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Original Research:

A cross sectional study on quality of life and associated factors in patients with senile pruritus

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Abstract:

Background: Pruritus, commonly referred to as itching, is a distressing sensory symptom that significantly affects physical comfort, emotional well-being, and social functioning. Chronic itching has been associated with multiple dermatological and systemic disorders, yet its broader psychosocial consequences within the general population remain insufficiently explored. This study was designed to evaluate the prevalence of pruritus and determine its association with insomnia, depression, anxiety, emotional distress, and health-related quality of life among middle-aged adults from a large Finnish birth cohort.

Aim: The primary objective of this study was to assess the psychosocial burden associated with localized and generalized pruritus in the general population. The study further aimed to examine whether increasing frequency of itching was associated with worsening psychological symptoms and impaired quality of life.

Materials and Methods: A cross-sectional population-based study was conducted with total of 6,809 participants aged 45–47 years were included in the analysis. Participants completed detailed self-administered questionnaires assessing the frequency and extent of pruritus along with validated psychological assessment tools. Sleep disturbances were evaluated using the Athens Insomnia Scale (AIS), depressive symptoms using the Beck Depression Inventory-II (BDI-II), anxiety using the Generalized Anxiety Disorder Screener (GAD-7) and State-Trait Anxiety Inventory (STAI), and emotional distress using the Hopkins Symptom Checklist-25 (HSCL-25). Health-related quality of life was assessed using the 15D HRQoL instrument. Multivariate regression analyses were performed after adjusting for potential confounding variables including smoking, alcohol consumption, body mass index, physical activity, socioeconomic status, and history of skin disease.

Results: Pruritus was found to be highly prevalent in the study population, with approximately 19.9% of participants reporting weekly itching symptoms and 7.2% reporting daily pruritus. Females demonstrated a significantly higher prevalence of both localized and generalized pruritus compared with males ($p < 0.001$). Increasing frequency of pruritus was strongly associated with worsening psychosocial health outcomes. Participants with frequent itching exhibited significantly higher insomnia scores, increased depressive and anxiety symptoms, greater emotional distress, and lower quality of life scores. Individuals with daily generalized pruritus demonstrated more than a four-fold increased risk of depressive symptoms and over a three-fold increased likelihood of anxiety symptoms after adjustment for confounding variables. Furthermore, the severity of psychological impairment progressively increased with increasing frequency of itching episodes.

Conclusion: Pruritus exerts a substantial negative impact on mental health and overall quality of life in the general population. Frequent itching is strongly associated with insomnia, anxiety, depression, and emotional distress, highlighting the multidimensional burden of this symptom. These findings emphasize the importance of recognizing psychosocial comorbidities in individuals with chronic pruritus. Comprehensive management strategies addressing both dermatological and psychological aspects may improve patient outcomes and enhance quality of life.

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Introduction

Pruritus, commonly described as itching, is an unpleasant sensory experience that provokes the desire to scratch and represents one of the most frequent and distressing symptoms encountered in dermatological practice. Although often considered a simple cutaneous complaint, pruritus is increasingly recognized as a multidimensional condition capable of exerting profound effects on physical, psychological, and social well-being (1,2). Chronic pruritus, usually defined as itching lasting longer than six weeks, affects a considerable proportion of the global population and may arise secondary to dermatological disorders, systemic illnesses, neurological diseases, psychiatric conditions, or adverse drug reactions (3). In some individuals, the exact underlying etiology remains unidentified, making diagnosis and management particularly challenging.

Several dermatological conditions such as atopic dermatitis, psoriasis, urticaria, contact dermatitis, and lichen planus are strongly associated with persistent itching (4). However, pruritus is not limited to dermatological diseases alone. Systemic disorders including chronic kidney disease, liver disease, diabetes mellitus, thyroid dysfunction, hematological malignancies, and neurological abnormalities have also been implicated in the development of chronic itching (5). Due to its chronic and recurrent nature, pruritus frequently disrupts daily activities, social functioning, concentration, occupational performance, and interpersonal relationships, ultimately contributing to a substantial decline in quality of life (6).

Over recent years, growing evidence has demonstrated a strong association between pruritus and psychosocial disturbances. Individuals suffering from chronic itching often report symptoms of depression, anxiety, irritability, emotional exhaustion, and sleep disturbances (7,8). Persistent scratching may further aggravate skin inflammation, creating an itch–scratch cycle that perpetuates both physical discomfort and psychological stress. Furthermore, nocturnal itching commonly interferes with sleep quality, resulting in fatigue, impaired cognitive functioning, and decreased daytime productivity (9). These psychosocial consequences may become particularly severe in patients experiencing generalized or high-frequency pruritus.

The relationship between pruritus and mental health appears to be bidirectional. Psychological stress,

anxiety, and depressive disorders may exacerbate itching through neuroimmune and neuroendocrine pathways involving inflammatory mediators, histamine release, and altered neural signaling (10). Conversely, chronic pruritus itself may lead to social embarrassment, emotional distress, low self-esteem, and psychiatric morbidity. Previous investigations have shown that patients with chronic dermatological diseases characterized by intense itching often experience significantly impaired quality of life and increased psychological burden compared with healthy individuals (11,12).

Despite increasing recognition of the psychosocial burden associated with pruritus, most available studies have focused primarily on selected clinical populations, particularly dermatology clinic attendees or patients with specific skin diseases (13). Large population-based studies evaluating the broader psychosocial impact of pruritus in the general community remain relatively limited. As a result, the true extent of the association between itching and mental health disturbances at the population level is not fully understood.

Understanding the psychosocial consequences of pruritus within the general population is important because many individuals experiencing itching may not seek medical attention, leading to underestimation of the condition's burden (14). Early identification of associated psychological symptoms may facilitate holistic patient management and improve therapeutic outcomes. In addition, evaluating the relationship between pruritus severity and psychosocial impairment may help clinicians recognize high-risk individuals requiring multidisciplinary intervention.

Therefore, the present population-based cohort study was undertaken to comprehensively evaluate the prevalence of pruritus and its association with psychosocial well-being among middle-aged adults. The study specifically aimed to examine the relationship between pruritus and symptoms of insomnia, depression, anxiety, emotional distress, and health-related quality of life using validated psychological assessment instruments. Furthermore, the study sought to determine whether increasing frequency and extent of pruritus were associated with worsening psychosocial outcomes in the general population.

Materials and methods

Study Design and Setting

A cross-sectional population-based cohort study was conducted to evaluate the association between pruritus and psychosocial well-being among middle-aged adults. Participants have been followed regularly through clinical examinations, health surveys, and standardized questionnaires since birth.

Study Population

A total of 6,809 individuals completed the questionnaire related to localized pruritus, while 6,744 participants responded to the question concerning generalized pruritus. Both male and female participants aged approximately 45–47 years were included in the analysis.

Assessment of Pruritus

Pruritus was assessed using self-administered questionnaire items specifically designed to evaluate both the frequency and distribution of itching symptoms. Participants were asked to report the frequency of pruritus as never, seldom, monthly, weekly, or daily. Increased frequency of itching was considered indicative of greater symptom severity.

To determine the anatomical distribution of itching, participants were additionally questioned regarding the presence of localized pruritus affecting limited body areas and generalized pruritus involving widespread body regions. Based on the responses, participants were categorized according to the severity and extent of pruritus symptoms.

Assessment of Psychological and Psychosocial Parameters

Athens Insomnia Scale (AIS)

Sleep disturbances and insomnia-related symptoms were evaluated using the modified Athens Insomnia Scale. The questionnaire assessed various domains including difficulty initiating sleep, nocturnal awakenings, early morning awakening, total sleep duration, and overall sleep quality. Higher scores indicated more severe insomnia symptoms.

Beck Depression Inventory-II (BDI-II)

Depressive symptoms were assessed using the Beck Depression Inventory-II, a validated self-report instrument commonly used to evaluate the severity of depression. Participants were categorized into groups representing absent, mild, or moderate-to-severe

depressive symptoms according to standardized scoring criteria.

Generalized Anxiety Disorder Screener (GAD-7)

Anxiety symptoms were measured using the Generalized Anxiety Disorder Screener. The questionnaire evaluated symptoms related to excessive worry, nervousness, restlessness, and generalized anxiety. Higher scores reflected greater anxiety severity.

Hopkins Symptom Checklist-25 (HSCL-25)

Psychological distress and emotional symptoms were evaluated using the Hopkins Symptom Checklist-25. This instrument measures symptoms associated with depression, anxiety, and emotional stress. Mean scores were calculated for each participant, and higher values indicated greater emotional distress.

State-Trait Anxiety Inventory (STAI)

The State-Trait Anxiety Inventory was utilized to assess both situational and long-term anxiety characteristics among participants. Elevated scores represented higher levels of anxiety-related symptoms.

15-Dimensional Health-Related Quality of Life Questionnaire (15D HRQoL)

Health-related quality of life was assessed using the 15D HRQoL questionnaire, a standardized and validated multidimensional instrument evaluating overall health status and daily functioning. Scores ranged from 0 to 1, with lower scores indicating poorer quality of life.

Assessment of Dermatological History

Information regarding previously diagnosed dermatological disorders associated with chronic itching was obtained from national healthcare registers. Diagnoses including atopic dermatitis, psoriasis, eczema, urticaria, contact dermatitis, lichen planus, and prurigo were identified using International Classification of Diseases (ICD-10) coding systems. These data were included to account for the potential influence of underlying skin diseases on psychological outcomes.

Confounding Variables

Several variables known to influence psychosocial health were considered potential confounders in the

analysis. These included smoking status, alcohol consumption, body mass index (BMI), physical activity level, socioeconomic status, and history of dermatological disease. Adjustments for these variables were performed during multivariate statistical analysis to minimize confounding effects.

Ethical Considerations

The study protocol received approval from the Ethics Committee. All procedures were conducted in accordance with ethical standards. Participation was voluntary, and written informed consent was obtained from all study participants prior to inclusion. Participant confidentiality and anonymity were strictly maintained throughout the study.

Statistical Analysis

Data analysis was performed using appropriate statistical software. Continuous variables were expressed as mean values with standard deviations, whereas categorical variables were presented as frequencies and percentages. Associations between categorical variables were analyzed using the chi-square test, while continuous variables were compared using the Mann–Whitney U test.

Multivariate logistic regression and linear regression analyses were performed to evaluate the association between pruritus and psychosocial parameters.

Adjusted models included potential confounding variables such as smoking, alcohol use, body mass index, physical activity, socioeconomic status, and history of skin disease. Odds ratios with 95% confidence intervals were calculated to estimate the strength of associations. A p-value of less than 0.05 was considered statistically significant.

Results

The prevalence of weekly pruritus was approximately 19.9%, while daily pruritus was observed in 7.2% of participants. Females demonstrated significantly higher rates of both localized and generalized pruritus compared to males ($p < 0.001$). A strong association was identified between pruritus and psychosocial impairment. Participants experiencing frequent itching reported higher insomnia scores, increased depressive symptoms, greater anxiety levels, and lower quality of life scores. The severity of psychological distress increased progressively with increasing frequency of pruritus.

Individuals reporting daily generalized pruritus exhibited over a four-fold increased risk of depressive symptoms and more than a three-fold increased likelihood of anxiety symptoms after adjusting for confounding factors (6,7).

Table 1. Prevalence of Pruritus by Sex

Pruritus Frequency	Males (%)	Females (%)
Weekly localized pruritus	9.87	13.2
Daily localized pruritus	4.50	7.76
Weekly generalized pruritus	3.81	4.96
Daily generalized pruritus	2.05	3.05

Table 1 demonstrates the prevalence of localized and generalized pruritus among male and female participants in the study population. Females showed a significantly higher frequency of both weekly and daily pruritus compared with males, indicating a greater burden of itching symptoms among women. The findings suggest that sex-related differences may influence the occurrence and severity of pruritus in the general population.

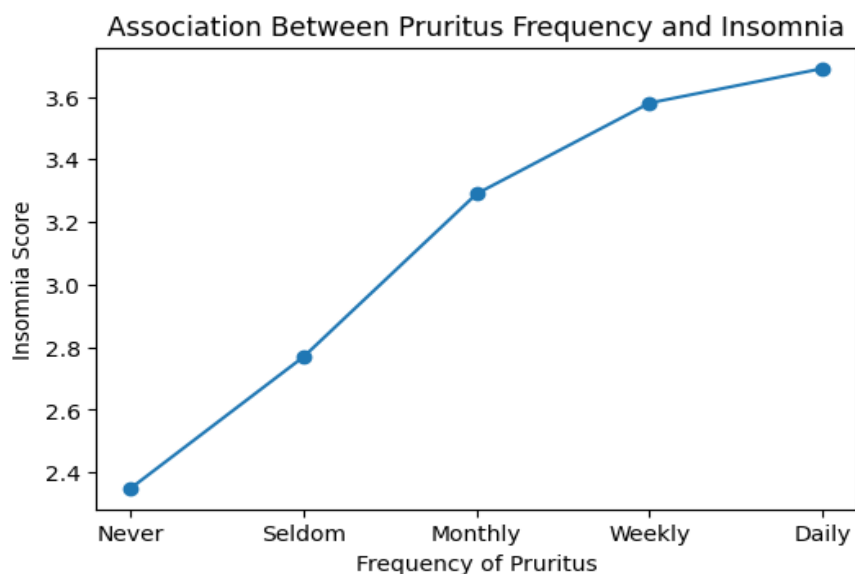


Figure 1. Association Between Pruritus and Insomnia

Figure 1 illustrates the relationship between the frequency of pruritus and insomnia severity among study participants. Increasing frequency of itching was associated with progressively higher insomnia scores, demonstrating a strong correlation between chronic pruritus and sleep disturbance. The findings highlight the significant negative impact of persistent itching on sleep quality and overall psychosocial well-being.

Discussion

The present population-based cohort study demonstrated a strong association between pruritus and impaired psychosocial well-being among middle-aged adults. The findings revealed that individuals experiencing localized or generalized pruritus had significantly higher rates of insomnia, depression, anxiety, emotional distress, and reduced health-related quality of life compared with participants without itching symptoms. Furthermore, the severity of psychological impairment progressively increased with increasing frequency of pruritus, indicating a substantial psychosocial burden associated with chronic itching (1,2).

The prevalence of pruritus observed in the current study highlights the widespread nature of this symptom within the general population. Approximately one-fifth of participants reported weekly itching, while daily pruritus was reported by a considerable proportion of individuals. These findings are comparable to previous epidemiological investigations conducted in European populations, which have reported chronic pruritus prevalence ranging from 15% to 25% (1,2). The high

prevalence observed in the present study emphasizes that pruritus is not merely a dermatological complaint but rather a common public health concern requiring greater clinical attention.

An important finding of this study was the significant relationship between pruritus and sleep disturbance. Participants with frequent itching demonstrated higher insomnia scores and poorer sleep quality compared with those without pruritus. Sleep impairment may occur due to nocturnal exacerbation of itching and repetitive scratching behavior during nighttime hours, leading to frequent awakenings and reduced sleep duration (6,9). Similar findings have been reported in previous studies involving patients with atopic dermatitis, psoriasis, and chronic urticaria, where pruritus-related sleep disruption significantly affected daytime functioning and overall quality of life (10,11). Persistent sleep deprivation may further contribute to fatigue, irritability, impaired concentration, and worsening psychological health.

The study also identified a strong association between pruritus and depressive symptoms. Individuals experiencing daily generalized pruritus demonstrated markedly increased odds of moderate-to-severe depressive symptoms even after adjustment for confounding variables. Chronic itching may negatively influence emotional well-being through continuous discomfort, social embarrassment, impaired self-image, and restriction of daily activities (5,8). Previous clinical studies have similarly demonstrated increased rates of depression among patients with chronic dermatological diseases associated with intense

itching. The psychological burden associated with persistent itching may become particularly severe in individuals with long-standing symptoms and inadequate symptom control.

Anxiety symptoms were also significantly more common among participants reporting frequent pruritus. The relationship between itching and anxiety appears to be bidirectional. Persistent itching may provoke emotional stress, frustration, and excessive concern regarding symptom severity, while anxiety itself may exacerbate pruritus through neuroimmune mechanisms involving inflammatory mediators, vasoactive neuropeptides, and histamine release. Earlier studies have similarly reported increased anxiety levels among individuals with chronic pruritus and inflammatory skin diseases (7,8). The findings of the present study support the concept that psychological factors play a major role in both the perception and persistence of itching symptoms.

Another notable observation was the significant reduction in health-related quality of life among participants with pruritus. Individuals with both localized and generalized itching demonstrated lower HRQoL scores compared with participants without itching symptoms. Chronic pruritus may impair multiple domains of daily life, including physical comfort, social interaction, emotional stability, occupational productivity, and interpersonal relationships (4,12). Previous research has even suggested that the burden of chronic itching may be comparable to that associated with chronic pain conditions and certain severe dermatological disorders. Therefore, assessment of quality of life should be considered an essential component of clinical evaluation in patients presenting with chronic pruritus. The present study further demonstrated that psychosocial impairment increased progressively with increasing frequency of pruritus. Participants reporting daily itching exhibited the highest levels of depression, anxiety, emotional distress, and insomnia. This dose-response relationship suggests that symptom severity is directly associated with worsening mental health outcomes. Similar trends have been observed in earlier investigations where greater itching intensity correlated with higher psychiatric morbidity and poorer quality of life. These findings emphasize the importance of early symptom control and comprehensive management strategies aimed at

reducing both physical discomfort and psychological burden.

Unlike some previous investigations, the current study did not identify major sex-specific differences in the association between pruritus and psychosocial symptoms, although females demonstrated a higher prevalence of itching overall (7). The higher prevalence of pruritus among women may be related to hormonal influences, differences in skin sensitivity, psychosocial stress responses, or healthcare-seeking behavior. However, the psychosocial impact of itching appeared substantial in both sexes, indicating that clinicians should remain vigilant regarding mental health symptoms in all patients with chronic pruritus.

The major strength of this study lies in its large population-based design involving more than 6,800 middle-aged participants from a well-established birth cohort. The use of validated psychological assessment instruments strengthened the reliability of the findings and enabled comprehensive evaluation of multiple psychosocial domains simultaneously. In addition, adjustment for important confounding variables such as smoking, alcohol use, body mass index, socioeconomic status, physical activity, and history of skin disease enhanced the robustness of the statistical analysis.

Overall, the findings of this study emphasize the significant multidimensional burden associated with pruritus. Chronic itching should not be viewed solely as a dermatological symptom, as it has profound effects on emotional health, sleep quality, and daily functioning. Recognition of associated psychosocial symptoms is essential for improving patient care. A multidisciplinary treatment approach addressing both physical and psychological aspects of pruritus may help improve quality of life and long-term clinical outcomes in affected individuals.

Conclusion

The present population-based cohort study demonstrates that pruritus is a highly prevalent condition with substantial psychosocial consequences. Individuals experiencing frequent localized or generalized itching showed significantly increased levels of insomnia, anxiety, depression, emotional distress, and impaired health-related quality of life. The findings further revealed that the severity of psychosocial impairment increased progressively with greater frequency of pruritus, emphasizing the

multidimensional burden associated with chronic itching.

Pruritus should not be regarded solely as a dermatological symptom, as its impact extends beyond physical discomfort and significantly affects emotional health, sleep quality, social functioning, and overall well-being. The strong association identified between pruritus and psychological symptoms highlights the importance of comprehensive patient assessment in clinical practice. Early recognition of associated mental health disturbances may contribute to improved symptom management and better long-term outcomes. The study also emphasizes the need for an integrated multidisciplinary approach involving dermatological care, psychological support, and lifestyle modification strategies for individuals suffering from chronic pruritus. Increased awareness among healthcare professionals regarding the psychosocial burden of itching may facilitate timely intervention and enhance patient quality of life. Further longitudinal and multicentric studies involving diverse populations are recommended to better understand the causal relationship between pruritus and psychosocial disorders and to develop more effective therapeutic approaches for affected individuals.

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