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Second Skin: Textile Tactile Intervention for Psychodermatological Disorders

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Abstract

Adolescents with acne and eczema often struggle with psychodermatological issues. Most existing treatments rely on drugs, while non-drug alternatives stay scarce. Through interviews and focus groups with ten young people (aged 10-20), we examined how touching fabrics affects emotional states linked to skin conditions. Our results suggest tactile textile interventions hold promise as a supplementary approach in psychodermatology—they offer emotional comfort through sensory engagement and help build positive body image and self-acceptance. Textile-based tactile stimulation appears to offer useful everyday psychological support. These interventions are mild, non-invasive, and can fit into a person's regular schedule without much effort. Over time, sensory feedback from textile tools may assist with emotional regulation and management in a way that is affordable and practical, not just limited to hospital or clinic visits. For people living with long-term skin problems, this method could supply extra help with handling negative emotions and maintaining overall mental well-being in daily activities.

Keywords

Textile design; psychodermatology; tactile therapy; bio-based materials; adolescent mental health; art therapy

1. Introduction

Skin does more than protect—it's how we present ourselves to the world. When skin problems arise, they often carry emotional weight. Many dermatology patients also experience psychological distress alongside their skin conditions. Yet treatments stay mostly medical: drugs and cognitive-behavioural therapy dominate. Dermatologists and psychologists rarely coordinate care across disciplines (Jafferany, 2007). Psychodermatology gets little attention in medical education and even less funding. These factors have contributed to its marginalisation within healthcare. Can textiles offer something different? This study explores whether fabric-based touch interventions could provide emotional support for people managing psychodermatological conditions

2. Literature Review

2.1 Psychodermatology and Adolescent Skin Conditions

Psychodermatology sits at the crossroads of mental health and skin medicine (Misery, 1996), with neuroendocrine and immune pathways connecting these domains. Acne stands out as particularly common among teens. Adolescence is a critical period for self-concept—hormonal changes make young people more emotionally vulnerable and sensitive about appearance (Frisén, 2007). Skin problems, acne especially, hit this age group hardest (Kawshar & Rajesh,

2013). How lesions look and feel can trigger depression, anxiety, and obsessive-compulsive behaviours (Koo & Lebwohl, 2001), lowering self-esteem and fueling emotional struggles (Schulpis et al.,1999).

2.2 Current gaps in Psychodermatological Care

Nearly one-third of dermatological outpatients exhibit psychological and psychiatric symptoms (Kessler et al., 2013). Reciprocal morbidity between cutaneous disorders and mental health disturbances reaches 30% in clinical follow-up (Picardi et al., 2000). Large-scale research targeting over 1300 acne-affected teenagers recorded negative psychological reactions in 81% of respondents (Kostecka et al., 2022). Self-harm behaviours, including repetitive skin picking, have also been observed among clinical dermatology patients.

2.3 Therapeutic Potential of Touch and Textiles

Dense neural receptors across epidermal layers enable human bodies to capture external environmental information through tactile perception (Zhang et al., 2022). Tactile sensing complements visual observation to acquire comprehensive physical attributes of external objects, covering structural shape, hardness, temperature, and surface texture (Almansoori et al., 2019). Textile products deliver values beyond basic physical comfort. Garments are increasingly being designed to go beyond passive wear to active engagement, responding to human needs in real-time and serving as tools for emotional regulation (Nisar, 2025). Crafted textiles can positively affect wellbeing by encouraging self-soothing behaviours such as stroking or fidgeting, and help wearers notice and manage unnoticed stress (Coulter et al., 2022).

2.4 Bio-based Textiles

Eco-friendly bio-based raw materials drive functional textile manufacturing upgrades. Hydrogel substances consist of three-dimensional cross-linked polymer frameworks with superior water absorption capacity. Natural biocompatibility and degradability enable wide adaptive application of such materials in therapeutic development (Jose et al., 2020). Soft tactile experience and moisture retention properties carried by hydrogel structures effectively mitigate individual psychological pressure.

Practical development of hydrogel materials faces certain technical limitations. Extreme soft texture and high water content increase operational difficulty in material testing. Polysaccharide doping enhances the structural stability of partial hydrogel layers, facilitating intuitive detection and quantitative evaluation of material flexibility, pressure responsiveness, and subjective tactile experience. Unique structural characteristics endow hydrogel materials with outstanding advantages in sensory regulation research. Flexible and ductile properties support diversified surface texture design to realise emotional adjustment through tactile interaction. Hydrogel textiles optimised for epidermal adaptation deliver soft contact, mild touch, and a constant low-temperature sensory experience suitable for adolescent stress relief. Simple physical interactions with bio-based hydrogel fabrics such as surface stroking and gentle stretching help users release negative psychological emotions.

3. Research Methods

3.1 Research Design

This study adopts qualitative research paradigms to investigate interactive relationships between diversified textile textures and psychological symptoms induced by cutaneous illnesses. Qualitative exploration captures in-depth research findings inaccessible through quantitative statistical analysis, fitting exploratory research targeting complex human sensory and psychological mechanisms.

3.2 Participants

The research sample covers ten young participants aged 10 to 20 with an average age of 16, including six female and four male respondents. Participant composition involves three high school students and seven undergraduates. All registered participants hold formal clinical diagnosis records of acne, eczema, or atopic dermatitis. Individual skin conditions vary across the sample group, covering three acne-prone cases, four dry sensitive skin cases, two combination skin cases, and one normal skin case.

3.3 Data Collection

Research data were obtained through two focus group sessions and multiple semi-structured interview activities (Stalmeijer et al., 2014). Focus group participants completed tactile experience tests with various textile samples. Subsequent in-depth interviews explored internal correlations between cutaneous symptoms, emotional changes, and tactile sensory experiences. Research from British high schools and universities. Hybrid online and offline forms were adopted for all investigative activities. One offline and one online focus group were organised, respectively, with each session sustaining two hours of effective research interaction.

3.4 Material Exploration

All enrolled participants completed tactile perception experiments with multiple textile samples, including customised hydrogel materials. Detailed subjective feelings and corresponding mood fluctuations triggered by different fabric contacts were recorded systematically for subsequent analysis.

3.5 Ethical Considerations

All research procedures comply with the ethical specifications stated in the Declaration of Helsinki and professional research codes formulated by the University of the Arts London. Written informed consent was acquired from every participant involved. Guardians of underage participants provided supplementary signed approval. All individuals retained full rights to withdraw at any time. Complete desensitisation processing was implemented for all collected research data to protect personal privacy. Exploratory design research focusing on user experience strictly abides by ethical norms centred on voluntary participation, information confidentiality and informed consent.

3.6 Artist Case Studies

Three artist projects provide practical references for this research. Lucy McCrae's "SKIN probe" integrates whole-body vacuum adjustment equipment, pressure fabric fittings and independent immersive spaces to implement contact-based intervention therapy for neurodevelopmental disorders including autism.

The "Future Day Spa" device applies deep pressure stimulation to relieve depressive emotions, autistic symptoms, and stress. Over one hundred user interviews conducted in the project recorded consistent feedback of womb-like warmth and embracing comfort. This aligns with the understanding that gentle or affective touch may reduce stress and influence well-being by activating oxytocin release, which has anti-stress effects (Ferreira et al., 2023)

Iga Węgliska's "GRS" wearable design embeds sensitive sensors to capture physiological indicators including pulse frequency, body surface temperature, sweat secretion, and epidermal electrical signals. Real-time physical data monitoring enables effective identification of individual tension and anxious states (Węgliska, 2021). Tactile and visual expression logic adopted in this wearable artwork provides core inspiration for multi-sensory and multi-colour design schemes adopted in current research.

Ariana Page Russell founded the Skintome art movement dedicated to positive body aesthetic advocacy. A special themed exhibition curated at NYU Langone Medical Centre in 2016 interpreted cutaneous tissues as intuitive carriers reflecting diverse human life experiences (Ravaja et al., 2016). Practical exploration results from the above artistic practices collectively validate the core research viewpoint.

4. Results

4.1 The Emotional Impact of Skin Conditions

All sampled individuals reported pervasive interference of cutaneous symptoms on daily emotional status. Typical psychological manifestations cover appearance-related inferiority, social avoidance, persistent anxiety, and disrupted daily rhythms. Eight participants failed to recognise interactive correlations between emotional fluctuations and physical skin lesions prior to research participation, attributing personal cutaneous problems solely to physical pathological factors. Limited public cognition on psychosomatic interactions creates noticeable defects in patient health education systems. Optimised integration modes for dermatological and psychological treatment can be developed targeting such deficiencies.

4.2 Tactile Experiences and Emotional Regulation

Tactile contact with external fabrics produces measurable psychological adjustment effects for all participating individuals. Previous research on smart textiles for emotion regulation found that users preferred vibrotactile feedback over other modalities, and that shoulder and arm movements generated the most positive emotional responses (Jiang et al., 2021). Eight respondents diagnosed with acne or eczema obtained obvious soothing effects and psychological comfort from soft and smooth fabric surfaces. Visual observation of neat and smooth textile appearances simulates healthy skin states to deliver positive psychological suggestion. Three participants suffering from atopic dermatitis acquired effective relief from itching pain through contact with cool and rigid textile materials. Visual attributes of textile products shape individual emotional tendencies prior to physical contact, proving aesthetic design equally important as tactile performance in therapeutic textile development.

4.3 Feedback on Hydrogel Materials

User experience feedback on hydrogel textile samples presents diversified characteristics. Five participants described hydrogel contact experience as cool, soft, and therapeutically comforting. Three additional individuals expressed strong curiosity and continuous contact willingness toward the warm and unique tactile properties of the material. Two participants delivered negative evaluation results with no subjective comfort or therapeutic perception from hydrogel contact. Differentiated user feedback fully verifies individual specificity in tactile preference selection, with no universal textile scheme applicable for all user groups.

4.4 Key Design Requirements

Practical user experience data summarised three core design standards for therapeutic textile development. Optimised fabric textures need soft and non-irritating physical properties to suppress involuntary scratching behaviours among cutaneous disorder patients. Visual presentation of finished textile products must guide positive individual body cognition instead of triggering negative self-evaluation. Diversified tactile schemes should be reserved to meet personalised selection demands from different users.

5. Discussion

5.1 Textile Tactile Intervention as a Complementary Approach

Empirical research outcomes confirm textile-based tactile intervention as an effective auxiliary means for psychodermatological clinical treatment. Different from prescription-dependent pharmaceutical therapy carrying potential side effects, textile intervention features non-invasive attributes and convenient daily application, easily integrated into regular life scenarios for long-term auxiliary psychological regulation.

5.2 Individual Variation in Tactile Preferences

Diversified subjective feedback on hydrogel materials reflects prominent individual differences in tactile adaptation. Acne patients show consistent preference for smooth and delicate fabric textures while eczema patients present scattered and personalised tactile selection tendencies. Personal factors related to the toucher, the receiver, and the environment are important determinants of the affective value of touch (Sailer & Leknes, 2022).

5.3 The Role of Visual Perception

Visible surface characteristics of textile materials exert tangible influence on individual emotional states. Aesthetic design optimisation occupies an indispensable status in therapeutic textile development, with visual presentation effects equally critical as tactile performance for comprehensive psychological intervention.

5.4 Integration of Art and Science

Innovative solutions for healthcare industry dilemmas can be realised through interdisciplinary integration of artistic creation and scientific research methods. Design innovative thinking and empirical research mechanisms generate mutual promotion effects, breaking disciplinary barriers to form more systematic and practical research systems.

6. Conclusion

This research explores the non-pharmacological intervention of specialised textile materials for psychodermatological symptom regulation through qualitative investigation of teenage and young adult groups. Custom textile tactile interaction provides immediate sensory relief for physical skin discomfort and sustained emotional support. The findings also enhance public awareness of psychosomatic skin connections and improve individual body acceptance through aesthetic textile design.

Several limitations exist. A small sample size restricted to ten participants from single regional areas within a fixed age bracket limits the universal applicability of research conclusions. Age and regional constraints prevent accurate inference of intervention effects for other age groups and cultural backgrounds. Qualitative research prioritises in-depth mechanism analysis rather than macroscopic statistical verification. Subsequent research can expand sample size and population diversity while introducing quantitative detection indicators to consolidate empirical research foundations.

Interdisciplinary integration of textile design, psychological research, and dermatological treatment unlocks innovative development directions for accessible and stigma-free auxiliary intervention schemes targeting psychodermatological disorders.

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