

Concealing Meets Healing in the Treatment of Toenail Onychomycosis: A Review of Concurrent Nail Polish Use With Topical Efinaconazole 10% Solution

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SYNOPSIS

- Women accounted for almost 60% of outpatient visits among patients seeking help or treatment for fungal nail infections (onychomycosis) in the United States between 1993 and 2010¹
- Topical treatments for onychomycosis may be the preferred option for some patients due to safety concerns, disease severity, or individual preference^{2,3}
- Women may be also more likely to camouflage their nails with polish, though data are limited on how nail polish and topical treatments for onychomycosis interact
- During a six-year period from June 2016 to May 2022, 53.5% of prescriptions for efinaconazole 10% solution were written for females,⁴ suggesting that there may be particular interest in the interaction between efinaconazole treatment and nail polish use

OBJECTIVE

- The goal of this narrative review was to summarize data evaluating interactions between efinaconazole 10% solution and nail polish; results from 4 studies are included (3 literature-identified and 1 investigator-initiated study)
 - Penetration: Review data from 1 ex vivo study on the effects of traditional polish on nail penetration of efinaconazole
 - Efficacy: Review data from 2 clinical studies on the impact of nail polish (traditional and gel) on efinaconazole efficacy in the treatment of toenail onychomycosis
 - Appearance: Review data from 2 ex vivo and 2 clinical studies on the effect of efinaconazole on nail polish appearance (traditional and gel)

TRADITIONAL NAIL POLISH ON NAIL PENETRATION AND EFFICACY OF EFINACONAZOLE

- In an ex vivo study, efinaconazole 10% solution was able to penetrate human cadaverous thumbnails coated with traditional nail polish⁵ (Figure 1)
- A clinical study found that efinaconazole was efficacious in all participants, regardless of traditional nail polish use⁶ (Figure 2)

GEL NAIL POLISH ON EFFICACY OF EFINACONAZOLE

- In a 6-month, open-label, investigator-initiated study, participants (N=12) with mild-to-moderate onychomycosis of at least one great toenail received monthly gel/no-chip pedicures⁷
 - Participants could choose from >30 colors of OPI or Gelish brand polish; brand and color could change at every pedicure
- Efinaconazole 10% solution was applied immediately after gel polish was cured with ultraviolet (UV) light
- Participants applied efinaconazole once daily at home and avoided any outside nail polishes or treatments
- At month 6, all participants tested negative for fungal infection and had visible improvements in onychomycosis severity (Figure 3)
- Representative images of onychomycosis improvement with efinaconazole 10% solution are shown in Figure 4

EFINACONAZOLE ON NAIL POLISH APPEARANCE

- Traditional nail polish texture and appearance were impacted by efinaconazole, though effects may be partially mitigated with darker colors and use of top/base coats (Table 1)
- In contrast, efinaconazole did not affect the duration, quality, or texture of gel nail polish (Table 1)

FIGURE 1. Ex Vivo Nail Penetration of Efinaconazole 10% Solution With or Without Traditional Nail Polish

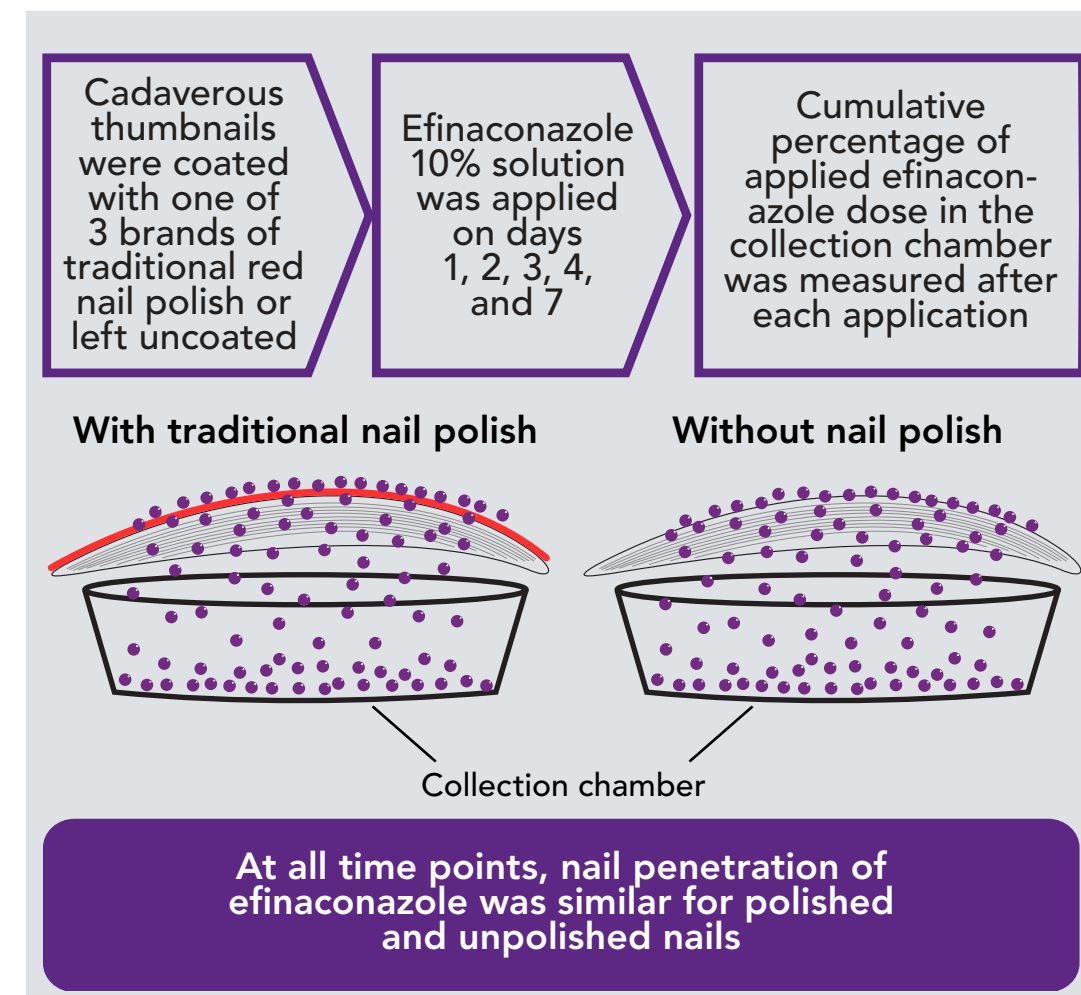
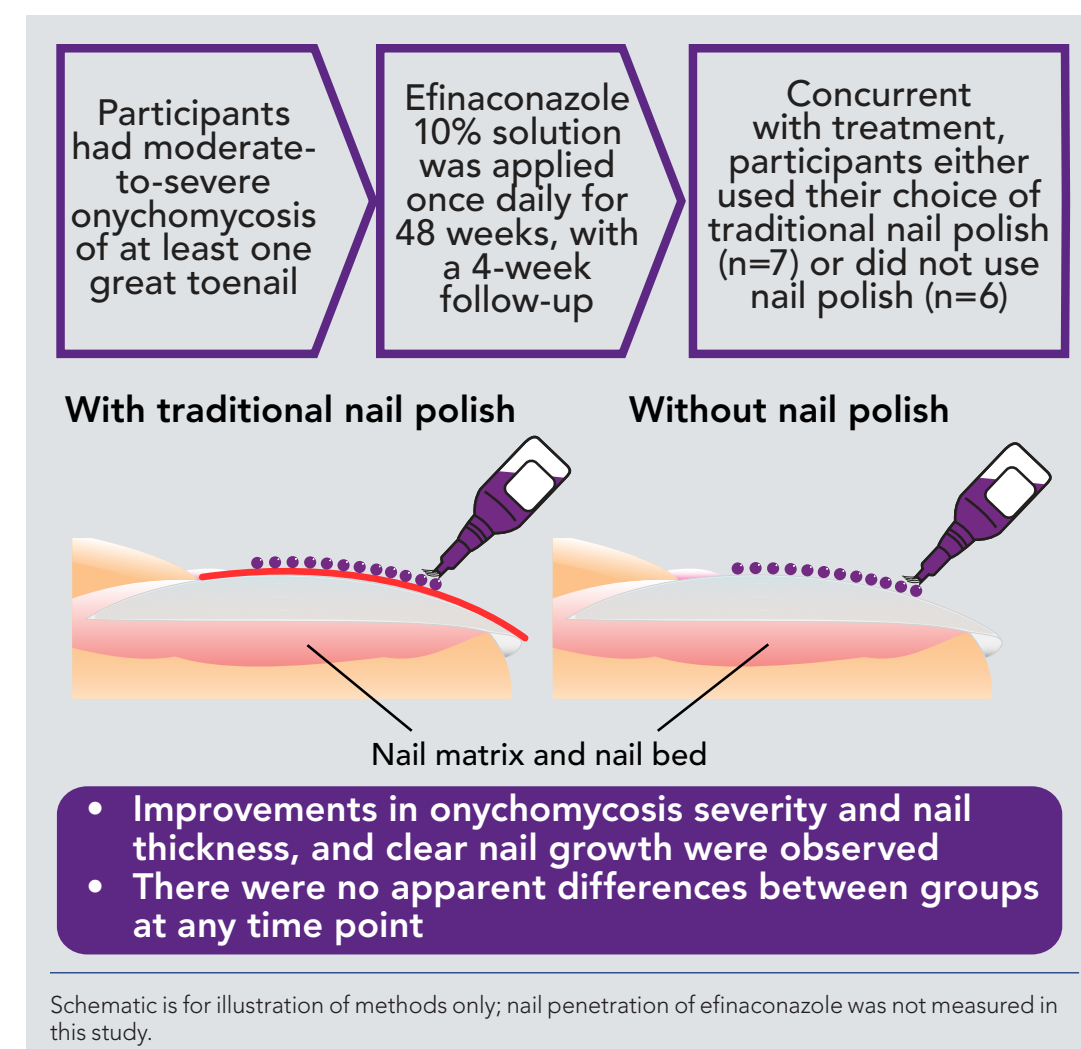


FIGURE 2. In Vivo Clinical Efficacy of Efinaconazole 10% Solution With or Without Traditional Nail Polish



Schematic is for illustration of methods only; nail penetration of efinaconazole was not measured in this study.

FIGURE 3. In Vivo Clinical Efficacy of Efinaconazole 10% Solution With Gel-Polished Nails (Month 6)^a

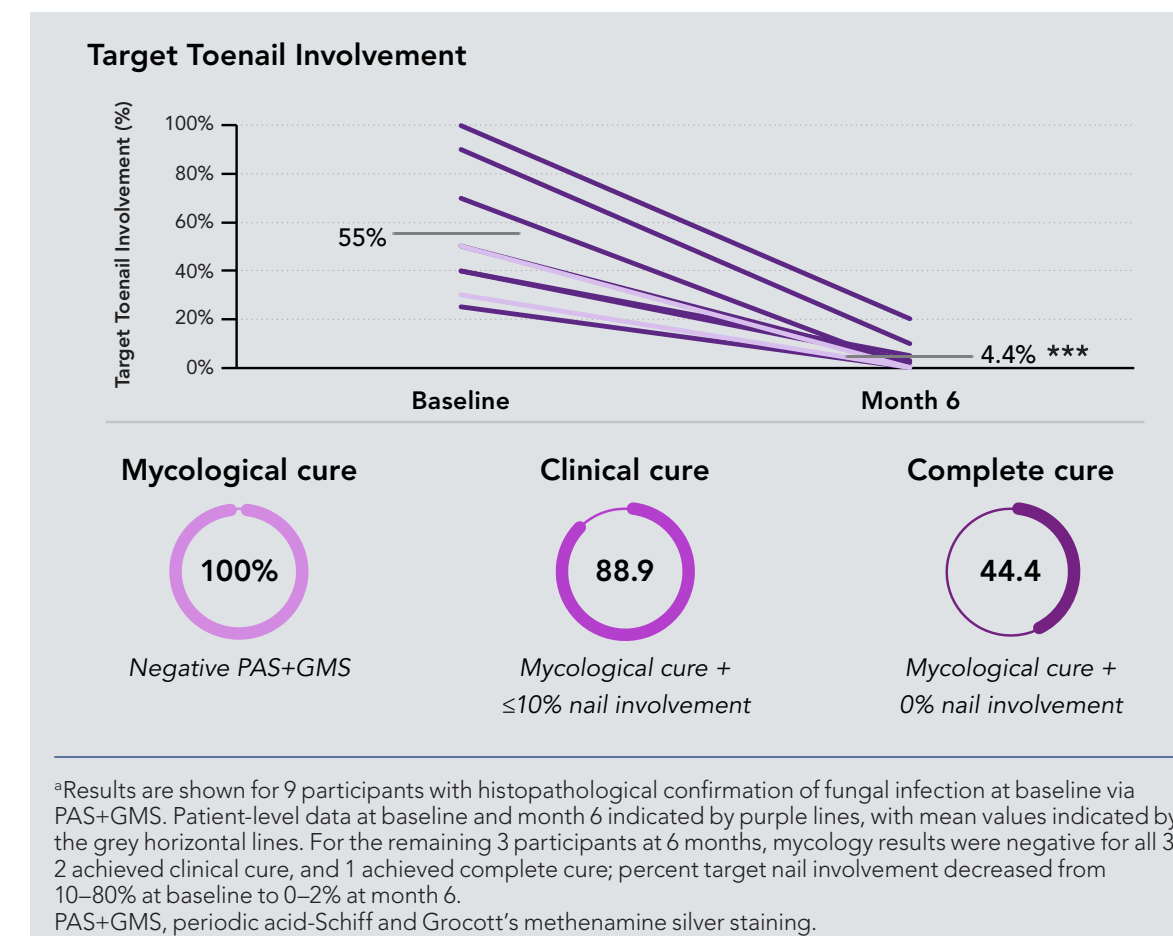


TABLE 1. Effects of Efinaconazole on Nail Polish Appearance

Publication	Study design	Population	Nail polish, brand(s) (color)	Results
Zeichner 2014 ⁵	Ex vivo: once-daily efinaconazole application on days 1, 2, 3, 4, and 7	Human cadaverous thumbnails (free of disease or pathology)	• Dior (999 Red Royalty) • Essie (488 Forever Yummy) • Revlon (550 Cherry)	• Nail polish color transfer onto efinaconazole applicator • Nail polish tackiness after efinaconazole application
Vlahovic 2016 ⁸	Ex vivo: once-daily efinaconazole application for 7 days	Human cadaverous fingernails	• L'Oreal (420 Devil Wears Red)	• Progressively worsening polish appearance and discoloration • Nail polish color transfer to efinaconazole applicator and remaining solution
Canavan 2019 ⁶	Prospective, blinded, 52-week study	Females (N=13) aged 19-70 ^a with moderate-to-severe toenail onychomycosis	• No restrictions on brand, but gel polish excluded • Control group did not use nail polish	• Nail polish quality was negatively affected by efinaconazole, though was partially mitigated with darker colors and use of top/base coats • All participants reported overall satisfaction with efinaconazole
Pandit 2023 ⁷	Prospective, open-label, 6-month study	Females (N=12) aged 18-65 ^b with mild-to-moderate toenail onychomycosis	• Gel polish from 2 brands: OPI, Gelish • >30 colors in total	• No qualitative differences between gel-polished nails treated with efinaconazole vs untreated • No effect of efinaconazole on duration/quality/texture of gel polish

^aInclusion criteria; actual participant ages were not reported.

^bActual participant ages.

FIGURE 4. Onychomycosis Improvements With Efinaconazole 10% Solution



CONCLUSIONS

- Efinaconazole 10% solution demonstrated efficacy in the treatment of onychomycosis in patients who were concurrently using traditional or gel nail polish
 - To our knowledge, there are no clinical studies evaluating the efficacy of any other FDA-approved topical antifungals in the treatment of onychomycosis with concurrent traditional or gel nail polish use
- Efinaconazole did not impact the appearance of UV-cured gel nail polish
- Interactions between topical antifungals and nail polish use may be of particular interest when selecting treatment options for female patients with onychomycosis

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AUTHOR DISCLOSURES

Bela Pandit has nothing to disclose. Boni Elewski has provided clinical research support (research funding to University) for AbbVie, Anaptys-Bio, Boehringer Ingelheim, Bristol-Myers Squibb, Celgene, Incyte, LEO Pharma, Lilly, Merck, Menlo, Novartis, Pfizer, Regeneron, Sun Pharma, Ortho Dermatologics, Vanda; and as consultant (received honorarium) from Boehringer Ingelheim, Bristol Myers Squibb, Celgene, LEO Pharma, Lilly, Menlo, Novartis, Pfizer, Sun Pharma, Ortho Dermatologics, Verrica. Tracey Vlahovic has served as investigator and speaker for Ortho Dermatologics.