



Using Indigenous Knowledge To Improve Persons Quality Of Life When Living With Skin Conditions: A Qualitative Narrative Inquiry

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Background

Traditional medicine and herbal therapies have been used for centuries for the treatment of skin disorders. More than one in four Canadians live with a chronic skin condition, such as actinic keratosis, psoriasis, rosacea and skin cancer.¹ For these conditions there are different treatments (e.g., oral, topical [cream, lotion, soap], injectable) for patients and their care providers to consider, including prescription medications,² over-the-counter drugs, natural and herbal folk medicines.^{3,4} Of interest to this study is the role of birch bark extracts that have been used around the world “in traditional and folk medicines”⁵ for conditions such as acne.³

Folk medicine producers and researchers have a long history of engaging in the creation and use of skin care extracts (e.g., topical creams, ointments).^{3,7,8} Some medicines are based on the rich history of using birch bark from trees (genus *Betula*) which has shown great utility for treating skin conditions in societies of temperate and boreal climate zones.^{9,10} Researchers also acknowledge that some herbal and folk medicines have scientifically-confirmed effects but have yet to undergo high, quality clinical trials.³

Territorial Acknowledgement

The authors respectfully acknowledge that they live, work and play in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People.

In Canada, production of natural health products (NHP) is regulated by Health Canada to ensure safe, high quality and effective use through production and labelling.¹¹ Each NHP is identified by species, part of species and processing method either under NHP or cosmetic regulations. Currently, there are more than 60 birch species known with different methods of obtaining birch extracts from various parts of these trees, such as from bark, root and leaves.^{3,12} Commonly used terms such as birch bark extract, birch oil, or birch bark oil often complicate accurate assessments as the chemical composition and thus medicinal modes of actions can vary greatly.⁹ Despite the wealth of knowledge of birch extract (*Betula Pendula*) for skin treatments (creams, ointments, soap and lotion), this may not be comprehensive, as traditional, Indigenous folk medicines utilizing birch bark extracts have been under-reported and under-researched.^{3,13}

Maskwio'mi: maskwi = birch, o'mi = gathering or oil

Studies (in vivo) have identified birch bark extract as being used to treat a variety of skin conditions including epidermolysis bullosa (EB),¹⁴⁻¹⁷ actinic keratosis,^{3,18,19} superficial burns²⁰ and burns requiring partial-thickness skin grafts, with up to 28-days healing,²¹ as well as surgical skin lesions,^{2,23} dry skin,²⁴ diabetes-related wounds^{24,25} and necrotizing herpes zoster.²⁷

In Atlantic Canada, maskwio'mi, is known as a traditional Indigenous skin remedy of the L'nu (Mi'kmaq) people.¹³ It is a way to bring western and L'nu ways of knowing together, and understand the benefits of traditional medicine.^{28,29} L'nu peoples' stories state the traditional birch bark remedy was based in bear grease or goose fat.¹³ Today, birch bark extract is prepared by harvesting the bark (see Figure 1) and then traditionally preparing it by a pyrolytic process using a 'can-over-can' fire method with the outer bark of *Betula Papyrifera*, commonly known as paper birch.^{13,30} The bark is thermally broken down in a low oxygen environment inside a metal

container and as a viscous oil called maskwio'mi; it drips out at the bottom of a perforated container into a receptacle. This oil is the concentrated form of the extract and subsequently co-formulated into creams or soaps in concentrations of 1-15 weight percentage (wt%). Maskwio'mi is a complex, organic matrix consisting of over 200 chemical compounds, it is safe for topical treatment regarding trace amounts of cresols and has shown in vitro broad-spectrum antibiotic properties.³⁰

Figure 1: Harvesting birch bark in Unamak'i



As part of funding provided by the Canadian Institutes of Health Research (CIHR, 2019-2024), a team of researchers at Cape Breton University adapted the traditional 'can-over-can' Maskwio'mi production to utilize a proprietary, electric extractor method to produce birch bark extract more consistently and in larger quantities.¹³ This product is regulated within the International Nomenclature Cosmetic Ingredient (INCI) category of *Betula Papyrifera* bark extract³¹ and the Chemical Inspection and Regulation Service,³¹ and is available for market in the community under cosmetic regulations, as there is no equivalent NHP entry. In the community, the birch bark extract is called maskwio'mi, the term we use in this paper.. It has been available over the counter for over four years as a cream, ointment, or soap.³²

Aim

We sought to understand the perspectives of adults (18+) living in community and utilizing birch bark - maskwio'mi (cream, ointment, soap) - as part of their topical skin care regime, treatment and or management of a diagnosed skin condition.

Methods and Procedures

Design and Sample: This narrative inquiry study^{33,34} explored the lives of individuals (adults 18+) living in community with skin conditions such as acne, psoriasis, eczema and or dry skin. Participants may have used the birch bark cream, ointment or soap. In this study, the importance of stories³⁵ and creating a space and place where persons could share their narrative was crucial. We also appreciate the emotional and social impacts of living with skin disorders.³⁶

Individuals living in the community and utilizing maskwio'mi were invited to describe their skin care routines and journey with a skin disorder. Twelve participants (aged 18+) living with a skin condition responded to the recruitment posters. Participants resided in rural and small communities in two provinces. We collected rich data that reflected perspectives of persons living with skin issues and using maskwio'mi. As well, collecting these stories was important as we know that 'the truths' of the stories are held within the life context of the storyteller³⁵ Therefore collecting data was done in a quiet place of the participants choice.

Data Collection: University Research Ethics, Indigenous Ethics Watch board and the Chief and Council of Membertou were sought and each group approved the study. Participants were recruited from May to August 2023 using purposeful sampling. We posted recruitment posters in English and Mi'kmaq languages in community pharmacies, libraries and public spaces. As well, participants learned of the study via word-of-mouth ('snowballing'). Individuals wanting to share their story in English or Mi'kmaq contacted the Research Assistant to read a Letter of Information and an Informed Consent form. Data

collection included phone interviews, face-to-face interviews and field notes.³³ Interviews were in English and lasted 45-60 minutes and follow-up phone calls with participant to clarify any questions. Interviews were recorded and transcribed, read and re-read by the researchers prior and during analysis.³⁴

We were deeply aware of the private nature of conversations about skin issues as participants shared suffering and shame experienced. Therefore the interviews with 12 participants were completed using a gentle, non-directive interview approach to respect the importance of stories participants chose to share. Participants could stop the interview at any time. An open-ended question format was used to initiate the conversation and build trust: "Can you share with me your experience of using maskwio'mi for your skin disorder" and "anything you are comfortable sharing?" Additional questions were asked to clarify information. Participants were also asked to provide their rating (0-4) of satisfaction with the birch bark extract (maskwio'mi) (0-not at all satisfied, 1-a little improvement, 2-moderate or some improvement, 3-a lot, 4-extreme improvement). Upon completion of the interviews, the data were transcribed verbatim and stored onto a password protected laptop. Each participant interview was saved using a code and anonymized. See Table 1 for details of each participant.

Data Analysis: Thematic analysis was used to analyze the data including reading and re-reading the stories. We used Atlas.ti to assist in the management and coding of the data.³⁷ Alongside this, we engaged in a constructivist, reflexive analysis as it helped to understand the co-creation of new knowledge through interaction with the participants' stories.³⁸⁻⁴¹ As well, we recognized stories are important in the interpretation of findings, hence we share stories in this study as it reflects the multiple social and health realities.⁴²

Table 1: Participants Maskwio'mi Use

Person	Skin Condition(s)	Length of Product Use	Skin Symptoms	Symptom Location	Improvement Timeline	Frequency of Product Use
1	Seborrheic Dermatitis Eczema "dark spots"	One year	Dryness Itch Hot to touch	Face Fingertips Chest Back	Two days of use	Twice daily for maintenance and increase as needed during a flare up
2	"Covid spots" following Covid illness	Unknown	Red spots Flake/crusts Itch	Arms	Three to four days	Twice daily as needed
3	Rosacea Skin allergies Acne Sunburn Bug bites	Approximately 22-24 months	Redness Itch Burning Bumps	Face Feet	Immediate relief from itch following application	Twice daily for maintenance
4	Heat rash	Two years	Redness Itch Bumps	Feet Knees Hands Wrists Inner thighs	Immediate relief from itch	As needed
5	Scratches Mosquito bites Heat rash Anaphylactic rash	As needed	Inflammation	Trunk Arms Face Legs	Unknown as band aid/ dressing covered the site	As needed for inflammation
6	None	Unknown	Redness Dryness Cracks	Hands	One week	Twice daily as needed
7	General irritation Questionable Rosacea	Unknown	Redness Itch	Face	Three days	Once daily as needed
8	General irritation	One year	Redness Dryness Itch	Abdomen	Immediate relief from itch Improvement in redness in two days	Twice daily as needed
9	Atopic Dermatitis Eczema	Unknown	Itch Burning	Face Arms Trunk Knees	Immediate relief from itch Less redness and dryness within a few days	Once daily as needed
10	Tinea Versicolor Dyshidrotic Eczema	Approximately 22 to 24 months	Clear viscous fluid build-up Scaly patches Itch	Hands Wrists	Immediate relief from itch One week to soften skin	A few times per week
11	Psoriasis Arthritis	Unknown	Redness	Armpit Groin	Following three applications (once day)	As needed
12	Sun damage (unable to describe the skin's appearance)	Unknown	Dryness Flaking Pain	Scalp Ear	A few days	Twice per day routinely

Results

Participants (n=12) in this study were nine females and three males, English-speaking, non-Indigenous, aged 38 to 71 (average age 51). Ten participants lived in Nova Scotia and two participants lived in Ontario. Participants all accessed birch bark product for the self-treatment of skin conditions. Five self-reported skin symptoms while seven people described a diagnosed skin condition by a dermatologist or general practitioner.

Diagnoses included: eczema, psoriasis, dermatitis, rosacea, acne, sun damage (with surgical removal) and tinea versicolor. Others self-identified as having heat rash, general rashes, bug bites, scratches and allergies. The skin conditions were located in various parts of the body, including hands, wrists, arms, axilla, face, ears, abdomen, back, groin, knees and feet. Skin symptoms included feeling hot to touch, burning sensation, itching, redness, dryness, cracking, scaly patches and pain. We did not interview any person with open wounds (e.g., burns, split-thickness grafts, epidermolysis bullosa (EB), or diabetic foot ulcers).

Results of the thematic analysis were shared in a story format. The stories suggest participants quality of life was affected when living with a skin condition and were challenged to self-treat and manage skin conditions with the plethora of options available from health-care providers, including non-prescription and over-the-counter medicines. In this study, no participants were not offered traditional medicine as part of their treatment plan. Participants described the effects of living with chronic skin condition as, "hard on their self-esteem and quality of life". They described self-care skin regimes and were hopeful when a "traditional option was offered", "like an encouraging moment in their life". Participants stated, "any of the self-treatment options do not historically include L'nu knowledge" and they were encouraged to know of access to a locally produced product (Participants stories).

Four key themes emerged from the participant stories: 1) They wanted to feel hopeful that their quality of life would improve when using a traditional medicine for their skin condition;

2) They varied in their use of the maskwio'mi depending on their skin condition; 3) They wanted to try traditional medicine as part of their self-management regimes; and 4) They provided practical feedback on traditional medicine and maskwio'mi.

Improved Quality of Life: Participants shared that living with skin condition(s) evoked feelings of shame, feeling unattractive or self-conscious, being watched or looked at in public. Participants shared that for many were unsuccessful in finding treatments to consistently manage their skin conditions. They shared that accessibility to solutions were not always affordable.

Several stated that skin care treatments, prescribed, over-the-counter, or from a private health-care, were often a financial burden. One participant stated, "many skin care regimes are not covered by my [health] benefits". As well another stated, "traditional medicine was not offered to me as an option".

Participants shared that there is a public element to living with a skin disorder and for some this was a barrier to participating in social events. This included descriptions of suffering and shame and self-blame for having a skin disorder. For example a participant shared, "When I am in a public setting, people can see me itching, the redness of my skin and inflamed areas draws attention".

One participant who was initially reluctant to try maskwio'mi shared:

"There is no message that the beauty industry could have to convince me that the product [birch bark extract] was worthwhile trying. It is a health-care product and that is how it should be sold; not as a beauty product. I don't have the vocabulary to describe how life changing the product was for me in my life."

Another participant with a history of long-term facial and ear sun damage resulting in surgical removal of the damaged skin shared the following:

"I have had trouble with dryness on my scalp for many years. The doctor told me it was the result of long-term sun damage. As a result, I tried many products to try to keep the dryness under control. I recently tried the traditional cream and there is now definitely improvement. It used to get sore, so sore, and now it does not get at tender. As well, the tenderness is not spreading anymore. The cream keeps things under control which is fine by me. It is serving a purpose... I had a number of surgeries on my ear and side of my face from sun damage and it can get irritating. I like to think maskwio'mi helped with it too."

Another participant kept a photographic record of their skin journey. They stated:

"It was crazy finding the 'before' photo because it brought me back to a dark time emotionally. It was all over my neck and there was a couple of weeks where I was self-conscious, and I would try to hide my neck during interactions in public and in meetings. I would intentionally put my hands on my neck to hide the spots...just hyper-aware and so self-conscious. I was a little depressed over it. I felt like it was just going to continue to get worse...I was really low, had low self-confidence and low self-esteem. I tried the maskwio'mi and my skin cleared. I now do not think about my skin anymore...I am more self-confident."

Maskwio'mi Used to Respond to Individuals' Need:

Participants identified as using the maskwio'mi ointment for short-term 'flare ups' of their skin conditions and using the cream and soap as

a 'maintenance' product to keep the skin clear from irritation.

One participant stated, "I do find a difference between the cream and the ointment. I find the ointment is stronger and works good for the breakouts.

Eleven participants had used the soap and cream either daily or twice per day to manage their skin conditions and one participant used it three times per day.

Overall, five participants identified using a small amount of cream or ointment per application. One participant described this as, "less than a dime" while another stated, "a table spoon of ointment per month." A participant described the pattern of application as, "A dot on my forehead, cheeks, chin and rub it in. Sometimes I will dab a little on my eye lids." All participants stated they did not knowingly use any other skin care products while using maskwio'mi.

An Option to Self-Manage the Skin Condition:

The participants reported a reduction in symptoms related to their skin condition upon topical application of the maskwio'mi. Improvements including, "a relief from the itch", "a soothing feeling", "less irritation on my skin", less pain when I touch my skin" and a "reduced redness". One participant further stated, "the first thing I noticed is the itch would go away, and it calmed the skin down". Another described the journey of first trying the soap that resulted in, "immediate relief. It didn't take the redness out right away, but the bumps and itch were reduced." Finally, one person stated "I tried one coat of cream over a rash and the itchiness was reduced. There was immediate relief, it was unbelievable."

The participants were asked to report on a satisfaction scale (0-4) on how maskwio'mi effected their skin condition (0-not at all, 1-a little improvement, 2-moderate or some improvement, 3-a lot, 4-extreme improvement). Seven individuals rated their skin as extremely improved (less itch, pain), two individuals rated their skin as mostly improved,

and three individuals rated it as moderate to some improvement following use of maskwio'mi. One participant stated, "...I noticed a quick improvement in the appearance of my skin...it was a matter of days! It was surprisingly very short. I would say almost immediate." The remaining eleven participants noticed an improvement over one to two weeks.

Traditional Medicine: It Plays a Role: Overall participants were satisfied with the access to and application of the traditional product on their skin. They described the consistency of the cream and lotion as soothing. One participant stated, "I really liked the feel of it, it is not greasy. It has almost a velvety texture." Another said, "sometimes I just put it on my face as a moisturizer. It spread well for a cream. Normally, I use lotion, but this spread so easily and evenly." Another participant compared it to a general over-the-counter lotion, "when lotion is applied, it warms and liquifies and moves away from where you want it. Maskwio'mi doesn't move around, it stays where you put it."

Participants who used the soap were satisfied with how their skin felt following use.

Traditional Medicine Produced Locally: Three participants were pleased that the birch bark extract – maskwio'mi product was being produced locally and that it was harvested and produced from local birch trees. One stated: "Anytime there is a natural product that comes out on the market that doesn't have long-term side effects, it piques my interest." Another stated "I think more people are headed towards traditional, alternative or natural products."

Seven participants stated they did not initially like the smell of the product. They identified it as a smoky smell. Yet, two stated they enjoyed the fragrance as, "it reminds me of my childhood, being at my grandparents where they had a wood stove." The other stated, "the first thing that occurred to me is that I like the aroma, but it is pungent." Another participant specifically purchased a fragrant cream and stated, "the fragrance is appealing; I like the

lavender and sweetgrass." Overall, although some participants stated they did not like the fragrance, they would still continue to use the product.

Eleven participants had recommended maskwio'mi to a friend or family member. Three participants identified a need for others to know about the usefulness of the product.

Discussion

This study focused on sharing the voice of 12 adults who lived with a skin condition and using a traditional birch bark extract, maskwio'mi. The collected stories were of persons in two Canadian provinces. The stories shared reflect the human suffering experienced and the yearning for a treatment that works for each person's skin condition. The findings of this small, narrative inquiry study also reveal that there are social (employment), mental health and financial implications affecting one quality of life; it is these factors that impact a person's ability to self-treat and manage their skin condition (e.g., acne, dermatitis).³⁶

Our results provide new insights into the lives of individuals utilizing a traditional birch bark extract, maskwio'mi as part of their skin care. The findings remind us of the human suffering, stigmatization and emotional and physical pain and loss of hope that results when living with a skin condition. We learned that participants felt empowered and hopeful, to consider using maskwio'mi in self-treatment for a wide range of diagnosed skin conditions (e.g., eczema, psoriasis, dermatitis, rosacea, acne, sun damage, tinea versicolor) and for self-diagnosed conditions, such as heat and general rashes, bug bites, scratches and allergic reactions.^{3,24} It was interesting that none of the participants in this study discussed the known antimicrobial properties of birch bark extract, such as the activity against bacteria such as "gram-positive bacteria, including *Cutibacterium acnes*, *Staphylococcus epidermidis* and methicillin-resistant *staphylococcus aureus* (MRSA).^{3,43} As well, none discussed the antioxidant properties of the birch bark extract; through this body of research is growing it may not be public knowledge.⁴³

Quality of life: Similar to the literature, our study showed that individual's quality of life (social stigma, embarrassment, self-loathing) was affected by living with chronic skin conditions such as psoriasis^{6,44-46} and acne related depression and anxiety.⁴⁷⁻⁴⁹ The participants tendency to use complementary and alternative treatments to manage their skin disorder was purposeful, as they wanted to improve the visibility of their skin condition.⁵⁰

In this study the participants experienced increased skin comfort through a reduction or elimination of symptoms (e.g., burning, itchiness, redness, drying, cracking, scaly patches and pain) within a few days of maskwio'mi application. Some described the reduction in skin irritation and pain as resulting in an enhanced quality of life and their ability to live day to day with less discomfort, especially in a public forum. Further, it was self-reported that their self-esteem and confidence improved as the appearance of the skin symptoms improved.

Efforts to self-treat condition: Participants strived to have the skills and products to self-manage their skin conditions and at times this was challenging.² Many described the journey of living with a chronic skin condition as affecting their sense of self-worth, self-esteem and confidence, especially when the skin condition was visible publicly.³⁶

Financial burden: The burden of paying for skin products not covered by provincial or employer health benefits added to their burden of care. The inability to pay for recommended skin treatment or products increased emotional stress. Participants described the additional financial burden as being managed by themselves or their family members. Long term, participants shared that improved access to affordable treatments should be improved, and more traditional products should be covered by health-care benefits.³⁶

Study Limitations

In this small study we focused on adults and did not identify any persons living with open diabetes-related wounds, burns or epidermolysis bulosa. We collected the stories of persons using a birch bark extract in several forms (cream, ointment, soap). More research is needed to explore each skin condition and with the use of each birch bark extract product. Finally, we did not include any person under 18 years of age.

Implications for Practice

The role of traditional medicines, though used for centuries, are not fully accepted in mainstream healthcare. It is important to continue research into the use of traditional medicine for skin conditions. Assessment of an individuals quality-of-life while living with the skin issue long-term is important.

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