HARNESSING THE SKIN-MIND CONNECTION

Why Conventional Skincare Isn't Enough-And What We Can Do About It



THE CASE FOR HOLISTIC WELL-BEING IN THE FACE OF **MODERN LIFE'S CHALLENGES**

WITH OUR ROOTS IN JAPANESE WELL-BEING AND SKINCARE RITUALS,

Tatcha is dedicated to studying the healing power of these timeless traditions along with the emerging science on the skin-mind connection. Guided by our mission to care for people through their skin, we led an investigation into how we can better serve our clients, given the increasing stress, tension, and well-being challenges brought about by the complexities of modern life.

While our kind-to-skin formulas deliver transformative results by virtue of pure, natural ingredients orchestrated with powerful but gentle efficacy, true skin health requires a holistic perspective - one that has been part of Eastern traditions for centuries, but only recently understood by Western science. Conventional skincare can relieve the symptoms of stress in the skin, but a holistic approach can address the root cause of that stress in the mind.

In the following pages, we review our findings from the 2022 Tatcha Study on Skincare & Self-Care and how Tatcha is expanding the definition of skincare to help those seeking balance in their skin and in their lives. With the understanding that the brain and skin are connected in a bi-directional pathway, we offer a way forward based on two essential factors: mindful rituals and multifunctional formulas that care for skin inside and out.



Feeling overwhelmed has become the norm in a seemingly endless race to the finish line.

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A PEEK INTO THE REALITY OF **MODERN LIFE: TATCHA STUDY ON** SKINCARE AND SELF-CARE

Findings reveal widespread burnout, worsening skin issues, and missed opportunities

FEELING OVERWHELMED HAS BECOME THE NORM in a seemingly endless race to the finish line. This, in turn, manifests physically in our skin, prompting evermore aggressive treatments that further exacerbate matters in a demoralizing loop. To learn how we can better help people reverse the cycle of stress and skin issues, we conducted The 2022 Tatcha Study on Skincare + Self-Care, which included:

- Partnerships with scholars in psychology, medicine, and spirituality
- In-depth 1:1 consumer interviews on skincare use + lifestyle
- A survey of 1065 people that included 841 women, to evaluate stress levels and the role skincare plays in their lives

We wanted to dive deeper into skincare's role in alleviating the pressures of modern life and specifically to identify if it was adding stress to already-strained mental states. We discovered profound disconnects - and opportunities.

Skincare Consumers Are Stressed + Zoned Out

The 2022 Tatcha Study on Skincare and Self-Care illuminated alarming stress levels. 69% of respondents reported feeling burnt out or in a state of physical and emotional exhaustion due to stress. life's demands. Heightened stress appears to be prohibiting women from fully experiencing the present, instead forcing them into a state of autopilot with little time 1for themselves.

Time for Self-Connection Is Scarce, Skin Suffers

While they wished they had more time to connect with themselves, nearly 50% regarded their skincare routine as just another task in their day—or worse, a source of stress. Some cited physical appearance as a main source of stress. Increasing stress levels and worsening skin issues were also reported.

Holistic Solutions More Urgent than Ever

Our study highlights the urgency for holistic solutions that consider both skin and mind. With our roots in holistic Japanese well-being practices, we have long understood the interconnectedness of mental health and skin health and contend that a return to balance is possible – and easier than we think.

YOUR MIND-WANDERING IS MAKING YOU DEPRESSED

Research shows negative mood is the result, not the cause of, mind-wandering

The 2022 Tatcha Study on Skincare & Self-Care revealed that: 69% of respondents report burnout in the last 12 months, and 1 in 2 feel overwhelmed by life's demands and that they are falling short. While the findings on stress and modern life are to be expected, especially given the impact of the pandemic on well-being, our biggest finding has been the widespread lack of presence as the new norm: 3 in 4 respondents reported being mentally absent for half the day or more; well over half can only find 30 min or less a week for mindful activities.

Is Everyone on Auto-Pilot?

Despite the advent of vaccines and the end of shelter-in-place orders, many remain on autopilot, stuck in a numbness that inhibits them from being fully present. Experts have noted that even those with robust mental health going into the pandemic were susceptible to states of "freeze," the third reaction in the trifecta that includes fight or flight.

"Autopilot is a growing problem," said Dr. Mark Williamson, the Director for Action for Happiness, who led a similar study. "It has gone from being an evolutionary protection mechanism that stopped our brains from overloading to our default mode." In his survey of 3,000 people in Great Britain, 96% reported living life on autopilot. Three fourths reported not spending their time well, and 1 in 5 said they didn't properly listen to others.²

We Check out Most While Grooming

Our findings were also supported by a study conducted at Harvard University in 2010 by Matt Killingsworth, then a doctoral student under happiness researcher Daniel Gilbert. (Still ongoing, the Happiness Tracker Study now boasts data on mind-wandering from more than 100,000 people.) The study found that on average, our minds wander away from the present 47% of the time. This peaks during grooming activities: When we care for our appearance, we go into autopilot mode 65% of the time.³

"A human mind is a wandering mind, and a wandering mind is an unhappy mind," summarize Killingsworth and Gilbert. "The ability to think about what is not happening is a cognitive achievement that comes at an emotional cost."

This raises an important question for those of us at the intersection of grooming and self-care: If this is precisely when we are most likely to check out and depress our mood, how much does skincare fall short of being actual self-care?

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AN INSIDE JOB

We hear a lot about mindfulness and being present these days, but what exactly is mindfulness? A helpful place to start is its opposite: mind wandering. Sound harmless? Think again.

FACT

People are less happy when their minds wander, regardless of whether they regard the present moment as positive or negative.

FACT

Even if their minds wander to positive thoughts, it decreases their happiness as much as a negative or neutral thought does.

FACT

When people are present, even in activities they dislike such as commuting, they are happier than if their minds wandered.

FACT

Essentially, people's negative moods are the result of - not the cause of mentally wandering away from the present moment.²

THE CORRELATION BETWEEN SKIN ISSUES + MENTAL HEALTH DECLINE

For some, the more skincare they use, the worst their skin gets

THOUGH WE'RE TOLD NOT TO CARE ABOUT OUR APPEARANCE,

most of us still feel self-conscious from time to time—and often about our skin. While spotless, youthful complexions remain the beauty ideal in most cultures, anything that falls short can cause feelings of shame or embarrassment. Through our research, we've concluded that these societal pressures are affecting well-being in two ways.

First, there is the emotional stress that comes with "problem skin," and second, the drastic measures one may be driven to as a result, which often perpetuate the cycle.

"Bad Skin" Takes an Emotional Toll

As confirmed in The Tatcha Study, 1 in 4 people cite their physical appearance as a main source of stress, while a 2020 Chinese study on the psychosocial impact of skin diseases showed that **people with a history of acne, eczema, psoriasis, and other conditions were more likely to have depressive symptoms like social isolation and loneliness.**⁴ Those living with acne-prone or otherwise inflamed skin may find themselves on a never-ending search for the holy grail formula that will clear their complexion once and for all.

Skincare Maximalism Has Consequences

"In the age of single-ingredient offerings, the customer is becoming the chemist, mixing their own concoctions and layering products with little awareness of how it might be detrimental to skin," says Tatcha Vice President of R&D Rose Sparacio, a 30+ year skincare veteran who has worked for some of the largest global brands.

Convinced that stronger formulas result in stronger, faster results no matter the smell, sting, or irritation, many skincare users have ended up damaging their skin further. In addition to environmental and lifestyle factors, cosmetic misuse or overuse is a key catalyst for sensitized skin, which is marked by a depleted skin barrier.⁵ Overusing antimicrobial agents like salicylic acid or retinoids is known to decrease microbiome diversity, which can cause the very skin inflammation users were hoping to erase. Convinced that stronger formulas result in stronger, faster results no matter the smell, sting, or irritation, many skincare users have ended up damaging their skin further.

Your brain is talking to your skin and it's not a one-way conversation

In The Tatcha Study, 74% sense that their mental state and their skin are connected. The evidence is right on our faces: when we're embarrassed, we blush; when we're stressed, we breakout. The skin-mind connection has been acknowledged in Japan for centuries, but only more recently proven by Western science.

The Japanese phrase *hinou* dokon translates to "skinmind same root," and describes the belief that



caring for the skin is caring for the mind. This is biologically true: during embryonic development, your skin and brain emerge from a single sheet of cells called the ectoderm, allowing them to naturally communicate and influence one

another in a bidirectional pathway that translates mental stress from the brain to the skin, and vice versa. In short, your skin both reflects and affects information. your mental state.6

Like the brain, the skin functions as both a sensor and receptor—it can perceive light, temperature, and pressure, and generates hormones and neurotransmitters that have the power to influence emotions, body function, and whole-body states.

But the science behind these reactions tells a deeper story of how we might improve our well-being with something as simple as skincare. Like the brain, the skin functions as both a sensor and receptor – it can perceive light, temperature, and pressure, and generates hormones and

neurotransmitters that have the power to influence emotions, body function, and whole-body states.⁷

Research has also shown that the same neurotransmitter receptors found in the central nervous system and the brain are also present in the skin, leading many scientists to refer to the skin as "the third brain." In essence, our skin has its own wisdom, and it behooves us to listen to what it is telling us, lest we continue to provide partial remedies based on incomplete

THIS IS YOUR SKIN ON STRESS

Burnout is making our skin breakout, age faster, and become sensitized

The main function of the skin is to act as a barrier: keeping the bad stuff, like bacteria and pollution, out — and the good stuff, like moisture, in. But through the stress response, the skin barrier can become compromised, leading to a range of diseases. Because the skin is highly innervated, meaning sensitive and rich in nerves, it feels stress more than any other organ.⁷ This is borne out in our survey data wherein 70% noticed changes in their skin for the worse over the past 12 months, from increased signs of aging to a rise in skin irritation.

Short-Term Stress + Redness, Sensitivity

As burnout persists, our internal feedback systems work over time to adapt. Through a series of complex interactions between hormones, peptides, and cells, stress unleashes an assault on skin through three mediators: adrenaline, neuropeptides, and cortisol.

Under short-term stress, often referred to as the 'fight or flight response,' adrenaline triggers the release of cytokines which causes an inflammatory response that leads to skin dryness, redness, and sensitivity.⁷

Long Term Stress Leads to Clogged Pores, Sagging, Wrinkles

Under chronic stress, like post-pandemic burnout, the hypothalamus-pituitary-adrenal (HPA) axis produces neuropeptides that induce inflammation in the skin while increasing oil production and enlarging pores. Meanwhile, as the stress hormone cortisol spikes, it reduces collagen and elastic fibers, damaging the cellular matrix of the skin and manifesting as sagging, fine lines, and wrinkles.⁷

A Vicious Cycle of Stress + Inflammation

But the skin is not just a target of these inflammatory factors, it's also a source; the organ produces its own stress mediators, inducing various immune and inflammation responses throughout the body—yet another instance of the two-way communication between skin and brain.⁷

The increased stress level observed in our survey correlates with the notable rise in inflammatory

skin diseases like psoriasis, atopic dermatitis (eczema), and acne. Research shows that emotional stress is not only a result of these diseases but an exacerbating factor. As it turns out, **stressed people are frozen in a disruptive feedback loop.**⁸

As neuroscientist Dr. Candace Pert explains, "The reason we get stuck is because these feelings get retained in the memory—not just the brain, but all the way down to the cellular level." As cortisol levels rise in highly stressed individuals, its corresponding receptors become "desensitized, shrinking in size and decreasing in number." The feedback loop fails to signal that there is sufficient cortisol in the system, and as a result, the HPA axis continues to pump out more and more, contributing to the chronic nature of inflammatory diseases like eczema and psoriasis.

We Can Break the Cycle by Addressing Stress via the Skin-Mind Connection

Research shows that when stress is reduced through psychological interventions, like antidepressants, therapy, and even meditation, an improvement in skin will follow.⁹ That's how mindful rituals can help our skin, in addition to our overall well-being.

"For so long, the industry has only been concerned about what's on the surface, but we know that you have to consider the whole person to get at the root of these skin concerns," says Sparacio. "That's why we have built this research on the skin-mind connection into our entire product development process from concept to formulation to testing."

"For so long, the industry has only been concerned about what's on the surface, but we know that you have to consider the whole person to get at the root of these skin concerns,"

- Rose Sparacio, Tatcha's Vice President of R&D

It is increasingly clear that people can be much more of a catalyst in healing one of the most important organs of their body than previously thought.

THE BEST-KEPT SECRET IN SKINCARE ISN'T AN INGREDIENT OR FORMULA

Science is now proving what Zen Buddhism has long understood

Our founding belief is that skincare must take into consideration both the mental and physical, and that incorporating even a few minutes of mindfulness can have a lasting effect. For many, a state of presence isn't just a missing element in their skincare, it is *the* missing element.

Science confirms that small things like a smile from a stranger or adding fresh flowers to the grocery cart can have an outsized impact on our mood. When we find a way to slow down by appreciating something, giving it our full attention, or elevating a routine activity from feeling like "just another task," we become more fully present — and this does wonders for our well-being.

This isn't just an impression. Mindfulness has a proven measurable effect on our brains. Richard Davidson, one of the leaders of affective neuroscience and founder of the Center for Investigating Healthy Minds at University of Wisconsin, Madison, studied monk brain activity at the behest of the Dalai Lama, strapping electrodes to the heads of Buddhist monks and inviting them to spend several hours inside MRI machines. He concluded that meditation activated positive-emotion circuitry in the brain.¹⁰

Mindset Matters with Skin Issues

The well-being benefits afforded by a more present state are impressive. Along with positive effects on sleep, mood, and chronic pain, mindfulness can improve skin health. Rick Fried, MD, PhD, psychologist and clinical director turned dermatologist, confirms that mindfulness interventions can improve a patient's skin and responsiveness to treatment.

In a paper published in 2013 in Seminars in Cutaneous Medicine and Surgery, he cites a study in which psoriasis patients who combined a mindfulness meditation program with phototherapy treatment needed 40% less exposure to ultraviolet light than those who didn't.⁹ It is increasingly clear that people can be much more of a catalyst in healing one of the most important organs of their body than previously thought.

ZEN AND THE ART OF SKINCARE

A Buddhist monk talks skincare and why mindfulness doesn't take time

While 84% of respondents in the Tatcha Study say that they wish for more time to connect with themselves, 47% see their skincare routines as "just another task"—if not another source of stress. This is a typical experience of modern life we continually observe: wishing for more time to connect with oneself and simultaneously discounting daily activities as tasks to mindlessly get through.

Can Ancient Customs Solve Modern Ailments?

Zen monk and Tatcha Global Well-Being Mentor Toryo Ito comments, "It is not that you have to make time to meditate. Instead, change the matters of your everyday life into meditations in theory, but can be elusive in practice. to enrich your mind. For example, take your time and mindfully taste your coffee. You can do the same thing with showers. The important thing is to fully open your senses to those moments."

The Art of Meditative Skincare

Ito explains how this applies to skincare: "When you do your daily skincare, connect to your inner state and focus on each and every step. As you become more mindful, you will notice more beautiful things around you, including yourself."

Many of Japan's centuries-old traditions, like ikebana and tea ceremonies, take daily activities we think of as routine and turn them into meaningful rituals through intention and care, never rushing through them. If these seem like good advice for life, it's because they do in fact speak to a much larger philosophy of presence that holds each day and moment as valuable. Unfortunately in the U.S. this doesn't enjoy much currency.

Breaking Down Mindfulness

So, where to start? Mindfulness sounds great However, it doesn't have to be intimidating. Think of something you do everyday. This is key. Layering mindfulness onto something routine builds presence into the natural flow of our day, helping to ward off negative thoughts and catalyze a virtuous cycle.



– Toryo Ito, Zen Monk & Tatcha Global Well-Being Mentor

THE MINDFULNESS MODEL

To put things into a useful framework, we've identified three pillars you can use to build mindfulness into your daily routines: connection, intention, and attention. Try it with your skincare routine or anything you do on a daily basis.

CONNECTION

How do you feel right now?

Self-care starts by checking in to see where you are at and what you need. "By taking a moment to switch into mindfulness, you tune into yourself and can receive your own feedback," says Ito. "Feel your mind and body at that moment. It will also help you relax."

INTENTION

What's your intention?

Once you have identified how you feel and what would most benefit you, set an intention toward that. "Everything in life has meaning," says Ito. "The important thing is to be mindful of what meaning you give things. Practice being intentional."

ATTENTION

How will you focus your attention on the present?

Personalize the experience, adding meaningful touches like lighting incense or playing soft music. "Use your five senses. Enjoy the process," says Ito. "By being mindful, you will also start to be aware of many other

beautiful things around you."

THE TATCHA DIFFERENCE: a new way forward

Through all of our research, expert interviews, and consumer studies, Tatcha has identified untapped opportunities to help improve well-being, including skin, using tools and habits we already have. Thus far, the Western approach to treating a stressed complexion using only conventional skincare has left consumers wanting, as un-checked mental stress continues to manifest on skin.

Rituals of intention are shown to improve the skin by reducing emotional stress, but the type of skincare we use matters, too. Because skin has the ability to influence the whole body, aggressive treatments that inflame and deplete the skin barrier have the potential to counteract the benefits of mindfulness.

But armed with the understanding that skin cannot be healed in isolation, Tatcha offers a new way forward. Until now, the psychodermatology conversation has largely focused on the negative impacts the brain has on skin, but we know that this is only one side of the conversation. **The science of the skin-mind connection reveals an opportunity to care for skin inside and out through the essential combination of mindful rituals and multifunctional formulas.**





FROM STRESSFUL ROUTINE TO MINDFUL RITUAL

A Well-Being Opportunity Hiding in Plain Sight

AS THE 2022 TATCHA STUDY ON SKINCARE

& SELF-CARE HIGHLIGHTED, though the majority of people crave more time to connect with themselves, three in four respondents reported already having a skincare routine that they do for a minimum of 15 minutes at least once a day, signaling a well-being opportunity hiding in plain sight. We turned to our partner Dacher Keltner, Ph.D. to learn how we could elevate these routines to something purposeful. "Rituals endow the habits of our day with meaning," says Keltner, a professor at UC Berkeley and founder of the Greater Good Science Center, which studies the

psychology, sociology, and neuroscience of well-being. "When we ritualize, we feel calmer, more connected." Skincare is necessary to keep your complexion looking healthy, but it doesn't have to be a daily chore. When we use that time to quiet our minds and reconnect with ourselves, we reclaim it from being a task to a moment for rest so we can recharge our batteries. "I think a critique of skincare is that it's obsessive," Dr. Keltner told us. "You're thinking about your face, what others think of your face. Ritualizing transforms it from a source of objectification and anxiety into one of self-acceptance and self-care."

THE MINDFULNESS MODEL FOR SKINCARE: THE CLASSIC RITUAL

Tatcha's original skincare ritual of our first four formulas is designed to care for you inside and out with gently effective skincare formulas paired with mindfulness exercises.

🛞 STEP 0: Breathe And Connect With The Present

Take a moment to center yourself by taking a few deep breaths. Focus on your breath and prepare to do your skincare with intention.

STEP 1: Purify With The Camellia Cleansing Oil And Let Go

As you massage the oil onto your skin to melt away makeup, dirt, and excess oil, imagine washing any negative thoughts, worries, or stresses down the drain.

STEP 3: Plump With The Essence And Replenish The Spirit

CAMELLIA

As you plump the skin with hydration, imagine replenishing your spirit. Drink in more energy, patience, and gratitude, and let yourself recharge.

Introducing Tatcha's Step 0: Starting from a Place of Presence



Counteract autopilot + get the most out of self-care

To incorporate our Mindfulness Model of Connection, Intention, and Attention, Tatcha has added a new step to begin every skincare practice, Step 0: Breathe + Connect with the Present. Though it requires no skincare formulas nor tools, it is the most important step in your ritual because it sets the tone for your practice as a moment of mindfulness. Before a single formula touches the face, the simple act of deep breathing calms you down, opens up awareness, and allows you to reconnect with your body, reset your mind, and recognize this is your time. Next, we set an Intention with each step to bring meaning to every motion, and all throughout the ritual, we pay attention to our environment, our feelings, our skin, and our senses to stay present.



ADASELT

STEP 2: Polish With The Rice Polish: Classic And Start Anew

While you lift away tired skin cells and reveal a fresh, renewed skin surface, think of starting anew. Perhaps there were things you would have done differently today but you can always begin again.

STEP 4: Nourish With The Silk Cream And Cocoon Yourself In Love

Lavish your skin and lock in hydration, while thinking of all the people in your life surrounding you with love.

> "Ritualizing transforms [skincare] from a source of objectification and anxiety into one of acceptance and self-care." - Dacher Keltner, Ph.D.

MULTI-FUNCTIONAL FORMULAS THAT GO BEYOND SKIN-DEEP

How the skin-mind connection informs the way we operate from concept to testing

Our research into the skin-mind connection and the power of presence has greatly impacted our approach to ideation, formulation, and clinical evaluation. If we were to truly make good on our promise of "Radiance from skin to soul," we needed to ensure our clients would not only see real skin results, but real relief in mental stress, too.

IDEATION



We partner with experts across neurology, spirituality, and psychology to reimagine the purpose of skincare. Most recently, we studied with Dr. Qing Li, our Consulting Physician and the world's foremost expert in forest science and immunology, to better understand the myriad of health benefits of *shinrin-yoku*, or forest bathing. Under his guidance, we launched the Forest Awakening body collection, rooted in the proven power of hinoki tree essential oils, which are proven to contain chemical compounds that lift mood, reduce stress, and help improve overall well-being.



FORMULATION



CLINICAL EVALUATION

Since day one, our scientists at the Tatcha Institute have pushed the boundaries of skincare, committing to crafting formulas that address the well being, not just the surface. To create more holistic formulas, our scientists

began incorporating sensorial elements to maximize the entry points to our psychosomatic network. In addition to soothing textures, they utilize functional fragrances like sweet fennel and rosemary, known to increase alertness and boost mental focus, as well as essential oils proven to induce relaxation, leading to calmer, more balanced skin from the inside out.





Finally, to prove that our skincare formulas, when used in an intentional ritual, can have an impact on well-being,

we clinically test for both skin and emotional benefits, evaluating conscious and unconscious responses through consumer self-assessments and neurological testing. With The Clarity Ritual already proven to improve skin, Tatcha conducted a neurological study in 2022 to prove its effectiveness on the mind as well. 50 participants completed each step with eye trackers and EEG scanners to monitor electrical activity in the brain, focusing on theta waves to evaluate stress levels, and alpha waves to measure relaxation levels throughout the ritual.^{*}



The Forest Awakening Body collection is proven to lift mood, ease stress and calm the mind.*

ed on a consumer self-assessment study of 40 panelists.

87% of consumers said they felt more confident, while 85% said their mind felt clearer and they felt more comfortable in their skin after 4 weeks of using The Texture Tonic.*

ed on a consumer self-assessment study of 40 panelists.

AFTER 1 SESSION: 74% increase in relaxation 24% reduction in mental stress

AFTER 5 DAYS: 83% increase in relaxation 28% decrease in cognitive load

a represents the average improvement of 50 participants neuro bio-instrumentation

A CORE PRINCIPLE AT TATCHA IS THE JAPANESE CONCEPT OF KAIZEN, which means continuous improvement and learning. As eternal students, we challenge our preconceptions, our strategies, and even our industry to better serve our clients. Under the guidance of our Founder Vicky Tsai, Chief Scientist Masato Tagawa, VP of R&D Rose Sparacio, our Well-Being Mentor, Zen monk Toryo Ito, our Consulting Physician Dr. Qing Li, and leading emotions researcher Dacher Keltner, Ph.D, we've unlocked a holistic solution, proposing a paradigm shift in the caring of skin.

Through our research and the Tatcha Study on Skincare + Self-Care, we have revealed the hidden costs of living on autopilot, the well-being benefits of mindful rituals, and how we can harness the skin-mind connection to clear our complexions and soothe our souls in these unprecedented times.

We know that our collective well-being is suffering, but the proven power of mindful ritual combined with multifunctional formulas for skin and mind shows that we can affect so much more than appearance, if only we are willing.

"Going beyond skin-deep is no longer a nice-to-have, it's a necessity. The skin-mind connection is transformative; it's at the heart of our pursuit of new ways to care for our clients' well-being." — Mary Yee, Chief Executive Officer



SOURCES

1. Tatcha Brand Survey of 1065 U.S. consumers conducted July 2022, and a follow-up survey of 255 U.S. consumers conducted August 1, 2022

2. "The Hidden Cost of Operating on Autopilot," Forbes, June 15, 2017

3. "Wandering Mind not a Happy Mind," The Harvard Gazette, November 11, 2010

4. Yew YW, Kuan AHY, Ge L, Yap CW, Heng BH. Psychosocial impact of skin diseases: A population-based study. PLoS One. 2020 Dec 31;15(12):e0244765. doi:

5. Duarte I, Silveira JEPS, Hafner MFS, Toyota R, Pedroso DMM. Sensitive skin: review of an ascending concept. An Bras Dermatol. 2017 Jul-Aug;92(4):521-525. doi: 10.1590/abd1806-4841.201756111. PMID: 28954102; PMCID: PMC5595600.

6. "Stress may be getting to your skin but it's not a one-way street," Harvard Health, April 14, 2021

7. Chen Y, Lyga J. Brain-skin connection: stress, inflammation and skin aging. Inflamm Allergy Drug Targets. 2014;13(3):177-90. doi: 10.2174/18715281136661 40522104422. PMID: 24853682; PMCID: PMC4082169.

8. Pert, Ph.D., Candace B. 1997 Molecules of Emotion: The Science Behind Mind-Body Medicine New York, NY: Scribner

9. "Nonpharmacologic Management of Psycho Dermatologic Conditions," The National Library of Medicine, June 2013 0.1371/journal.pone.0244765. PMID: 33382864; PMCID: PMC7775076.

IO. "The Buddhist and the Neuroscientist," The Atlantic, July 4, 2015