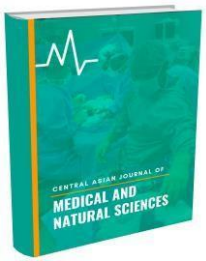

CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES
https://cajmns.centralasianstudies.org/index.php/CAJMNS
Volume: 05 Issue: 04 | October *2024 ISSN: 2660-4159*

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Article

Understanding the Impact of Nail Disorders on Dermatology Patients' Quality of Life

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Abstract: Nail disorders significantly impact the quality of life for dermatology patients, particularly due to the prolonged duration of these conditions. This study aims to assess the clinical impact of nail disorders, such as onychomycosis and nail dystrophy, on the health-related quality of life (HRQoL) of dermatology patients. Data were collected from 84 patients, aged 30 to 65, with nail disorders in hospitals in Al-Najaf, Iraq, between April 2023 and August 2024. Using questionnaires like Skindex-29 and the General Health Questionnaire, the study examined the emotional, physical, and social aspects of patients' well-being. Results showed that 69.05% of cases were female, with onychomycosis (55 cases) and nail dystrophy (29 cases) as the primary conditions. Patients with nail dystrophy had more severe symptoms and lower social functioning compared to those with onychomycosis. In general health assessments, patients with nail dystrophy also reported slightly lower overall well-being. The findings highlight the importance of addressing both physical and emotional aspects in treating nail disorders to improve patients' quality of life.

Keywords: Nail disorders, Quality of life (HRQOL), Dermatology, Nail dystrophy, Onychomycosis.

1. Introduction

Nail disorder is an all-encompassing clinical term used to refer to all pathologies that affect nails, amongst which are nail dystrophy and onychomycosis [1,2]. The term nail dystrophy encompasses a series of pathologies of the nail, which are characterized by their morphological and structural alteration [3]. Nail disorders are a topic of special medical interest since they are a very frequent reason for consultation, which can severely affect the quality of life of patients who suffer from it, given that apart from the unsightly component, they may present discomfort, pain, or inability to perform their work normally. As the main causes of nail dystrophy, we find nail psoriasis, onychomycosis, and trauma, and it is important to differentiate between these etiologies since each entity has a different treatment and must be treated correctly [4 – 7]. Recently, new therapeutic options have appeared that facilitate compliance with treatment and allow improving this difficult-to-manage entity. [8 – 14]

Onychomycosis is a fungal infection that primarily affects nails and is usually caused by dermatophytes, yeasts, or no dermatophyte Molds. It can lead to nail discoloration, thickening, or crumbling and is often difficult to treat [15,16]. If left untreated, it can be both unsightly and potentially painful. Onychomycosis is the most frequent disease of the nails; it accounts for 20 to 53% of all onychopathies and 30% of all skin infections. In the

Citation: Ola Raheem Abbas. Understanding the Impact of Nail Disorders on Dermatology Patients' Quality of Life. Central Asian Journal of Medical and Natural Science 2024, 5(4), 754-765.

Received: 27th July 2024
Revised: 27th August 2024
Accepted: 3th Sept 2024
Published: 10th Sept 2024

general population, a prevalence of 4 to 15.8% is estimated [17 – 20]. These figures are increased in subjects with risk factors, such as tinea of the feet, use of narrow footwear, sports activities (swimming), community or public baths, trauma, advanced age, alterations in peripheral circulation, immunodeficiency, and genetic predisposition [21]. It is a condition of adulthood, and it is considered that it can represent from 10 to 24% of the population between 30 and 65 years; there are even publications that refer to up to 41% of affectation in this age group. [22 – 24]

Furthermore, they act as instruments for tracking disease processes during therapy or screening functional issues. A range of self-administered questionnaires are accessible for utilization in clinical scenarios and are intended for the elicitation of either generic or disease-specific HRQoL. In clinical practice, HRQoL measures could be employed in order to explore the individual and social context of patients and its relation to the traditional perception of illness. [25 – 27]

2. Materials and Methods

In hospitals of Al-Najaf - Iraq, a study was conducted between April 2023 and August 2024. All patients between the ages of 30 to 65 being referred to the admit clinic due to nail troubles were invited to take part in the study. Patients suffering from either severe psychological or bodily illnesses were excluded from the survey. The only eligible subjects for this study were those who did not undergo any specific antifungal therapy for at least last four months.

We made use of The Skindex-29, the 12-item General Health Questionnaire (GHQ-12), as well as the 36-item Short Form of Medical Outcomes Study questionnaire (SF-36). In particular, the Skindex-29 is a valid and reliable tool that measures HRQoL among patients with skin disorders; its Italian version has recently been validated. Three scales form the Skindex-29 that review the burden of symptoms, social functioning, and emotional states. Each patient answered 29 questions regarding what they had experienced in the last month on a range of 5 points, beginning from "never" (= 0) up to "a through" (= 4). Zero to one hundred indicates how much percentage out of the possible highest score can be obtained using a certain scale (per each), but vice-versa, higher rates indicate poorer quality of life.

The GHQ-12 is a self-administered questionnaire meant for use in measuring psychological distress and detecting current nonpsychotic psychiatric disorders, generally referred to as either depressive or anxiety disorders. A four-point scale is provided for answering questions. The GHQ-12 can function as a screening instrument in identifying minor non-psychotic psychiatric disorders. Thus, by means of this methodology, every individual ends up with a score ranging from 0 to 12: operationally speaking, patients who scored above four were regarded as 'GHQ cases' (GHQ +).

The SF-36 is a broad measure of health status aimed for use across different conditions with varying degrees of severity. It can monitor patients having multiple diseases, compare healthy patients having different conditions and thus provide a useful point of reference when investigating the health status of individuals with different conditions. The SF-36 has 36 items in Likert-type or forced-choice format that measure eight dimensions, namely: Physical Functioning (limitations in performing physical activities such as bathing or dressing), Role-Physical (work and other daily functional limitations due to bad physical health), Bodily Pain (how bad and limiting is pain), General Health (how good is one's personal overall health according to them), Vitality (tiredness as opposed to feeling energetic), Social Functioning (how everyday social life is affected by physical or mental problems), Role-Emotional (work and other daily activities limited by emotional problems), Mental Health (being anxious & unhappy versus being relaxed, cheerful and calm).

For each domain, the range of scores falls between zero and 100, with high scores signifying a better status. The SF-36 was employed in its Italian version, which has undergone cross-cultural validation within the framework of the International Quality of Life Assessment (IQOLA) Project. Statistical analysis Mean score was computed for all the instruments at all levels of interest variables like sex, age, presence of onychomycosis or not, duration, and extension of the disease. The student's t-test was used to test differences between subgroups. Skindex 29 and SF-36 values for nail disorders were compared to those found in other minor skin diseases (e.g., dermatitis, warts, erythema, etc). These patients participated in a previous study on HRQoL assessment during this same period.

3. Result

Table 1. Enrol clinical data of patients with nail disorders

Parameters	Number of cases [n = 84]	Percentage, %
Age		
30 – 40	12	14.29%
41 – 50	19	22.62%
50 – 60	23	27.38%
+ 60	30	35.71%
Gender		
Men	26	30.95%
Women	58	69.05%
BMI, Kg/M2		
29 – 32.7	10	11.90%
32.7 – 35.4	30	35.71%
> 35.4	44	52.38%
Comorbidities		
I	15	17.86%
II	33	39.29%
III	24	28.57%
IV	12	14.29%
Smoking status		
Yes	35	41.67%
No	49	58.33%
Prior treatment used		
Yes	28	33.33%

No	56	66.67%
Marital status		
Single	14	16.67%
Married	48	57.14%
Divorced	12	14.29%
Widowed	10	11.9%
Complete of education status		
High school	30	35.71%
University degree	40	47.62%
Master's or Doctoral degree	14	16.67%
Income status, $		
< 500	22	26.19%
500 – 700	38	45.24%
> 700	24	28.57%
* COMORBIDITIES: HYPERTENSION; DIABETES; OBESITY; HEART FAILURE.		

Table 2. Identify diagnostic and examination results of patients.

Variables		No. of cases [n = 84]	%
Symptoms	Pain	52	61.90%
	Itch	57	67.86%
	Reduced strength of the nails	60	71.43%
	Hardened, thickened, raised nails	80	95.24%
	Changed nail appearance	77	91.67%
	Nails looking different	52	61.90%
Types of diseases	**Onychomycosis**	**55**	**65.48%**
	Dermatophytes sp.	20	36.36%
	Non-dermatophytes moulds sp.	18	32.73%
	Candida sp.	14	25.45%
	Mixed	3	5.45%

	Nail dystrophy	**29**	**34.52%**
	Psoriasis	14	48.28%
	Lichen planus	5	17.24%
	Alopecia areata	2	6.90%
	Eczema	8	27.59%
Period	<1 year	32	38.10%
	≥1 year	52	61.90%
Area involved	Fingernails	20	23.81%
	Toenails	60	71.43%
	Both	4	4.76%
Severity	Mild	17	20.24%
	Moderate	30	35.71%
	Severe	24	28.57%
	Very severe	13	15.48%
Number of nails affected	1	34	40.48%
	2	24	28.57%
	3	15	17.86%
	4	16	19.05%
	5	10	11.90%
	6	7	8.33%
	7	8	9.52%
	8	8	9.52%
	9	2	2.38%
	10	37	44.05%

Table 3. Assessment of degree pain of patients during follow–up

Scores	Number of cases [n = 84]	Percentage, %
Non	0	0.0%
Mild	22	26.19%
Moderate	31	36.90%
Severe	19	22.62%
More severe	12	14.29%

Table 4. Assessment of health quality of life in terms of symptoms, emotions, and social functioning by skindex-29.

ITEMS	PATIENTS, [N = 84]	
	Nail dystrophy	**Onychomycosis**
Symptoms	66.24 ± 15.73	67.28 ± 14.85
Emotions	75.65 ± 8.58	62.17 ± 13.70
Social functioning	58.40 ± 9.63	54.33 ± 16.86

Table 5. Establishing questionnaire SF – 36 and GHQ+ percentage on patients with nail disorders.

ITEMS	SF – 36, SCORE		GHQ – 12, %
	Onychomycosis	**Nail dystrophy**	
Physical Functioning (PF)	45.74 ± 12.77	58.33 ± 10.8	32.8
Role-Physical (RP)	56.40 ± 14.62	57.24 ± 15.33	35.6
Bodily Pain (BP)	58.37 ± 16.22	52.13 ± 12.10	42.62
General Health (GH)	48.49 ± 9.59	54.38 ± 9.22	30.15
Energy/Fatigue (VT)	44.37 ± 7.50	46.33 ± 9.36	29.7
Role-emotional (RE)	64.28 ± 13.66	62.42 ± 8.93	36.5
Social Functioning (SF)	61.83 ± 10.27	63.44 ± 7.78	24.0
Mental health (MH)	68. 33 ± 9.44	67.63 ± 5.74	38.4
* **GHQ:** GENERAL HEALTH QUESTIONNAIRE			

Table 6. Distribution of nail disorders on men and women by GHQ – 12 scale.

ITEMS	GHQ – 12 SCALE, %
MEN	30.0%
WOMEN	50.0%

Table 7. Univariate analysis of risk factors affecting patients with nail disorders.

Variables	**OR**	**CI 95%**
Age	2.56	0.90 – 4.70
Comorbidities	3.15	2.40 – 6.88
Types of disease	2.28	1.33 – 3.80
Duration of disease	1.10	0.40 – 2.0
Area involved	2.50	2.13 – 3.50
Symptoms	3.25	2.75 – 6.30
Severity of disease	4.57	1.05 – 7.90

Figure 1. Nail pitting in psoriasis

Figure 2. Chronic Paronychia

Figure 3. Chronic Paronychia

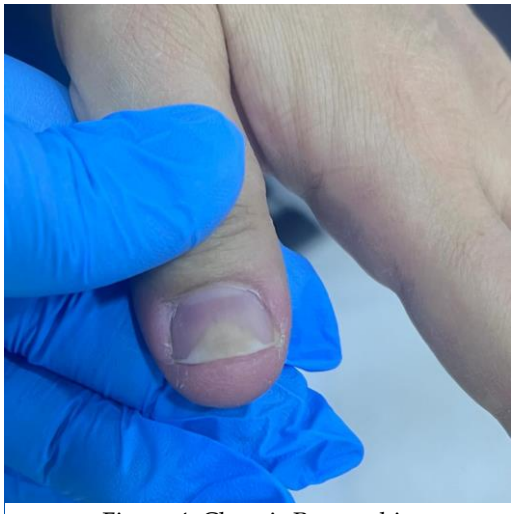

Figure 4. Chronic Paronychia

Figure 5. Onychomycosis

4. Discussion

Clinical results showed that patients aged> 60 years had more participants in this study, which included 30 cases; men were 30.95% of total cases, and women was 69.05%; types of diseases were onychomycosis with 55 cases and nail dystrophy with 29 cases, period of disease had both of <1 year, which included 32 cases and ≥1 year got 52 cases, most area involved in patients was 71.43%, number of nails affected were ten nail with 37 cases. In terms of questionnaires, symptoms were 66.24 ± 15.73 in patients with onychomycosis, emotions were 75.65 ± 8.58, and social functioning was 58.40 ± 9.63, where the patients with nail dystrophy were more affected.

Patients with onychomycosis were a little less affected. Regarding the general health quality of life, physical functioning was 45.74 ± 12.77, general health 48.49 ± 9.59, social functioning 61.83 ± 10.27 in patients with onychomycosis, whereas physical functioning 58.33 ± 10.8, general health 54.38 ± 9.22, social functioning 63. 44 ± 7.78, where men were more affected with nail disorders than women, we found 30.0% of GHQ-12, which it is low in terms of positive health and quality of life, but women got 50% of GHQ-12, which it is moderate in terms of positive health quality of life.

A lot of people have nail diseases that can greatly affect their essential parts of life. Individuals might feel less certain about themselves and shun socializing or recreational ventures. However, many medical practitioners regard onychomycosis, which represents 50% of all nail disorders and roughly 34% of skin fungal infections, as more of an aesthetic rather than a health issue, this way overlooking how it influences patients' life quality (QoL). [28]

There have been only a few studies aimed to evaluate the potential impact of onychomycosis on various dimensions of patients' QoL and only several specialized questionnaires were created. These studies proved that, despite nail disorders being non-life-threatening conditions, they are related to considerable physical and mental woes for many individuals, and this brought out the significance HRQoL evaluation should have in physicians' choice to begin therapy. [29]

Also, we found out that by using public HRQoL instruments uncomplicated in everyday clinical practice in a dermatology clinic one might decide whether nail diseases influenced patients' life as well as those individuals diagnosed with nail disorders had a low life satisfaction score.

In a present study, data show that the manifestations of nail defects and how they affect individuals' personal looks are major determinants of patients' self-assessment of their health status [30]. The quality of life for Iraqi patients suffering from nail diseases was observed to be very high in comparison with other nations. This could be attributed to variations in severity levels; however, it could also signify varying cultural perceptions about the significance of this ailment. Nevertheless, prior studies have shown significant

differences between countries with regard to health-related quality of life (HRQoL) scores among patients who experience both social as well as emotional changes due to having nail ailments. [31 - 33]

Also, it is a fact that psoriasis and atopic dermatitis are the main dermatologic diseases associated with mental disorders like depression and anxiety. For example, depression (prevalence: 24%) and anxiety (prevalence: 34%) have been reported using epidemiological methods to be highly prevalent among dermatology patients. Epsteins work on skin disorders has well established this connection [34].

It was revealed in our study that among men aged between 30 – 35 years, the percentage of those whose GHQ-12 scores were positive was 30.0%. In women suffering from nail diseases, these figures reached up to 50%. However, GHQ-12 was more frequent in men than women in our study. Alternatively, these results may also imply that there is something about the population of men seeking treatment for nail disorders who are seeing it as a minor issue. [35]

5. Conclusion

Nail disorders, including onychomycosis and nail dystrophy, can have a markedly negative impact on the quality of life of patients with dermatological disorders. Those suffering from nail disorders may experience physical discomfort and pain, which can also have a detrimental effect on their general happiness. Furthermore, these conditions can affect daily activities and functionality due to pain or discomfort, which may disrupt sleeping patterns or overall mood, ultimately leading to a reduction in quality of life.

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