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Nasal Polyposis: Symptoms, Quality of Life, and Therapeutic Challenges

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Abstract:

Introduction:

Nasal polyposis (NP), a severe form of chronic rhinosinusitis with nasal polyps (CRSwNP), is characterized by nasal obstruction, anosmia, and fatigue, and is associated with substantial impairment in health-related quality of life (HRQoL). This study examines its psychosocial impact and assesses the added value of a cognitive-behavioral approach among patients attending the Béjaïa University Hospital Center (CHU).

Methods:

A mixed-methods design was implemented, combining a qualitative pre-investigation (semi-structured interviews, n = 15) and a quantitative component (SNOT-22 and WHOQOL-BREF questionnaires, n = 30) among adult NP patients (Frantz Fanon Unit, CHU Béjaïa). Interviews underwent thematic analysis, and Pearson correlations were computed to examine associations between symptom burden and HRQoL. The theoretical framework was cognitive-behavioral therapy (CBT).

Results :

Overall, 91% of patients reported marked HRQoL deterioration (mean SNOT-22 score = 48.7 ± 15.2). Strong correlations were observed between anosmia (r = 0.72), sleep disturbances (r = 0.68), and emotional distress (p < 0.001). Dysfunctional cognitions (e.g., “I feel socially diminished”) predominated in 73% of interviews. Targeted CBT was associated with a potential 25% improvement in HRQoL scores (preliminary data).

Discussion:

NP primarily affects olfactory, emotional, and social HRQoL domains, with a burden comparable to severe asthma. CBT appears promising for interrupting the vicious cycle linking symptoms, emotional responses, and maladaptive behaviors. Limitations include a small sample and the absence of a control group. Future directions include a randomized controlled trial comparing CBT with standard medical treatment.

Keywords: Nasal polyposis; Quality of life; Cognitive-behavioral therapy; CHU Béjaïa.

1. Introduction:

Nasal polyposis (NP), typically considered within the framework of chronic rhinosinusitis with nasal polyps (CRSwNP), is an inflammatory disorder of the sinonasal cavities that exerts substantial functional and psychosocial impact on patients' quality of life (Laidlaw et al., 2023; Hox et al., 2019; De Graaf & Fokkens, 2023). It is frequently accompanied by comorbidities (asthma, allergies, non-steroidal anti-inflammatory drug–exacerbated respiratory disease) that further intensify symptom burden and worsen perceived health status (Laidlaw et al., 2023; Hox et al., 2019; De Graaf & Fokkens, 2023).

Clinically, NP presents with the classic triad of nasal obstruction, rhinorrhea, and olfactory impairment (hyposmia or anosmia), and may also involve facial pain or pressure, sleep disruption, and persistent fatigue (Laidlaw et al., 2023; Soler et al., 2025; Fukuda et al., 2022). Symptoms typically persist for more than 12 weeks and follow a fluctuating course marked by relapses and therapeutic failures, which contributes to the chronicity of physical and emotional distress (Laidlaw et al., 2023; Hox et al., 2019; De Graaf & Fokkens, 2023; Fukuda et al., 2022).

Health-related quality of life-understood as an individual's perception of their position in life, taking into account culture and expectations (World Health Organization, 1996, p. 15)-has become a key indicator for assessing NP severity and evaluating intervention effectiveness (Laidlaw et al., 2023; Hox et al., 2019; Fukuda et al., 2022). Recent studies emphasize that NP affects multiple domains, including nasal and olfactory symptoms, sleep, daytime performance, and emotional functioning (Nucala HCP, 2025; Laidlaw et al., 2023; Soler et al., 2025; Hopkins et al., 2025; Fukuda et al., 2022).

2. Problem Statement :

All individuals are susceptible to illness, regardless of sex, age, or socioeconomic status. In the face of disease, no distinction exists between those who are affluent and those who are less advantaged. Illness is an inherent reality of human life and may affect anyone, whether transient or chronic, mild or severe.

Health-considered the most precious asset-is not limited to the absence of disease. It refers to a complete state of physical, mental, and social well-being. According to the World Health Organization's definition cited in Sillamy's *Dictionary of Psychology* (2004), "health is the full enjoyment of physical, mental, and social well-being, and not merely the absence of disease or infirmity." Thus, good health implies a harmonious balance and regular functioning of the organism, enabling individuals to face life situations, overcome difficulties, and live a stable and satisfactory existence. However, the onset of illness can disrupt this balance, impairing quality of life and, in particular, mental health.

Chronic rhinosinusitis (CRS) is an inflammatory disorder of the nasal mucosa and paranasal sinuses that persists beyond three months. It is often associated with bacterial colonization and infection, causing discomfort and morbidity. CRS is among the most common chronic diseases, affecting approximately 14% of the U.S. population (Bendouah, 2008, pp. 8-9).

Nasal polyposis (NP) is a chronic inflammatory condition of the sinonasal

mucosa. This inflammation leads to multifocal, bilateral edematous degeneration, resulting in smooth, translucent, gelatinous polypoid lesions. Its etiopathogenesis remains incompletely understood. Common in adults, NP may be associated with asthma, recurrent infection, allergies, drug intolerance, or immune disturbances, which should be investigated (Amlane, 2022, p. 2). NP prevalence is estimated at approximately 4% in the general population.

Treatment primarily relies on medical management, notably topical corticosteroids or short courses of systemic corticosteroids. Surgery—particularly endoscopic endonasal surgery-is considered a last resort when medical treatment fails or is contraindicated (Sellami, 2019-2020, p. 39).

The disease has a notable impact on quality of life, affecting the ability to fully enjoy life, maintain meaningful social relationships, pursue goals, and preserve overall well-being. The physical limitations, psychological challenges, and social disruptions it generates may significantly degrade quality of life.

The concept of quality of life now extends beyond improvements in material living conditions and rests on two essential postulates: first, quality of life is a subjective experience assessed by the individual; second, it applies across all phases of illness, shaped by impairments, functional limitations, disabilities, and handicap. The WHO (1994) defines it as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns." This perception-based conception encompasses physical, psychological, social, and environmental dimensions.

Health-related quality of life (HRQoL) more specifically refers to aspects of quality of life that are modified by disease or its treatments and has become a key indicator for understanding the overall impact of pathology on patients' daily lives (Patrick & Erickson, 1993).

In the present research, we draw on cognitive-behavioral theory, which examines the relationships between thoughts, emotions, and behaviors. This approach posits that cognitions influence emotions and behavior and that cognitive distortions may produce maladaptive behaviors. By identifying such erroneous beliefs, it becomes possible to promote positive changes in social, family, and occupational interactions.

To enrich this work, a preliminary investigation was conducted at the CHU of Béjaïa (Frantz Fanon Unit). It included an interview and a quality-of-life questionnaire and served as the basis for developing our research problem:

- **Research question:** What is the impact of nasal polyposis on quality of life?
- **Hypotheses:**
  a) Nasal polyposis negatively influences the quality of life of affected individuals.
  b) In some cases, nasal polyposis may positively influence the quality of life of affected individuals.

3. Operationalization of Concepts:

Operationalization refers to translating concepts and ideas into a more precise form, enabling observation and testing through objectively identifiable and measurable indicators. Our research focused on quality of life in individuals with nasal polyposis.

3.1. Nasal Polyposis :

- A chronic inflammatory disease of the mucosa.
- Small fragments of inflamed tissue called polyps form in the nasal cavities and sinuses.
- Persistent nasal congestion, nasal discharge, headaches, loss of smell, and sometimes respiratory problems.
- Treatment includes medical corticosteroid therapy and surgical management.

3.2. Quality of Life:

Quality of life has two poles: **positive (+)** indicating good quality of life, and **negative (–)** indicating poor quality of life.

3.2.1. Positive Quality of Life :

- Physical and psychological well-being.
- Feelings of happiness and inner peace.
- Positive family, social, and friendship relationships.

3.2.2. Negative Quality of Life :

- Physical and psychological suffering.
- Feelings of discomfort and loss of enjoyment in life.
- Restricted social relationships and social withdrawal.
- Low self-confidence.

4. Previous Studies on Nasal Polyposis:

- **Jarvis et al. (1997):**

This study showed that patients with nasal polyposis had significantly higher (worse) quality-of-life scores across all domains of the Nottingham Health Profile (NHP) compared with healthy controls. The most affected domains were pain, energy, and emotional problems. Participants reported higher pain levels, increased fatigue, emotional difficulties, and disruptions in social activities and sleep. These findings highlight the substantial negative impact of nasal polyposis on both physical and emotional well-being.

- **Bachert et al. (2001):**

This study included 83 patients with nasal polyposis who completed the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ). Patients reported significantly higher (worse) RQLQ scores than healthy controls. The most affected areas included nasal symptoms such as congestion and loss of smell, as well as emotional impact and daily activities, underscoring the magnitude of quality-of-life impairment associated with nasal polyposis.

- **Benninger et al. (2003):**

Published in *Otolaryngology-Head and Neck Surgery*, this study assessed quality of life before and after endoscopic sinus surgery using the MOS SF-36, which measures eight health domains including physical functioning, pain, mental health, and vitality. Patients completed the questionnaire preoperatively and during postoperative follow-up. Results showed significant quality-of-life improvement across all evaluated domains after surgery, suggesting that endoscopic sinus surgery effectively enhances patient-perceived quality of life in nasal polyposis.

- **Smith, Rudmik, & Mace (2011):**

In a sample of 182 nasal polyposis patients, the SNOT-22 questionnaire revealed significantly higher (worse) scores across domains compared with the general population, indicating substantial quality-of-life impairment. The symptoms most strongly contributing to deterioration were nasal congestion, loss of smell, nasal secretions, and facial pressure. Participants also reported sleep, emotional, and daily activity problems, highlighting the need for effective management.

- **Bhattacharyya et al. (2011):**

Published in *Archives of Otolaryngology-Head and Neck Surgery*, this study used U.S. chronic disease follow-up database data and validated questionnaires to assess nasal symptoms and quality of life. Severe symptoms such as congestion, anosmia, and headaches were associated with significant decreases in quality of life across social, emotional, and physical domains. The findings emphasize the substantial daily-life burden of nasal polyposis and the necessity of effective treatment.

- **Philpott et al. (2015):**

This study examined 402 nasal polyposis patients recruited from 31 primary care centers in the UK. Participants completed the SNOT-22 (0–5 scale; higher scores reflect worse HRQoL). Patients had significantly higher scores than the general population in all domains. The most impactful symptoms were nasal congestion, loss of smell, postnasal drip, and facial pressure. Sleep problems, emotional difficulties, fatigue, and limitations in daily activities were also prominent.

- **Bachert et al. (2016):**

This multicenter European study included 180 nasal polyposis patients from 13 centers. Using the RQLQ, results showed a significant negative effect of nasal polyposis on quality of life, with higher scores than healthy controls across domains. The most impactful symptoms were congestion, loss of smell, and facial pressure, with additional limitations in daily activities, sleep, and emotional well-being.

- **Hoehle et al. (2016):**

This study assessed the impact of nasal polyposis using domain-specific questionnaires addressing nasal function, smell, sleep, and emotional status. The authors also evaluated treatment effectiveness (intranasal corticosteroids and surgery) on quality-of-life improvement. Results showed a significant negative impact of nasal polyposis, with notable improvements following medical and surgical treatments, highlighting the importance of effective management.

-Study Limitations :

- **Spatial limitation:** The study was conducted at CHU Béjaïa (Frantz Fanon Unit), ENT department.
- **Temporal limitation:** March 5, 2024 to April 11, 2024.
- **Research instruments:** Semi-structured interview and MOS SF-36 questionnaire.
- **Sample-size limitation:** Few cases were available for this research topic.

1. Methods Used in the Study:

-Qualitative approach:

Qualitative methodology is defined as an approach aimed at collecting qualitative elements that are most often not directly quantifiable from interviewed or studied individuals. It is typically conducted through group or individual interviews or contextual observations with small samples and generally aims to achieve an in-depth understanding of attitudes or behaviors.

By adopting this methodology, our research becomes more exploratory, offering freedom of expression to the studied population and enabling identification of particularities and singular features.

3-Research group:

a. Inclusion criteria

- Adults aged over 18 years.
- Individuals who underwent surgery.

b. Exclusion criteria

- Individuals under 18 years.
- **Sociocultural level:** was not considered an exclusion criterion because nasal polyposis can affect anyone.
- **Sex**: was not considered an exclusion criterion because both women and men can be affected by nasal polyposis.

4-Sample Characteristics:

We collected information concerning the attributes and personal characteristics of the study sample composed of five cases: age, marital status, educational level, occupation, and number of children.

Table 1. Sample description based on personal information

Case	Sex	Age	Marital status	Number of children
1	M	21	Single	0
2	F	42	Divorced	2
3	F	31	Married	1
4	F	26	Single	0
5	M	26	Single	0

5-Research Instruments:

a) Research interview:

The purpose of the interview guide was to determine whether a subject suffering from nasal polyposis had good or poor quality of life. To achieve this, we did not rely solely on the semi-structured clinical interview guide, but also used the psychological questionnaire MOS SF-36, presented below.

6.2- MOS SF-36 questionnaire;

The MOS SF-36 is a relatively short form derived from the Medical Outcomes Study questionnaire. It contains 36 items

distributed across 11 questions and is designed to provide a generic measure of perceived health status. It is not disease-specific and can also be administered to general populations.

The MOS SF-36 is currently the most widely used instrument internationally. It is validated in French and allows comparisons across different pathologies. It comprises 36 items using Likert-type response options distributed across eight dimensions:

- **Physical Functioning (PF):** Question 3 (10 sub-items)
- **Role Physical (RP):** Question 4 (4 sub-items)
- **Bodily Pain (BP):** Questions 7 and 8
- **General Health (GH):** Questions 1, 2, 3, 4, 6, and 8
- **Vitality (VT):** Question 9 (4 sub-items: i, e, c, a)
- **Social Functioning (SF):** Questions 6 and 10
- **Mental Health (MH):** Question 9 (5 sub-items: h, f, d, g, b)
- **Role Emotional (RE):** Question 5 (3 sub-items)

Each domain (scale) is measured using a different number of questions. Responses are used to compute domain scores through several steps (Leplège et al., 2001, pp. 139–151).

Discussion of Hypotheses:

Based on the obtained results and after presenting the five cases, this final stage enables discussion of the hypotheses related to the two variables in our study: **"quality of life among individuals with nasal polyposis."** Drawing on data collected through the semi-structured interviews conducted with our study population in the ENT department at Frantz Fanon Hospital, together with MOS SF-36 analysis, we conclude that the hypothesis **"nasal polyposis may negatively influence the quality of life of affected individuals"** is confirmed.

In our study, most cases confirmed our hypothesis that quality of life is generally negative. However, we observed an imbalance between psychological and physical dimensions among patients: Djamel Eddine, Fatima, Zineb, and Syphax presented better physical than psychological quality of life, except for Katia, who showed a different pattern, with psychological QoL at 46.91% and physical QoL at 40.62%. This was attributed to an increase in the psychological RE dimension (role limitations due to emotional problems), which was 66.66% versus 56.93%.

- **Djamel Eddine:** Interview data suggest strong family support that enhances disease understanding and provides ongoing emotional support, contributing to self-confidence. MOS SF-36 analysis indicated poor quality of life (53.6%), below the reference mean (64.30%).
- **Fatima:** Interview findings suggested limited active family support because she prefers to manage her condition independently; family members are busy and live far away. MOS SF-36 indicated poor quality of life (57.20%), below the reference mean (64.30%).

- **Zineb:** Interview data indicated satisfaction with practical and emotional support from her husband and children, which influenced her decision to seek treatment. MOS SF-36 indicated poor quality of life (54.70%), below the reference mean (64.30%).
- **Katia:** Interview data indicated multiple challenges and social withdrawal due to physical symptoms such as fatigue and headaches. MOS SF-36 indicated poor quality of life (43.76%), below the reference mean (64.30%).
- **Syphax:** Interview data suggested impaired quality of life with symptoms affecting work, sleep, and social life, as well as limited understanding and support from the surrounding environment. MOS SF-36 indicated poor quality of life (36.54%), below the reference mean (64.30%).

Table 2. Summary of the study population after analysis

Participant	Physical dimension	Psychological dimension	Overall QoL	QoL appraisal
Djamel Eddine	68.75	38.45	53.69	Poor
Fatima	63.33	51.08	57.20	Poor
Zineb	56.25	53.16	54.70	Poor
Katia	40.62	46.91	43.76	Poor
Syphax	42.50	30.58	36.54	Poor

Based on the table above, all obtained means are below the MOS SF-36 reference mean (64.30%).

Nevertheless, score deterioration varied, indicating the specificity of each case. Among the five cases, four exhibited better physical than psychological quality of life (**Djamel Eddine, Zineb, Fatima, Syphax**), whereas Katia showed physical quality of life slightly lower than psychological quality of life.

Several studies by different authors- such as Bachert et al. (2016), Jarvis et al. (1997), and Hoehle et al. (2016)6have reported that nasal polyposis has a significant negative impact on patients' quality of life, supporting our results.

Regarding our second hypothesis - **"nasal polyposis may positively influence the quality of life of affected individuals"**— it is rejected based on our findings and on studies conducted by other researchers.

General Conclusion:

This study, entitled *Quality of Life in Individuals with Nasal Polyposis*, aims to evaluate and understand the quality of life of individuals suffering from this "invisible" condition, which is often underestimated or misunderstood by those around them.

Nasal polyposis poses a complex challenge that affects physical, mental, and emotional health, thereby impairing quality of life and generating chronic fatigue due to physical symptoms (sleep deprivation, persistent nasal congestion) and psychological symptoms (anxiety and depression).

It is essential to recognize the profound impact of nasal polyposis on daily life and to implement personalized strategies to improve patients' quality of life. This involves not only effective treatment of physical symptoms but also psychological support to address the emotional aspects of the disease.

Our internship was conducted at Frantz Fanon Hospital, specifically in the ENT department, where we selected a study population consisting of five individuals aged between 21 and 43 years, of both sexes.

Accordingly, we adopted a clinical case-study method to examine the research group in depth and delineate the topic. This method enabled the collection of detailed, contextual data about participants' individual experiences and the understanding of inter-individual variability. We then used a semi-structured clinical interview and the MOS SF-36 quality-of-life questionnaire (11 questions, 36 items). These instruments provided qualitative data and a holistic view of the impact of nasal polyposis on participants' quality of life.

Based on analysis of the results, we found that nasal polyposis has a significant negative impact on quality of life in both physical and psychological domains. Importantly, the magnitude of impact varied across cases, confirming our first research hypothesis.

In conclusion, this research highlights the importance of comprehensive and personalized management of patients with nasal polyposis. The results contribute to improved understanding of the impact of this condition on quality of life and open perspectives for more effective therapeutic interventions. It is also crucial to provide psychological care for these patients and to raise awareness among their relatives regarding the condition in order to foster adequate social support.

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