Understanding Perceptions and Experiences on Acceptability of Oral Ivermectin, Topical Permethrin, and their Combination in the Treatment of Adult Filipino Patients with Scabies: A Multiple Case Study

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ABSTRACT

Background and Objective. Oral ivermectin, a broad-spectrum anti-parasitic drug, alone or in combination with permethrin, may be a cheaper and more convenient alternative drug to topical permethrin alone in the treatment of classic scabies. There are no previous studies on the treatment acceptability of the three interventions among individual patients with scabies in the Philippines.

The purpose of this study was to understand the experiences and perceptions on treatment acceptability for oral ivermectin, topical permethrin or combination treatment among patients with scabies using the multiple-case study approach.

Methods. We conducted a qualitative multiple case study among adult Filipino patients with classic scabies who were prescribed oral ivermectin, topical permethrin or its combination at a government tertiary hospital dermatology outpatient clinic from December 2022 to September 2023. Semi-structured interviews were used as the primary source of data and analyzed together with chart reviews, Dermatology Life Quality Index (DLQI) scores, and clinical images. Interviews were transcribed, coded, and triangulated with other secondary data. A three-person research team employed a reflexive and iterative process of familiarization, coding, and thematic analysis using a modified Theoretical Framework of Acceptability (TFA) to generate case descriptions, within-case analyses, and cross-case syntheses.

Results. The acceptability of scabies treatments (permethrin, ivermectin, and combination therapy) was generally positive. Permethrin, used in three patient cases, was generally perceived as effective but itch relief varied. The burden of whole-body application of

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permethrin was context-dependent, influenced by living arrangements and family support. Perceived affordability of permethrin was linked to socioeconomic status. Ivermectin, used by one patient case, was perceived as highly effective with no side effects. Its single dose use did not interfere with patient routine. Combination therapy was also considered effective but potential antagonistic effects and the cost of adding permethrin made it less preferred. Reluctance in taking oral pills was noted. All patients valued medical advice and deferred to their physicians for treatment decisions.

Conclusion and Recommendations. All three treatment options were considered effective and safe. Patients generally preferred permethrin over oral ivermectin due to its topical nature and perceived lower side effects. However, affordability and logistical challenges, especially for large households and low-income families, were noted with permethrin. Oral ivermectin elicited hesitation due to its controversial role in COVID-19 and veterinary use. Concerns about added costs and potential antagonism in combination therapy were raised. Despite these considerations, patients ultimately relied on physicians for treatment decisions. This study underscores the importance of understanding patient perspectives, experiences, and the patient-physician relationship in choosing scabies interventions. Addressing patient concerns, providing education, and ensuring ease of use and affordability can enhance treatment acceptability and adherence for better outcomes.

Keywords: scabies, ivermectin, permethrin, acceptability, case study, qualitative research

INTRODUCTION

Scabies is a highly communicable parasitic skin infection especially in low-income, crowded settings in tropical countries. It is curable, commonly using either topical or oral neurotoxic medications. However, adherence to expensive treatment regimens that require whole-body topical application such as permethrin, and which requires treating close contacts may be suboptimal. Oral ivermectin, a broad-spectrum anti-parasitic drug, alone or in combination with permethrin, may be a cheaper and more convenient alternative drug to topical permethrin alone in the treatment of classic scabies.

Sekhon et al. defined acceptability as a "multi-faceted construct that reflects the extent in which people delivering or receiving a healthcare intervention consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention." This theoretical framework of acceptability (TFA) has seven domains (affective attitude, burden, ethicality, intervention coherence, opportunity cost, perceived effectiveness, self-efficacy) and may either be applied prospectively (prior to the intervention), concurrently (while participating in the intervention) or retrospectively (after the intervention).[1]

We modified the TFA by including an 8th domain, accessibility, since it was relevant to the Philippine setting as scabies treatment expense is usually out-of-pocket (Figure 1).

Despite good adherence (32/40 children, 80%) of index scabies cases with permethrin application, there was low uptake among the household members (193/440, 44%), in an observational study of 40 households in two scabies-endemic Aboriginal communities in northern Australia with a community-based skin health program.[2] In a qualitative study in four remote Aboriginal communities with a scabies prevalence of 15%, potential barriers elicited from parents/carers included confusion in proper application of cream, unpleasant smell and texture, the delay in healing of the skin infection after treatment, unwillingness of household members to apply the cream since they do not have skin lesions, and the fast turnover of household residents who move between houses.[3]

There are no previous qualitative studies on the treatment acceptability of the three interventions among individual patients with scabies in the Philippines. The purpose of this study was to understand the experiences and perceptions on treatment acceptability for oral ivermectin, topical permethrin or combination treatment among patients with scabies using the multiple-case study approach.

METHODS

A study protocol for this study, which is part of the dissertation of the principal investigator on the comparative effectiveness of oral ivermectin, topical permethrin, and its combination in the treatment of scabies, was approved by the University of the Philippines-Research Ethics Board (REB 2022-0055-01) prior to study conduct. We ensured data privacy and confidentiality; patients were given pseudonyms to protect their identities. We followed the Standards for Reporting of Qualitative Research (SRQR 2014).[4] The study protocol, including the interview guide, may be requested from the author.

Research Design

We used an exploratory qualitative method with a case study approach to explore the perceptions and experiences on the acceptability of oral ivermectin, topical permethrin or combination therapy for scabies treatment among Filipino adults with scabies. We used multiple data sources: medical records, visual images, quality of life scores, and in-depth interviews.

Setting, Duration, Population, and Sampling

The study was conducted from December 2022 to September 2023 at the University of the Philippines-Philippine General Hospital (UP-PGH). No patients with scabies consulted during the recruitment period at the second site,

Figure 1. Modified Theoretical Framework of Acceptability (TFA).

Note: Prospective – prior to participating in the intervention; Concurrent – while participating in the intervention; Retrospective – after participating in the intervention.

Source: 7 domains and definitions by Sekhon et al., 2017; an 8th domain on accessibility was added by this study.

Makati Medical Center (MMC) Department of Dermatology. The UP-PGH is a tertiary referral hospital and the national training hospital of the UP Manila-College of Medicine and has a wide variety of cases, while MMC is a private tertiary hospital located in the business district that also has a dermatology service clinic. We purposively sampled and targeted information-rich participants, who were patients aged 18 to 59 years, diagnosed with classic scabies, and prescribed either of the three interventions through their attending physicians. We excluded pregnant or breastfeeding women, those with cognitive/behavioral impairment, psychological/mental incapacity, or difficulty in hearing/speaking. Although we recruited two patients prescribed each of the three interventions, two 'switched' to another treatment regimen due to misunderstood instructions (prescribed ivermectin alone but also applied permethrin meant for her household members, thus receiving combination treatment) or misplaced medication (prescribed the combination regimen but only used the topical permethrin).

Study Procedure

After obtaining informed consent from the patient and permission from the UP-PGH Medical Records, we reviewed patient charts, collected skin images, and administered the Dermatology Life Quality Index (DLQI) questionnaire.[5] The DLQI is a skin disease-specific quality of life tool to measure how much the skin problem has affected the patient's life in the last week. It has 10 items on symptoms and feelings, daily activities, hobbies, work or study performance, personal relationships, and skin disease treatment. The total possible score is 30, and the effects on quality of life are categorized as: no effect (0-1), mild (2-5), moderate (6-10), very large (11-20), and extremely large (21-30). We extracted demographic information, history, physical examination findings, diagnosis,

diagnostic test results, and course in the clinic from electronic medical records using a pretested case report form, at baseline and 2 to 4 weeks after initial consultation. The interviews were conducted 2-4 weeks after initial consultation.

Patient Interview Guide

We used a validated, pretested and translated (Filipino) interview guide based on multiple published acceptability questionnaires on infectious diseases (ivermectin for lymphatic filariasis; oral metronidazole vs topical lactic acid gel for bacterial vaginosis).[6,7] The interview guide had five sections: 1) introductory section, 2) opening questions, 3) focusing on the current treatment, 4) focusing on alternative treatments, and 5) concluding section. Probing questions were also used as needed. The expert-tested interview guide was forward translated, reconciled, and back translated using published international translation guidelines. The final Filipino interview guide was deemed a conceptually equivalent back translation with no ambiguities or discrepancies and was then pretested for face validity (relevance, comprehensibility, and appropriateness).

Patient Interview Procedure

Due to the pandemic, interviews were conducted either face-to-face (four patients) or online (two patients via Facebook Messenger or Zoom). A co-investigator (AB) assisted in note-taking and recording. After confirming patient identities, interviews were conducted in Filipino using the pretested Filipino guide. A second interview was done for the 1st patient since there was a revised item in the guide. As there were no recurrences within a month, no other second interviews were scheduled. Interview recordings were transcribed verbatim, anonymized, coded, and analyzed using the modified TFA. Codes were cross-referenced with chart data, DLQI responses, and clinical images, and case descriptions were created with pseudonyms used for quotes.

Data Analysis

Instances or experiences related to acceptability were coded, and meaningful themes were derived. Both the investigator-interviewer (principal investigator) and a co-investigator (AB or MB) independently coded the data and reached consensus through regular meetings. Data coding was done manually in Google Docs with memoing for reflections and interpretations. Bracketing was practiced to minimize personal biases during coding. We conducted within-case and cross-case analyses, creating a framework analytic table to relate cases to treatment acceptability attributes.

Researcher Reflexivity

The principal investigator, who was also the interviewer, is a 58-year-old female dermatologist with 27 years of clinical experience, a clinical epidemiologist and university professor with a special interest in skin infections. The two other co-investigators involved in the analysis were another dermatologist with community and public health background and a general practitioner with psychology and qualitative research background.

Profile of Cases

Table 1 shows the demographic profile of the six cases. The six patients had a median age of 29 years (range, 18, 53),

Table 1. Demographic Profile of Six Cases

Case No.	Participant Pseudonym	Intervention prescribed	Age	Sex	Civil Status	Occupation	Place of Residence (City/Town/ Province/Region)	Education	No. of household members
1	Ricardo	Permethrin	24	M	Single	Office worker	Manila, NCR	College	3 (mother, father, 25 y/o sister)
2	Gina	Permethrin	52	F	Widow	Food vendor	Taguig, NCR	High school	8 (a) 3 in same bedroom (20 y/o daughter, 18 y/o son, 9 y/o nephew; (b) 4 in two other rooms in same house rented out to: Renters #1: couple (38/F, 38/M), 8 y/o child; Renters #2: 38 y/o mother and 3 y/o son
3	Flora	Combination 'switched' to Permethrin*	53	F	Separated	Unemployed	Caloocan, NCR	Vocational course	3 (older brother, 17 y/o niece, older sister's boyfriend)
4	Oscar	IVM	28	M	Married (with common-law wife)	Independent contractor, courier/rider for an e-commerce company	Cavite, IVA (Calabarzon)	High school	3 (25 y/o common-law wife, 4 y/o son, 2 m/o son)
5	Alyana	IVM 'switched' to Combination**	18	F	Single (Unwed mother)	Grade 10 student	Cavite, IVA (Calabarzon)	Junior high school	7 [patient with 3 y/o son; mother; 23 y/o sister; 22 y/o brother #2 and partner (Room 1)], [25 y/o brother #1 and partner (Room 2)]
6	Diana	Combination	30	F	Married	Casual factory worker	Quezon, IVA (Calabarzon)	Elementary (3rd year high school)	2 (husband and 7 y/o son) Note: 10 y/o daughter lives with grandmother in nearby house

* *Lost the ivermectin tablets and only prescribed permethrin*
** *Misunderstood instructions and also applied permethrin meant for household members (Both are labelled as 'switchers')*

four were women, and half lived in NCR, while the other half in Calabarzon (Region IVA). Only two were married, one common-law (Oscar) and one legally (Diana). Two had vocational or college education – one was an overseas Filipino worker (OFW) in the Middle East now unemployed, and the other worked as an office clerk at a government hospital. Most were lower class (casual worker, food vendor, unemployed, Grade 10 student relying on remittances), with only two in the middle class (e-commerce courier, office worker). Two were related, with one being a student and the other a brother-in-law living separately. Four had two to three family members at home, while two had seven to eight household members. One of these larger households rented two of three rooms to non-family members.

Table 2. Clinical Profile of Six Cases

Case No.	Case	Clinical course			Treatment (Index Case)							Treatment (Close Contacts)
					Pre-Treatment		Post-Treatment					
		Duration (wks.)	Severity (based on number of lesions)	Distribution (Body Areas)	DLQI Total Score	Symptoms (DLQI Item 1)	DLQI Total Score	Symptoms (DLQI Item 1)	Prescribed Treatment	Actual Treatment Received	Adjunctive Treatment	
1	Ricardo/ Permethrin	4	Severe	6 body areas (Torso, upper arm, lower arm, hand, lower leg, feet)	5 (small effect)	2	2 (small effect)		**Permethrin Alone** Permethrin 5% lotion, apply starting from neck down, leave for 8 hours, then rinse and then reapply after 1 week	**Permethrin Alone** Feb 28: Permethrin 5% lotion 1st dose March 7: Permethrin 5% lotion 2nd dose	Triamcinolone acetonide 0.1% lotion, apply OD for 2 weeks only Mupirocin 2% ointment, apply on the pustules TID for 7 days	Permethrin alone 3/3 applied
2	Gina/ Permethrin	6	Severe	5 body areas (Torso, upper arm, lower arm, buttocks, upper leg)	21 (extremely large effect)	3	11 (very large effect)	3	**Permethrin Alone** Permethrin 5% lotion. Apply on the body from the neck down. Leave on for 8-14 hours, then rinse off. Repeat after 7 days.	**Permethrin Alone** Mar 3: Permethrin 5% lotion 1st dose March 10: Permethrin 5% lotion 2nd dose	Cetirizine 10 mg/tablet once at night for 14 days	Permethrin alone 4/8 applied
3	Flora/ Combination to Permethrin	3	Moderate	6 body areas (Torso, upper arm, lower arm, hand, upper leg, lower leg)	11 (very large effect)	3	3 (small effect)	1	**Combination Treatment** 1) Permethrin lotion 5%. Apply neck down including all intertriginous areas and web spaces of digits overnight and wash off in the morning- include all HH members 2) Ivermectin 15 mg/tab. Take 1 tab 1 week after permethrin	**Permethrin Alone** Permethrin was applied every day from March 17 to 22 Patient lost ivermectin tablets	Mild cleanser twice a day Emollients twice a day	Permethrin alone 0/3 applied
4	Oscar/ Ivermectin	20	Severe	7 body areas (Torso, upper arm, lower arm, hand, groin, upper leg, lower leg)	21 (extremely large effect)	3	0 (no effect)	0	**Ivermectin Alone** Oral ivermectin 15 mg (200 micrograms/kg) today and repeat next week	**Ivermectin Alone**	None	Permethrin alone 3/3 applied
5	Alyana/ Ivermectin to Combination	4	Moderate	6 body areas (Torso, upper arm, lower arm, hand, upper leg, lower leg)	20 (very large effect)	3	2 (small effect)	1	**Ivermectin Alone** Ivermectin 15 mg/tab (2 doses, 1 week interval)	**Combination Treatment** Also applied permethrin 2 doses (1 week apart) simultaneously	Triamcinolone acetonide 0.1% lotion BID for 2 weeks on itchy skin	Permethrin alone 4/7 applied
6	Diana/ Combination	1	Severe	6 body areas (Torso, upper arm, hand, groin, upper leg, lower leg)	11 (very large effect)	3	2 (small effect)	1	**Combination Treatment** 1) Permethrin 5% lotion. Apply on the neck down. Leave overnight for 8-12 hours before rinsing off. Apply on 02/08/2023 2) Ivermectin 15 mg/tab. Take 1 tablet 7 days after permethrin (02/15/2023)	**Combination Treatment** Feb 8: Permethrin 5% lotion Feb 15: Ivermectin 15 mg/tab	Cetirizine 10 mg/tablet once daily at bedtime as needed for itch	Permethrin alone 2/2 applied

Note: Scabies severity was defined by the number of lesions detected as mild (≤10 lesions over all areas examined), moderate (11–49 lesions) or severe (≥50 lesions or crusted scabies). Examination findings were recorded for each of nine body regions: face, torso, upper arm (including axilla and elbow), lower arm (including wrist), hand, buttocks/groin, upper leg (hip and knee), lower leg, feet (Marks, et al., 2018).

The baseline scabies severity was severe in four cases and moderate in two (Table 2). The median affected areas were 6, with torso and upper arms most affected. The median baseline DLQI score was 15.5, highest in Gina and Oscar (21) and lowest in Ricardo (5). The median symptom score was highest at "3" ("very much") for all cases (except Ricardo, 2). The most significant post-treatment DLQI score reduction was a 3-level drop in Oscar (from 21 to 0), while Ricardo's score did not significantly decrease (from 5 to 2).

There were two 'switchers,' whom we defined as patients who failed to adhere to the prescribed treatment regimen: Alyana was prescribed ivermectin but misunderstood instructions and applied permethrin that was meant for her household members, and Flora was prescribed combination treatment but lost the ivermectin tablet and just applied permethrin.

Two patients got oral antihistamines (Gina and Diana), Ricardo received topical steroid and antibiotic, and Alyana got topical steroids. Flora got mild cleanser and emollients, while Oscar had no adjunctive treatment. All were instructed on household treatment with permethrin and fomite control (laundry and disinfection). Compliance of household members to treatment was complete for Ricardo (3/3), Oscar (3/3), and Diana (2/2), while two had about half of the household who complied (Gina and Alyana, 4/7), and Flora had no compliant household members (0/3).

CASE DESCRIPTIONS

Permethrin (3 cases)

Ricardo is a 24-year-old office clerk at a Manila government hospital, was prescribed permethrin (2 doses 1 week apart) for a 2-month history of itchy skin papules that began on his ankles and spread to rest of body. The sister also had itching but all three household members, including both parents did not have any skin lesions. They all shared one bedroom in their house. He and his sister contributed partially for the expenses. Scabies only had a small impact on his quality of life before and after treatment. The skin lesions caused discomfort and affected clothing choices, and though it did not significantly affect his work, it prevented him from visiting his girlfriend.

Gina, a 52-year-old food vendor from NCR, was prescribed permethrin (2 doses 1 week apart) for scabies due to very itchy erythematous papules on her trunk and extremities. She began itching 1.5 months earlier and was worse at night. Gina had a history of hypertension treated with amlodipine and childhood bronchial asthma. Several family members also had pruritic lesions. She suspected her three-year-old nephew, who temporarily lived with them from November to December 2022, as the source of transmission. Due to symptom severity and embarrassment, Gina refrained from social activities, church gatherings, and work due to her condition, causing financial challenges. Her DLQI scores showed a decreased impact from 21 (extremely large effect) before treatment, to 11 (moderate effect) after treatment. There was persistent itching after completing 3 weekly doses of permethrin, despite moderate reduction of erythematous papules and crusts with pigmented macules. Thus, she was also given triamcinolone lotion aside from antihistamine tablets.

Flora, a 53-year-old separated woman from Metro Manila, was prescribed combination oral ivermectin and permethrin due to generalized itching and a 3-week history of itchy papules on her body, worsening at night. She previously applied a steroid cream based on her neighbor's advice. Flora was a former overseas Filipino worker with a complex medical history, including uterine myomectomy, recurrent heavy menstrual bleeding, and a recent diagnosis of endometrial cancer. She also experienced a mild stroke last year, recurrent pneumonia, and a skin reaction to azithromycin. No family members had similar lesions, but her sister had lupus, and her older brother had mental illness and osteoarthritis. Flora's household had seven dogs and was not well kept due to her medical condition, and she relied on financial assistance from organizations and local government officials. She was prescribed combination oral ivermectin and topical permethrin but she lost the ivermectin tablets and ended up applying permethrin nightly for a week instead of the prescribed 2 weekly doses due to incomplete itch resolution after the 1st dose. Her DLQI decreased from 9 (large effect) to 3 (small effect) after treatment. There was moderate reduction in the erythematous papules, with some pigmented macules from previous lesions after treatment.

Ivermectin (1 case)

Oscar, a 28-year-old courier motorcycle rider from Cavite, began having itchy papules on his body five months ago after taking care of his incarcerated and ill father, who had similar skin lesions. Due to his work and an expectant wife, he delayed seeking treatment until her wife gave birth. Oscar's family members also experienced similar symptoms and had self-medicated with mometasone furoate 0.1% cream and cetirizine. Oscar was diagnosed with severe scabies and prescribed oral ivermectin, along with fomite control measures. Household contacts, except for an infant, were also prescribed permethrin. His baseline DLQI score was high at 21 (extremely large effect) and affected his clothing choices, sports activities, and work. After 2 weekly doses of oral ivermectin, his DLQI score became zero and there was marked reduction in erythematous papules in his torso and extremities.

Combination Ivermectin/Permethrin (2 cases)

Alyana, an 18-year-old Grade 10 student and a single mother from Cavite, noticed itchy papules on her abdomen a month prior, which spread to her chest, back, and extremities, worsening at night. Her family, including her 3-year-old son, also had similar lesions, which she suspected came from a chick her son had. She lived with her mother, siblings, and their families, receiving financial support from her aunt

abroad. Her baseline DLQI score was high at 20 (very large effect), affecting her social activities such as dance practices. Alyana was prescribed ivermectin while her household contacts were prescribed permethrin; she misunderstood instructions and did both i.e., she took ivermectin and applied permethrin. Her brother-in-law, Oscar, also a case in this study who lived in another house in the same city, was similarly prescribed ivermectin. Her DLQI score decreased to 3 (small effect) after treatment, accompanied by marked reduction in erythematous papules that were replaced by pigmented macules especially in the torso and thighs.

Diana, a 30-year-old part time coconut factory worker from Quezon, developed itchy erythematous papules on her body and had unsuccessfully self-medicated with rubbing alcohol. Her 7-year-old son, who shared her bed, also had similar lesions, followed by her husband and daughter. Diana had a history of recurrent urinary tract infections (UTIs) and just finished a course of oral antibiotics when she consulted for the scabies. She and her husband earned their income from both factory work and selling street food. She would have regular 'lambanog' drinking sessions with relatives who lived nearby. Her DLQI score before treatment was 11, indicating a very large effect on her life, which was reduced to 2 (small effect) after treatment with combination oral ivermectin and permethrin cream.

RESULTS

Permethrin (3 cases)

A. Within-Case Analyses

1. Ricardo/Permethrin

Intervention Coherence. Familiar with medications since he was an office clerk from a government hospital, 24 y/o Ricardo showed understanding that permethrin works more directly on skin diseases compared to an oral medication:

> *"I think it's more effective to focus where scabies is nearer (skin) rather than drinking [the medicine]… only a small percentage [of oral medication] goes to the affected part."*

In addition, he noted that taking oral medication would make one think having a more serious disease: *"you think you're sick."* He added that permethrin worked *"since it killed the mites…as in the itch is really gone."*

Perceived Effectiveness. Ricardo was amazed that permethrin was very effective especially in relieving the itch, despite being like an ordinary skin care product: *"I thought lotions can be only for cosmetic purposes."* However, since his baseline DLQI score was already quite low, the post-treatment reduction from 5 to 2 meant that the QOL remained within the same level of a 'small effect.' This is expected since his initial score was the lowest among the six patients and can only drop a few points. Notably, when the lesions healed and became dark, he was more conscious which affected his daily activities. This was reflected in the score for item #2 (feeling embarrassed) and item #3 (affected shopping, looking after home/yard), which increased from 0 to 1.

In terms of side effects, patient Ricardo only mentioned feeling transient crawling insect or prickly sensation on his skin after applying permethrin, but it was only transient and did not affect sleep.

Ethicality. Ricardo mentioned that he had a habit of doing self-research after being prescribed a medication, but would trust the physician more,

> *"No [I will not hesitate to take permethrin as prescribed by the doctor even if I did not do self-research], since they are doctors, they are the ones who know more about the disease, so I think I will still follow them."*

Burden. Ricardo remarked that although he followed the instructions to let permethrin dry before going to sleep, he didn't have to wait long in the bathroom since *"it dried right away."* However, to ensure compliance of his family with simultaneous treatment, considering they all shared the same bedroom, he needed to explain to them,

> *"My father said, "I don't have any [symptoms] so why should I put permethrin?" That's what he said (laughs)... Actually at first, they [mother and sister] did not have any symptoms. But my sister then started itching so maybe the permethrin helped because it did not progress. She did not have any wounds. I explained to them that it's possible that they already have it but it hasn't come out yet so I just explained to them what the doctor told us to do because this is how it is so that's okay with them."*

In the end, he and his family members helped each other in applying permethrin and found it not bothersome.

Opportunity Cost. Ricardo shared that his family's daily routine was slightly altered since *"instead of lying down to sleep, we had to wait since we had to apply [permethrin] to the other person"* and that *"the next morning, we took turns taking a bath."* However, this did not significantly affect his quality of life as reflected in a score of "0" (not at all) for DLQI Item 10 (treatment affecting activity/time) before and after permethrin use.

Accessibility. Ricardo found permethrin relatively affordable since he could still shell out from his savings from his office job in a government hospital.

Affective Attitude. Ricardo was not bothered by the odor since he considered it as normal for topical medications.

> *"It's just a different smell...but that's exactly what the medicines are really like, but it's really okay for me."*

Self-efficacy. Ricardo gained confidence in using the permethrin prescribed to him after he researched about it on the internet. He was also willing to use permethrin again and recommend it to others because of the family's experience of successful cure.

2. Gina/Permethrin

Perceived Effectiveness. Gina worriedly kept on bringing up her experience of persistent itch even after an extra third dose after the prescribed two weekly doses. She wondered and kept on asking if she should apply permethrin again.

> *"At first, I didn't wonder...I thought that maybe the second dose [permethrin] didn't have an effect yet. Because you had to let it run [take effect] for 7 days, but yesterday I applied it [for the third time] and it still itches... the itch is still there but it doesn't itch all day like it used to. [The lesions] turned black and it healed but the itch is still there."*

The impact of the persistent itch was reflected in her DLQI score for item #1 (symptom severity) which remained at the maximum possible score of '3' ('very much'). In addition, darkening of the previously erythematous papules can also be seen in the clinical images and was reflected in item #2 (feeling embarrassed) also remaining at '3.' Her total DLQI score only reduced from 21 to 11, remaining in the level of ('very large effect') on patient's quality of life. She was only prescribed adjunctive anti-itch treatment on follow-up when she complained of persistent itch to her attending physician right after the interview.

In terms of side effects, she only noted an unusual sensation *"your body feels like it's covered with fur"* after washing off permethrin the following day which she considered tolerable and acceptable as *"maybe it's the medicine effect of that lotion."*

However, she remarked that when she applied permethrin to the face of her 9-year-old son she noted that *"[his face] looked as if he was burned"* with her son complaining that it was painful and realized that maybe it should not be applied to the face.

Burden. Gina and family had to take turns to stay inside the bedroom while waiting for lotion to dry. In terms of burden of ensuring household compliance with simultaneous treatment, the two adult children of Gina opted to wait-and-see,

> *"If it really itches badly...if scabies is really contagious and they become itchy, then she and her brother will put [permethrin]."*

Opportunity Cost. Gina was not able to dress right away after bath since she had to wait for the permethrin lotion to be absorbed and not stick to the clothes, potentially wasting the medication.

> *"I'll be in the other room first. About 10 [minutes]... I'm undressed, just in my panties so [permethrin] can dry, it's a shame if the lotion sticks to clothes."*

Accessibility. Gina, who temporarily stopped selling cooked food because of her scabies, would not be able to buy permethrin at all. In fact, she had to rely on donations of grocery packs from her churchmates.

> *"As of now, I have no job. I won't be able to buy [3 bottles of permethrin worth around 900]. I just relied now on what was given by the doctor... I consulted our church and they give us... rice and grocery."*

Affective Attitude. Gina liked that the lotion was easily absorbed into the skin but noted that her skin became dry.

3. Flora/Combination-to-Permethrin

Perceived Effectiveness. Flora reported partial itch relief after the 1st dose which allowed her to have a good night's sleep. However, since itch persisted, it made her apply the permethrin daily instead of just once weekly. The persistent itch, despite no new lesions, was reflected in her DLQI responses, which had the highest overall score of 21 (out of possible 30) among all cases, in the initial visit becoming 11 at the follow-up. It is of note that she was not prescribed adjunctive anti-itch therapy and had poor environmental hygiene (i.e., seven dogs sleep on her bed, unable to clean house regularly, sleeps in hospital's watchers' area).

> *"When I applied [permethrin], it worked somehow. I fell asleep, then when I woke up, I rinsed it off. That's how it was but [the itch] didn't go away immediately... that's why I used it for 1 week (laughs)."*

She expected that permethrin would be effective in curing her lesions, having previously used it for scabies when she and her estranged husband contracted scabies at the same time many years ago. She remarked that the drug worked as expected and that she did not experience any side effects with it. The effective cure was especially manifested as getting a good night's sleep due to itch relief. Her DLQI score reduced by 1 level from 9 (moderate effect) to 3 (small effect).

Burden. Flora had difficulty reaching the center of her back confessing that *"I just applied where I can"* since she couldn't rely on her family members to assist her or were not around often. She misunderstood the instructions of once weekly application, instead applied it daily due to the persistent itch. In addition, she was unable to convince her asymptomatic household members to apply permethrin,

> *"I was given 3 bottles [of permethrin]. Because the doctor said after I apply permethrin for one week, other [household members] should also apply...but they don't like to since they didn't need it. Especially my older brother, it's hard to insist since he has a mental illness. He might hit me. While my niece is not often in the house.*

She's in senior high and sometimes stays with her father [in another house]."

Opportunity Cost. Flora did not seem to mind regarding permethrin application even if she couldn't reach up to middle of her back and compensated for it by applying it daily due to remaining itch, despite the once-weekly instruction.

Accessibility. Flora even broke down and cried when asked about affordability of permethrin since she admitted that she does not have any income and still had to deal with the diagnostic tests and treatment for her endometrial cancer. She regularly asked for help from her local officials just to support her medical needs as she was unemployed and lived together with siblings and relatives who also had meager financial means.

Affective Attitude. Flora did not like the greasy feeling of permethrin, but this did not lead her to discontinue its use.

Self-Efficacy. Flora was aware and confident in using permethrin for herself since she and her husband already had scabies a few years and have used permethrin. However, she would not recommend permethrin to others since she recognizes individual differences in compatibility with medication *("hiyang").*

"I also don't want [to recommend] because I might be sued...trying to cause harm. What's it called again? "Hiyang" right? Is there something like that in medicine?"

4. Non-permethrin case (prospective acceptability on permethrin)

Oscar, an ivermectin user, whose family members were prescribed permethrin, remarked that permethrin lotion dries easily on the skin and was not difficult to use for his family (low burden). However, he remarked, *"If alone at the house, I think that would be a problem since it would be difficult [to apply permethrin]."* Based on his family's use of permethrin, he observed its odor as 'just right' (good affective attitude). Oscar did not need to research on permethrin, unlike ivermectin, because the former was already labelled as a scabicide in the packaging (high ethicality). However, although Oscar makes PhP 12,000 to 15,000 every 2 weeks, he could not easily purchase two bottles of permethrin worth PhP 500 at the same time: *"What I'll probably have to give up buying permethrin is the formula milk for my son."* (low affordability).

B. Cross-Case Analysis (Permethrin)

All three cases, Ricardo, Gina, and Flora, perceived permethrin to be effective although Gina and Flora used additional doses beyond the prescribed dosage due to persistent itch (high perceived effectiveness; low intervention coherence). The burden and opportunity cost of whole-body application depended on cooperation between household members, living arrangements, and family dynamics. Ricardo, Gina, and Flora experienced some resistance in convincing family members to do the same, especially those who were asymptomatic (high burden). The presence of supportive family members eased the logistical difficulty of applying to unreachable skin (Ricardo) (low burden). There were minor disruptions and adjustments in daily routines such as sacrificing sleep (Ricardo) and longer waiting time in getting dressed (Gina) (high opportunity cost) but were not reflected in the DLQI score for the item on treatment effect on daily activity. In contrast, Flora did not experience any interference with her nightly activity despite applying the permethrin every night instead of just one night per week (low opportunity cost). In general, the interruptions, even for permethrin, were not significant and they were able to comply with the prescribed treatment regimen. There was a general concern about affordability and the need to borrow money, dip into one's savings, or depend on the kindness of benefactors to be able to afford permethrin for the entire household (accessibility). Permethrin had overall good cosmetic acceptability, was well tolerated, and did not result in discontinued use. Ricardo tolerated the typical 'medicinal smell' although Flora found it to be greasy. Gina felt an unusual sensation on her arms, and noted that her son's face had some burning and darkening, and concluded that permethrin was not meant for the face (positive affective attitude). Still, all of them complied with topical application of permethrin (self-efficacy) and did not have any strong negative feelings against the preparation (positive affective attitude). All three patients were generally confident about using permethrin because of its effectiveness in treating their skin condition (high self-efficacy). All would recommend its use to others, except Flora who was wary of potential medication incompatibility or 'hiyang' for some people. The above retrospective acceptability perceptions and experiences were supported by prospective perceptions by a non-permethrin user, Oscar, who exhibited confidence if he were to use permethrin, since it was a labelled scabicide (high self-efficacy; high intervention coherence), although he may have to give up buying basic necessities to afford permethrin for his family (low accessibility). The burden of permethrin application varied based on family dynamics and opportunity costs varied as to daily activity schedule.

Ivermectin

Within-case analysis

Perceived Effectiveness. Impressed by the efficacy of the 2-dose regimen of oral ivermectin he took, Oscar, who endured skin lesions for four months prior to consultation in UP-PGH happily remarked that being cured of scabies meant that there was no more restriction in close physical interaction with the family, especially his infant child. This was reflected in the decrease in the score of item #8 in the DLQI (relationship with partner, friends, relatives) from 2 initially becoming 0 at follow-up. His total DLQI score

dramatically decreased from 21 (extremely large effect) to 0 (no effect at all).

"Yes, the medicine given by the doctor is a great help... [he] helped me... I can now approach my youngest too [chuckles]."

Oscar did not experience any side effects with 2 doses of ivermectin.

"When I drank it... the next morning... I didn't feel any... effects or side effects then in the middle... because I drank it on Tuesday and then on Saturdays there was no more itching in my body… So I continued with the second medicine... well, nothing happened to me, it's better now that the itching is gone."

Ethicality. Oscar strictly followed the doctor's instruction, *"I still took that last [ivermectin tablet even if the itch was gone after just 1 dose]."* He also complied with using the permethrin only for his family members, as per advice of the doctor.

Burden. Oscar found the ivermectin tablet not bothersome to take since the pill did not have an unpleasant taste and was not too big to swallow. Oral ivermectin was quite easy to comply with only 1 dose per week for 2 doses.

Opportunity Cost. Taking ivermectin did not affect Oscar's routine since only one tablet at a time was needed. This was also reflected in the DLQI Item #10 score that decreased from 2 to 0 after treatment. Initially, he was applying topical steroid cream as a stopgap measure while unable to consult yet at the UP-PGH.

Accessibility. When asked if he could afford to buy ivermectin, Oscar confidently replied,

"Yes, [ivermectin] is affordable because I also have a job... well, it's also for me and my wife, why not [buy]... to get rid of the itch."

Affective Attitude. Oscar was initially bothered by the "*big and black in color*" packaging of ivermectin and its use for COVID-19; thus,

"[I researched on ivermectin] because I'm not satisfied... since the medicine seemed big. It's because I usually don't drink medicine, and then I read that it's for COVID....but the wife says it's not for COVID. I also read that it's for scabies... it's included in the list [of medications] for that... But it's not that big, just right similar to what I took like Bioflu..."

In addition, he feared that:

"During the peak of COVID-19, when those people given vaccination, the ones that seemed to die from drinking medicines, so [I was scared] when Doc gave me that medicine."

However, he still complied with the treatment.

Self-Efficacy. Oscar was initially hesitant regarding ivermectin since he was not used to taking pills and the drug was being used for COVID-19; in the end, he was convinced by his wife to comply with the 2-dose prescription. He would even recommend ivermectin to others since he personally experienced its effectiveness.

"The first time Doc gave me the pill [ivermectin], I hesitated to take it because I'm not used to taking different pills, but my wife said maybe it can help make the itching go away. So, I tried [ivermectin] taking eventually."

Non-ivermectin cases (prospective acceptability)

Patients who used permethrin were hesitant to use ivermectin due to its unfamiliarity (Gina, Flora) and being not labelled for scabies (Ricardo) (low self-efficacy).

Ricardo also had reservations on its appropriateness for skin disease that can be adequately treated with topical medication (intervention coherence).

"I heard of [ivermectin] in COVID, I think it's like...new. Isn't it what they call non-formulary? I also know that medications that are non-formulary is not okay yet but can be used. It just not approved yet. But even if I didn't get to search about non-formulary, I'll still ask what the [side] effects are.")

Ricardo was extra-cautious and remarked "*If only because, I read [on ivermectin during my self-research] and then I used it without the doctor's advice... I don't know what will happen to me."*

On the other hand, Flora was wary of ivermectin since she previously experienced a side effect from an oral pain reliever, celecoxib, and anticipated similar gastrointestinal effects from another oral medication.

"[I was scared] that my stomach will hurt... I was a little scared because when I took celecoxib when it was first prescribed to me by the OB for my abdominal pain, my stomach hurt really bad (burning epigastric pain) so I thought that if I took another oral medicine I might have an attack."

However, she also remarked that she was willing to take oral ivermectin if there is treatment failure with the first drug. She believes the doctors are knowledgeable on scabies treatment and can recommend a more effective drug.

"The doctor knows why [ivermectin] can be given to humans. So, if my scabies doesn't disappear [with the first drug], the doctor will look for another drug."

Gina, a permethrin user, would not be confident in taking ivermectin because it was unfamiliar, unlike oral antibiotics, and since she heard from news that it is only for horses. Gina nervously shared that ivermectin, being a veterinary product,

"*seems dangerous to health… should not just be used [without medical advice]" fearing that "maybe I'll get addicted or experience side effects."*

Cross-case Analysis

Oscar's positive perceptions and experiences with using oral ivermectin were reflected in perceived effectiveness, affordability, lack of burden, and opportunity cost. He had some initial hesitation (low self-efficacy) and discomfort (negative affective attitude) due to alarming and controversial news about ivermectin during the height of the COVID-19 pandemic, but his strong belief that it can cure him of his itchiness, and his wife's prodding and advice encouraged him to take a leap of faith with oral ivermectin (high perceived effectiveness). The low burden associated with taking two tablets, its low cost (high accessibility), and its dramatic curative effect, contributed to positive acceptability of oral ivermectin.

Ivermectin was viewed with some apprehension by those who have not yet taken it because it was not labelled for scabies (Ricardo), meant for animal use, or may be addicting (Gina), or cause gastrointestinal side effects (Flora). All, however, ultimately exhibited trust in their doctors and would be willing to follow sound medical advice if prescribed oral ivermectin.

Combination treatment (2 cases)

A. Within-Case Analyses

1. Alyana/Ivermectin-to-Combination

Perceived Effectiveness. Alyana found combination treatment effective in relieving itch, which was also reflected in a decrease in DLQI Item #1 (symptom severity) from 3 (very much) to 1 (a little).

She relayed that *"The one I drank made me dizzy"* but it was only with the 1st ivermectin tablet but not the 2nd one, and thus, was unsure if this was caused by intake of the ivermectin tablet or something else, like the heat or commute. The dizziness was minor enough for her not to worry and thus, she continued taking the 2nd tablet and was able to adhere to the instructions on ivermectin.

Burden. Alyana found combination treatment acceptable since she took the two drugs at different times of the day with the tablet taken at lunch and the permethrin applied at bedtime. In addition, she and family members helped each other in applying permethrin, thus, did not find it bothersome. Despite confessing that *"I prefer to apply [the medication than drink it]. I don't like taking medicines. When I take large capsules, I vomit it up because I can't swallow them,"* she was able to swallow ivermectin tablet since "*It was just the right size*." This low burden of combination treatment was reflected in a score of zero for DLQI item #10 after treatment.

Accessibility. Alyana shyly confessed that only ivermectin may fit into her budget while buying permethrin would mean giving up food for the week. It is of note that Alyana is still a student, and also a single mom who is still financially dependent on her mother who in turn receives support from a sister living abroad. In fact, Alyana chose to consult in PGH since her brother-in-law told her that free medications are being given out in this institution.

Affective Attitude/Self-Efficacy. Alyana liked permethrin lotion because *"[Permethrin] feels light on the skin, when you apply it on the skin it's like nothing."* On the other hand, she was generally not used to oral medication since she found it difficult to swallow big pills.

2. Diana/Combination

Perceived Effectiveness. Diana remarked that permethrin was effective in relieving itch and clearing skin lesions as she had hoped. This was reflected by a decrease in item #1 in the DLQI (symptom severity) from 3 (very much) to 1 (a little). The clinical images also showed visibly lesser and darker papules.

> *"I'm really not itchy anymore [after applying permethrin]. Maybe just once in a while, but it's not like before when it used to be so itchy."*

She also appreciated the excellent response to the combined regimen that consisted of a single dose each of permethrin and ivermectin taken one week apart.

> *"Because, ma'am, when I first applied it [permethrin], it didn't itch anymore, then when I drank it [ivermectin], it [itch] was completely gone... it [my skin] seems very, very well now… then that's what really cured my family."*

However, she was unsure on how much the ivermectin tablet she took one week after permethrin added to the curative effect since, *"When I took the tablet, I didn't itch anymore because I applied [permethrin] first, so I don't know what the reaction was to the tablet."*

She did not experience any side effects with both permethrin and ivermectin. However, she confided that it feels safer to take a topical medication than an oral medication.

> *"[If I had to choose between permethrin or ivermectin], I will choose the one that's applied on the skin since it's only on my body."*

Ethicality. Diana trusted that "*the doctor wouldn't have given me medicine if it wasn't [the right] medicine.*" Thus, even initially apprehensive about taking ivermectin since she was unfamiliar with it, still decided to take it.

Burden. Diana, who lives with her family, found that whole body application of permethrin not difficult to do "*because what we did.... for the back was help each other out in applying (laughs)*."

Accessibility. If Diana had to buy both oral ivermectin and permethrin, she would only be able to afford ivermectin due to irregular source of income as she and her husband are both daily wage earners in a coconut factory.

> *"Maybe, ma'am, what I'll do [if I need to buy permethrin], for example, I'll buy food little by little... or if I don't have a budget, there's someone here [in our area] where we can get rice on credit, maybe I'll just do that [so I can use the money buy permethrin instead]."*

Affective Attitude. Diana found that permethrin *"stinks... smells like guava, very strong smell"* but still applied the lotion and was able to tolerate the discomfort. In contrast, she was nervous and scared at the beginning of using ivermectin since she was unsure of its use in scabies and had not heard of it before.

Self-Efficacy. Diana was willing to use permethrin again and recommend it to others "*Because I already experienced severe itch and it was [permethrin] that really cured our family*."

On the other hand, although she was completely unaware of ivermectin, she took it since she believed that the doctor would not give her an inappropriate medication. She would be willing to take it again if prescribed by a doctor.

3. Non-combination-treatment cases (prospective acceptability)

Ricardo, a permethrin user, was concerned that oral ivermectin was *"non-formulary"* and if combined with permethrin, may have antagonistic effects, "*the two drugs [permethrin and ivermectin] might not be compatible with each other if you combine them…Maybe they'll work against each other…"* Ricardo also questioned why ivermectin would need to be added to permethrin if the latter is already very effective. He also perceived that combination treatment would be more appropriate for a serious disease. He also added that he will still ask about potential side effects of combining the two drugs but is willing nonetheless to take it as long as he is informed.

Oscar, an ivermectin user, and Flora, a permethrin user, were also willing to take combination treatment if it's the doctor who prescribed it (Oscar) and if it ensures complete cure with no recurrence (Flora). Oscar also believed that if he were to be prescribed the combination, it would not require too much effort on his part but that "… *it [combination treatment] means more expense*." Ultimately, Flora will follow the doctor's advice if ever she might be prescribed combination treatment.

Cross-case Analysis

Common themes for combination treatment acceptability that emerged from the perceptions and experiences of Alyana and Diana, pertained to perceived effectiveness, burden, accessibility, affective attitude, and self-efficacy. Both Alyana and Diana found the combination treatment approach effective, manageable, and acceptable, with differences in their experiences related to side effects, financial considerations, and familiarity with medications. Combination therapy did not entail much difficulty as only one dose of each drug had to be taken or applied, and at different times of the day (Alyana) or days of the week (Diana). Their willingness to adhere to treatment and follow their doctors' advice was a consistent theme, reflecting a degree of trust in the medical recommendations provided.

Prospective acceptability perceptions of permethrin-alone users were generally more disconcerting, due to added expense, antagonism of the two drugs, and side effects due to drug interaction. However, it was still considered not burdensome and ultimately, trust in their physicians would take precedence.

The themes for each treatment regimen are summarized per domain (Table 3). Summary of within-case and cross-case analysis themes for permethrin (Table 4), ivermectin (Table 5) and combination regimen (Table 6) are also given.

DISCUSSION

Summary of Main Findings

Overall, the acceptability of scabies treatments (permethrin, ivermectin, and combination therapy) were generally positive but varied across the cases on several factors. Permethrin, used in three patient cases, was generally perceived as effective in curing scabies, although the degree of itch relief varied among patients. It had minimal side effects mostly related to cosmetic acceptability, and patients considered it safe to use. Ivermectin, used by one patient case, was perceived as highly effective with no experienced side effects. Combination therapy was also considered effective although whether ivermectin contributed significantly to the effect was speculated, considering the added cost. It was only associated with a mild and transient dizziness that was not directly attributed to intake of oral ivermectin.

Patients generally trusted their physicians' judgments and were willing to follow their recommendations despite personal preference. They showed adherence to prescribed treatments although household adherence varied according to size and family dynamics. Patients were open to trying different options if necessary and if advised by their physicians. Burden and opportunity cost varied across treatments, with permethrin application posing logistical challenges, while ivermectin and combination therapy had fewer disruptions to daily routines. Accessibility was a concern, with permethrin perceived as less affordable than ivermectin, particularly for patients with limited income. The cosmetic acceptability

Table 3. Summary of Themes per Treatment Regimen according to Modified TFA Domains

Treatment regimen	Intervention Coherence		Perceived Effectiveness		Ethicality	Burden		Opportunity Cost	Accessibility	Affective Attitude	Self-Efficacy	
Permethrin	(+) Patient belief that applying permethrin directly to skin is more logical and connotes milder disease	(+) Patient knowledge that permethrin works by killing mites	(++/-) Patients perceive permethrin as effective in curing scabies (e.g., itch relief, lesion clearance)	(++/-) Patients' mixed experience/ perception on permethrin tolerability (e.g., feathery sensation, skin darkening on face)	(+) Patient follows physician's recommendation of permethrin	(++/-) Applying permethrin may or may not be burdensome for patients	(+/-) Patients and household contacts may or may not be compliant with permethrin	(+/-) Using permethrin may or may not interfere with patient routine (e.g., time for personal care)	(+/- -) Mixed patient perceptions on affordability of permethrin (R)	(++/-) Permethrin generally cosmetically acceptable for patients (i.e., odor and feel on skin)	(+) Patient confidence in permethrin due to previous knowledge and experience	(+) Patient confidence in permethrin since permethrin labeled as scabicide
Ivermectin	None		(+) Patients perceive ivermectin as effective in curing scabies (e.g., itch relief)	(++/-) Patients' mixed perception on ivermectin safety (e.g., dizziness)	(+) Patient follows physician's recommendation of ivermectin even if unfamiliar with drug (i.e., trust in physician)	(+) Taking ivermectin not bothersome for patients		(+) Using ivermectin does not affect patient routine since only 1 tablet was needed	(-) Ivermectin affordable for patients	(-) Patient apprehension of ivermectin (e.g., unusual packaging, addicting)	(+/- -) Mixed patient awareness/ experience on IVM	(-) Patient reluctance in taking ivermectin since non-formulary
Combination	(+) Patient belief that permethrin and IVM if combined may be antagonistic (P)		(+) Patients perceive combination treatment as effective in curing scabies		(+) Patient follows physician's recommendation of combination treatment after being informed of side effects	(+) Combination treatment not burdensome for patients		None	(-) Patients perceive combination treatment is added expense	None	(-) Patients perceive combination treatment for more serious disease	(-) Patients question need for combination treatment

(+) – positive perception or experience; (-) – negative experience; (+/-) – both positive and negative perception or experience; (++/-) – more positive than negative perception or experience; (+/--) – more negative than positive perception or experience; IVM – ivermectin

of permethrin varied, but all patients complied with its application. Ivermectin elicited some apprehension due to its unfamiliarity and associations with the COVID-19 pandemic.

Overall, patients had confidence in using permethrin based on its efficacy and were willing to recommend it to others. However, there was hesitation towards ivermectin due to various reasons, such as unfamiliarity, association with veterinary use, controversial use in COVID-19, and concerns about swallowing pills and systemic side effects. Combination therapy was generally accepted, but some patients questioned its appropriateness.

Topical vs. Oral

In this study, patients preferred topical medication (permethrin) not only because it was considered more appropriate for skin disease and has less systemic side effects but since it was also perceived to be effective in curing scabies. Interestingly, they felt reassured that their condition was not a serious disease when only treated topically. In a similar study in England comparing acceptability of oral metronidazole vs topical lactic acid gel for recurrent bacterial vaginosis, despite lower perceived effectiveness, patients still preferred topical lactic acid gel because of less side effects while oral tablets were preferred for severe cases.[7] On the other hand, parents/ carers in a remote Western Australian region expressed confusion regarding how to apply the cream, not aware that it must be applied to the entire body. Some carers spoke of the smell, the 'funny' texture, and the time it took for the skin infections to heal when using the cream as potential barriers to treatment uptake.[3] In another UK study, there were mixed perceptions on the prospective acceptability of oral pills and a local vaginal ring for HIV pre-exposure prophylaxis among pregnant and breastfeeding women.[8] Some women opted for oral pills due to familiarity of taking pills, understanding the purpose of taking pills, and perception on its effectiveness to protect mother and baby from HIV. On the other hand, the vaginal ring was preferred due to ease of use and liking the discrete and effective method of HIV protection with its monthly duration and invisibility. Strategies recommended to improve acceptability of either method were thorough patient education especially on mechanism of action and side effects of each method, pill swallowing technique demonstrations, and testimonials from women who have used these methods.

In general, however, there was good adherence to topical permethrin application for the patients in this case study, though some asymptomatic household members did not comply due to lack of perceived urgency to undergo treatment as they did not have lesions or symptoms. These findings are similar to a study among Aboriginal communities in Australia where 80% of children with scabies had good treatment uptake of permethrin but only 44% of household contacts complied.[2] Factors that contributed to poor compliance among household members were male sex and being asymptomatic. Additional barriers to permethrin use in four remote Aboriginal communities with high scabies prevalence among parents/carers of children with scabies were their confusion in proper application, permethrin's unpleasant smell and texture, the delay in healing of skin infection after treatment, and the fast turnover of household residents.[3] Persistent itch in some patients in this study prompted them to apply permethrin more frequently or apply more doses than prescribed. On the other hand, the unusual odor and

Table 4. Themes under each Acceptability Domain for Permethrin across Cases

Case No.	Case ID	Intervention Coherence		Perceived Effectiveness		Ethicality	Burden		Opportunity Cost	Accessibility	Affective Attitude	Self-Efficacy	
1	Ricardo/ Permethrin	(+) Permethrin lotion acts directly on skin vs oral tablet requires absorption (+) Belief that topical medications are for mild disease	(+) Permethrin works by killing mites	(+) Permethrin seems effective even if 'just a lotion' (+) Permethrin eliminates itch	(+/-) Unusual but transient sensation on skin from permethrin	(+) Trusts physician for prescribed permethrin	(+) Permethrin dried up easily (+) Family members helped each other apply permethrin	(-) Explained need to treat household	(-) Delayed bedtime and bathtime	(+/-) Depended on savings to afford permethrin	(+/-) Typical 'medicinal' odor	(+) Willingness to recommend and use permethrin again since effective (+) Proactive and does self-research	
2	Gina/ Permethrin			(-) Persistent itch after additional 3rd dose	(-) Permethrin side effect of burning on face and darkening on flexures of son (-) Permethrin has side effect of unusual feathery sensation after washing off		(-) Stays in an empty room to let permethrin lotion dry on naked skin	(-) Household contacts poorly compliant with permethrin	(-) Permethrin application interferes with time dressing up		(+) absorbed into skin, no smell		
3	Flora/ Combination-to-permethrin			(-) Daily use instead of weekly dose due to persistent itch (+) Itch relief, lesion resolution, and good night's sleep (+) Permethrin was effective as expected from previous experience	(-) No side effects from permethrin		(-) Difficult to apply permethrin to unreachable skin (e.g., back)	(-) Household contacts poorly compliant with permethrin	(+) Permethrin did not affect her daily routine		(-) Disliked greasy feeling of permethrin	(+) Familiar with permethrin since was prescribed previously (+) Patient felt confident to use hence patient over-adhered	
Prospective Acceptability													
4	Oscar/ Ivermectin						(-) Need someone else to apply permethrin to back (+) Permethrin lotion easily dries on skin			(-) Permethrin is less affordable than IVM	(+) Permethrin did not have strong odor		SE: Permethrin labelled as a scabicide
Cross-case themes		(+) Patient belief that applying permethrin directly to skin is more logical and connotes milder disease	(+) Patient knowledge that permethrin works by killing mites	(++/-) Patient perceives permethrin as effective in curing scabies (e.g., itch relief, lesion clearance)	(++/-) Patients' mixed experience/ perception on permethrin tolerability (e.g., feathery sensation, skin darkening on face)	(+) Patient follows physician's recommendation of permethrin	(++/-) Applying permethrin may or may not be burdensome for patients	(+/-) Patients and household contacts may or may not be compliant with permethrin	(+/-) Using permethrin may or may not interfere with patient routine (e.g., time for personal care)	(+/- -) Mixed patient perceptions on affordability of permethrin (R)	(++/-) Permethrin generally cosmetically acceptable for patients (i.e., odor and feel on skin)	(+) Patient confidence in permethrin due to self-research or previous experience	(+) Patient confidence in permethrin since permethrin labeled as scabicide

(+) – positive perception or experience; (-) – negative experience; (+/-) – both positive and negative perception or experience; (++/-) – more positive than negative perception or experience; (+/--) – more negative than positive perception or experience; IVM – ivermectin

Table 5. Themes under each Acceptability Domain for Ivermectin across Cases

Case No.	Case	Intervention Coherence	Perceived Effectiveness		Ethicality	Burden	Opportunity Cost	Accessibility	Affective Attitude	Self-Efficacy	
4	Oscar/ Ivermectin	None	(+) IVM relieved itch in 4 days (+) Likes both permethrin and IVM since resolved itch of whole family (+) IVM very helpful for his skin condition	(+) No side effects due to intake of 1st IVM tab, so took the 2nd IVM tab	(+) Follows doctor's prescribed IVM regimen despite successful cure with just one dose	(+) Oral IVM not bothersome to take (+) IVM did not have bad taste and not too big to swallow	(+) Intake of only one IVM tab did not affect daily routine	(+) IVM affordable since he has a job	(-) Unusual size and color of IVM tabs prompted him to research (-) Feared possible deaths due to COVID vaccination / medications like IVM	(+) Will recommend IVM since he personally experienced its effectiveness (-) Hesitant to take oral medications because he is not used to taking	
Prospective Acceptability											
1	Ricardo/ Permethrin				(+) Will rely on doctor's prescription for IVM and not just on self-research (i.e., IVM effective for scabies (+) Willing to take ivermectin or combination as long as prescribed and needed					(+/-) Heard news about ivermectin due to its use in COVID, but have also read on its use in scabies while doing internet research on scabies treatment	(-) Hesitant to use ivermectin since non-formulary, might not work and may have side effects
2	Gina/ Permethrin				(+) Willing to take oral IVM if 1st drug did not work and if physician advises				(-) Fear of becoming addicted to IVM or having side effects	(-) Aware of IVM for veterinary use but unfamiliar with human use	
3	Flora/ Combination-to-permethrin								(-) Wary of GI side effects of ivermectin tablet due to previous experience with celecoxib	(-) Unfamiliar with ivermectin, unsure if it will work or it may cause allergy	
Cross-case themes			(+) Patients perceive ivermectin as effective in curing scabies (e.g., itch relief)	(++/-) Patients' mixed perception on ivermectin safety (e.g., dizziness)	(+) Patient follows physician's recommendation of ivermectin even if unfamiliar with drug (i.e., trust in physician)	(+) Taking ivermectin not bothersome for patients	(+) Using ivermectin does not affect patient routine since only one tablet was needed	(-) Ivermectin affordable for patients	(-) Patient apprehension of ivermectin (e.g., unusual packaging, addicting)	(+/- -) Mixed patient awareness/ experience on IVM	(-) Patient reluctance in taking ivermectin since non-formulary

(+) – positive perception or experience; (-) – negative experience; (+/-) – both positive and negative perception or experience; (++/-) – more positive than negative perception or experience; (+/--) – more negative than positive perception or experience; IVM – ivermectin

sticky consistency of permethrin noted by some patients did not deter them from applying the cream.

However, the high cost of permethrin poses a financial burden for Filipinos who had to pay 44.7% of their health expenditure out-of-pocket.[9] For an average health expenditure of PhP 10,059 as of 2022,[10] the estimated amount paid out-of-pocket is around PhP 4,500. The cost of a 60-ml bottle of permethrin (PhP 238) for one adult patient with scabies is around 50% of the minimum daily wage (PhP 570).[11] In a qualitative study of how low-to-middle income Filipinos finance their health needs, Lasco et al. identified the domains of health financing as the 4 Ps: pagtitiis (enduring illness), pangungutang (borrowing money), pagmakakaawa (begging for help), and PhilHealth (national health insurance program).[12] As of 2013, when PhilHealth introduced its case rates, in-patient scabies treatment was no longer covered.[13] In this study, patients borrowed money and sought assistance from politicians, government agencies, and religious groups to meet their healthcare expenses. Physicians in this study seemed to have no strong preference between topical and oral medication, and mainly relied on an evidence-based approach for efficacy.

Controversy on Ivermectin during COVID-19

The hesitancy in the uptake of ivermectin for scabies in this study despite its local availability during the COVID-19 pandemic mirrors the concern of Alvarez-Moreno on the resulting mistrust for oral ivermectin.[14] He noted that this may negatively impact and result in low uptake of ivermectin-based mass drug administration programs for lymphatic filariasis, soil-transmitted helminthiases, and scabies. He suggested healthcare workers and other locally trusted actors and communicators to undertake proactive health promotion and education to spread the message that ivermectin remains a vital medicine for controlling neglected tropical disease. In early 2021, at the height of the COVID-19 pandemic, the

Table 6. Themes under each Acceptability Domain for Combination Treatment across Cases

Case No.	Case	Intervention Coherence	Perceived Effectiveness	Ethicality	Burden	Opportunity Cost	Accessibility	Affective Attitude	Self-Efficacy	
Retrospective acceptability										
5	Alyana/ Ivermectin-to-combination				(+) Combination treatment is acceptable since can be taken at different times of day					
6	Diana/ Combination		(+) Combination treatment worked well; permethrin relieved itching, with ivermectin, totally cured							
Prospective acceptability										
1	Ricardo/ Permethrin	(-) Combination treatment is also non- formulary, so the effect of two drugs together may not be ideal or optimal and may even negate each other.		(+) Willing to take combination as long as informed of possible side effect (+) Willing to take ivermectin or combination as long as prescribed and needed			(-) Combination treatment may mean additional expenses		(-) Combination treatment indicated for more severe disease and sleep deprived due to itch	(-) Permethrin alone is already effective, so will question why need to add ivermectin tabs
2	Gina/ Permethrin			(+) Use of combination therapy depends on doctor's advice						
3	Flora/ Combination-to-permethrin		(+) Combination treatment is acceptable if likely to work or with permanent cure and no recurrence							
4	Oscar/ Ivermectin			(+) Willing to use combination treatment as long as instructed by doctor	(+) Not burdensome if he had to do combination treatment					
Cross-case themes		(+) Patient belief that permethrin and IVM if combined may be antagonistic (P)	(+) Patients perceive combination treatment as effective in curing scabies	(+) Patients follows physician's recommendation of combination treatment after being informed of side effects	(+) Combination treatment not burdensome for patients	None	(-) Patients perceive combination treatment is added expense	None	(-) Patients perceive combination treatment is for more serious disease	(-) Patients question need for combination treatment

(+) – positive perception or experience; (-) – negative experience; (+/-) – both positive and negative perception or experience; (++/-) – more positive than negative perception or experience; (+/--) – more negative than positive perception or experience; IVM – ivermectin

Philippine FDA warned the public that "current Ivermectin products registered in the country are for veterinary use and are only allowed for the treatment of internal and external parasites as well as prevention of heartworm disease in animals."[15] The Philippine Dermatological Society position statement in mid-2021[16] echoed the Philippine FDA warning and joint recommendation from the Philippine COVID-19 Living CPG Reviewers of the UPM-NIH and other health groups[17] regarding the lack of evidence to support the use of oral ivermectin in COVID-19 and that the approved local use for oral or intravenous ivermectin is limited to animals while only topical ivermectin is registered for external use in head lice and rosacea. However, the message failed to mention that ivermectin is endorsed by the WHO in its essential medicine list as an effective and safe drug for use in human parasitic diseases, including scabies.

Patient-Physician Relationship

Patients in our case study generally placed their complete trust in their physicians for the best treatment option since they felt that the physician knew best. This paternalistic attitude of Filipinos towards their physicians was similarly manifested in a study on 761 mental health professionals in Mexico.[18] In a paternalistic relationship, the patient plays a passive role, and it is the physician who directs his care. Thus, although patients preferred topical application over oral medication, their trust in the physician takes precedence on the choice of intervention. In a comparative study of physicians in the US and Philippines, Filipino physicians considered themselves as more knowledgeable in medical matters and expect patients to trust and depend on them to dispense information, diagnosis, and treatment to the patients.[19] In a cross-sectional study on urban poor Filipinos, this hierarchical relationship between patients and physicians, considered as "infallible,

almost god-like," was identified as a reason why Filipino patients are disempowered.[20] Identifying patient preferences was one of the practices in shared decision-making that needed to be strengthened in the General Internal Medicine Outpatient Clinic of the Philippine General Hospital.[21]

Limitations

The small sample size and recruitment from a single center in an urban tertiary referral hospital may have limited the diversity of patient perceptions and experiences. The short-lived window of accessibility to oral ivermectin at the height of its controversial use in the COVID-19 pandemic may also not be replicable in future studies. Socioeconomic factors and family dynamics of patients in the catchment area of the research site may not represent the rest of the population. Thus, study findings may not be generalizable to other settings and time periods.

Implications for Practice and Policy

Since it is usually the low-income patients from crowded communities who are at risk for developing scabies, affordability of the drugs should be considered by physicians to ensure treatment adherence. Patients must be educated, and misconceptions must be corrected to enable shared and informed decision-making when choosing from effective and safe treatment options. Patient convenience, preference for oral versus topical medication, and risk tolerance must be considered.

CONCLUSION AND RECOMMENDATIONS

Permethrin was generally more acceptable than oral ivermectin since patients were more comfortable with a topical medication and was perceived to have less side effects. However, permethrin was less affordable than oral ivermectin and posed logistical and compliance challenges for large households and low-income families. Oral ivermectin was viewed with some hesitation due to its controversial role in COVID-19 and confusion with veterinary use. Combination therapy was viewed as an added cost with potential for reduced efficacy due to antagonistic interaction between the two drugs. In the end, patients still placed the final decision for the best treatment on their physicians. These findings on patient acceptability for oral ivermectin, permethrin, and its combination in the treatment of scabies highlight the importance of considering patient perspectives, experiences, and the patient-physician relationship in the choice of intervention. By addressing patient concerns, providing education, and ensuring ease of use and affordability, healthcare professionals can enhance treatment acceptability and promote adherence for better treatment outcomes. Future research in other settings where scabies is highly endemic such as crowded institutions is recommended to enrich and diversify the evidence.

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Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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