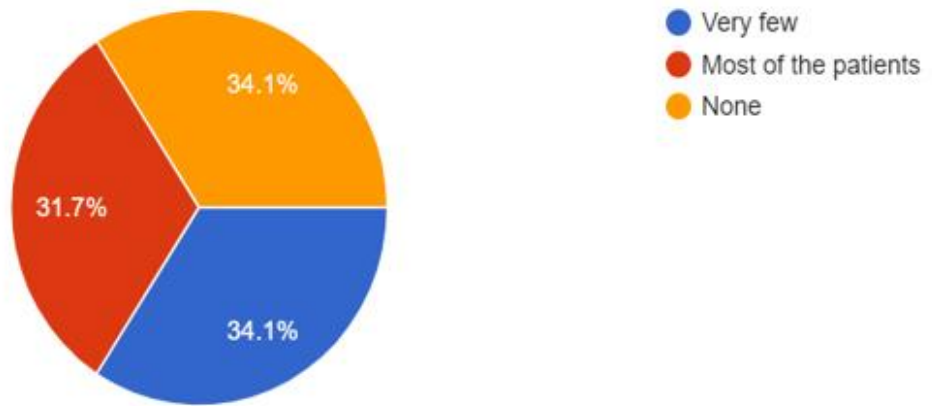


Figure 4: A pie chart displaying provider responses on how many GPP patients required hospitalization.

To further explore the rarity and complexity of Generalized Pustular Psoriasis (GPP), healthcare providers were asked how many individuals they had consulted with GPP over the past five years. The majority, 39.4%, indicated that only 1 to 2 individuals had consulted them, reflecting the scarcity of cases. This was followed by 27.6%, who reported consulting 3 to 5 individuals. Only 2.4% of respondents mentioned seeing 21 to 30 patients, while a mere 3% had consulted over 30 individuals for GPP. These figures highlight the rarity of GPP consultations and are further detailed in Figure 5.

This distribution underscores the challenge in managing a rare and complex disease like GPP, where most healthcare providers encounter only a few cases, aligning with literature that emphasizes its low prevalence and the specialized care it often requires.

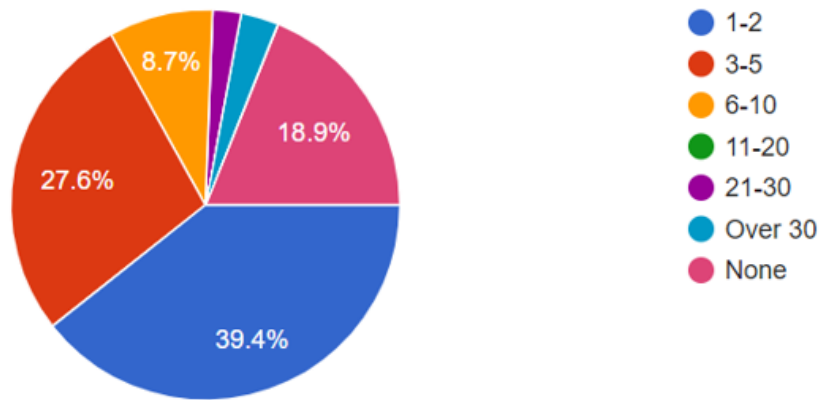


Figure 5: *Proportion of individuals consulted about GPP in the last 5 years*

A significant majority of healthcare providers (81.1%) indicated that practical guidelines for the care of GPP would be helpful. In contrast, 15.7% were uncertain, and the remaining 3.2% declined the need for such practical guidelines. The high demand for practical care guidelines highlights the complexity and rarity of GPP, as many providers may lack sufficient experience with the condition. The introduction of standardized, evidence-based care protocols could help improve patient outcomes by offering clear guidance on treatment options and management strategies, particularly for those less familiar with GPP. Additionally, these guidelines could promote consistency in care and ensure that even in less experienced hands, patients receive optimal and up-to-date treatment.

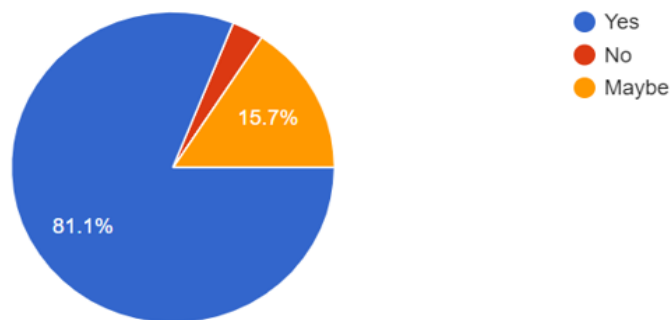


Figure 6: *Proportion of healthcare providers requiring practical guides for GPP care*

CONCLUSION

The results of this survey provide valuable insights into the current practices and challenges faced by healthcare providers in treating patients with Generalized Pustular Psoriasis (GPP). Although GPP remains a rare and complex condition, 52% of respondents had encountered and treated patients with GPP, while 44.9% had not. Treatment approaches vary widely, with a significant proportion of providers using a combination of medications such as topical corticosteroids, methotrexate, acitretin, and cyclosporin. Hospitalization was deemed necessary by about one-third of providers, emphasizing the severity of cases seen in clinical practice.

Furthermore, the survey highlights a pressing need for practical guidelines, as 81.1% of healthcare providers expressed interest in such resources. This finding underscores the importance of developing standardized care protocols to support clinicians in the effective management of GPP. The survey also revealed that most providers see very few GPP cases, which further supports the need for accessible, evidence-based tools that can help guide treatment decisions in both routine and severe cases.

In summary, while GPP remains a rare condition, there is a clear demand for more structured clinical guidance to ensure consistency in care across different healthcare settings. Standardized protocols could improve patient outcomes, ensure optimal treatment strategies, and address the challenges healthcare providers face in managing this complex disease.

REFERENCES

1. Rivera-Díaz R, Daudén E, Carrascosa JM, Cueva P, Puig L. Generalized Pustular Psoriasis: A Review on Clinical Characteristics, Diagnosis, and Treatment. *Dermatol Ther (Heidelb)*. 2023 Mar;13(3):673-688. doi: 10.1007/s13555-022-00881-0. Epub 2023 Jan 13. PMID: 36635445; PMCID: PMC9836924.
2. Sondermann W, Djeudeu Deudjui DA, Körber A, Slomiany U, Brinker TJ, Erbel R, Moebus S. Psoriasis, cardiovascular risk factors and metabolic disorders: sex-specific findings of a population-based study. *Journal of the European Academy of Dermatology and Venereology*. 2020 Apr;34(4):779-86
3. Gonzalez-Cantero, A., Constantin, M. M., Dattola, A., Hillary, T., Kleyn, E., & Magnolo, N. (2023). Gender perspective in psoriasis: a scoping review and proposal of strategies for improved clinical practice by European dermatologists. *International journal of women's dermatology*, 9(4), e112. <https://doi.org/10.1097/JW9.0000000000000112>
4. Hewitt, M., et al. (2021). Management of generalized pustular psoriasis: A systematic review. *Journal of Dermatological Treatment*, 32(3), 302-310. doi:10.1080/09546634.2020.1762467
5. Mrowietz, U., et al. (2018). Treatment of generalized pustular psoriasis: A systematic review. *British Journal of Dermatology*, 178(6), 1211-1222. doi:10.1111/bjd.16447
6. Fischer, A., et al. (2020). Gender differences in the management of psoriasis: A focus on therapy outcomes. *Archives of Dermatological Research*, 312(5), 371-378. doi:10.1007/s00403-020-02063-7
7. Menter, A., Gelfand, J. M., Connor, C., Armstrong, A. W., Cordoro, K. M., Davis, D. M. R., ... & Elmets, C. A. (2019). Joint American Academy of Dermatology–National Psoriasis Foundation guidelines of care for the management of psoriasis with systemic nonbiologic therapies. *Journal of the American Academy of Dermatology*, 80(4), 1029-1072.
8. Navarini, A. A., Burden, A. D., Capon, F., Mrowietz, U., Puig, L., Köks, S., ... & Barker, J. N. (2017). European consensus statement on phenotypes of pustular psoriasis. *Journal of the European Academy of Dermatology and Venereology*, 31(11), 1792-1799.