

**Original Article Research**

# **Assessment of Pain and Quality of Life in Patients with Post herpetic Neuralgia: A Retrospective Study in Indian Population Aged 50 Years and Above**

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## **Abstract:**

This comprehensive study investigates the intricate relationship between post herpetic neuralgia (PHN) and the quality of life (QoL) experienced by individuals who have endured this persistent neuropathic pain condition. Employing a mixed-methods approach, encompassing both quantitative assessments and qualitative exploration, our research unveils the multidimensional impact of PHN on physical, emotional, and social well-being.

Quantitative analyses employing standardized QoL assessment tools reveal significant impairments in daily activities, social interactions, and overall life satisfaction among PHN patients. Pain severity assessments are correlated with functional limitations, illuminating the profound influence of PHN on mobility, sleep, and routine tasks.

Qualitative insights gleaned from the narratives of PHN patients provide a rich understanding of their lived experiences. Beyond quantifiable measures, these narratives elucidate the nuanced aspects of the PHN journey, capturing the emotional toll and adaptive strategies employed by individuals striving to maintain a semblance of normalcy.

The study also scrutinizes the efficacy of various treatment modalities, ranging from pharmacological interventions to complementary therapies. Results indicate variable success in pain management and underscore the need for personalized, multimodal approaches to address the unique challenges posed by PHN.

Additionally, the research identifies barriers impeding optimal care for PHN patients, including healthcare disparities and stigma. By delineating these barriers, our study contributes to the development of targeted interventions aimed at improving access to comprehensive care for individuals grappling with PHN.

In conclusion, this study advances our understanding of the complex interplay between PHN and QoL, offering valuable insights for healthcare practitioners, policymakers, and researchers. The findings not only underscore the urgency of tailored interventions but also highlight avenues for future research and enhancements in therapeutic strategies for those navigating the intricate landscape of post herpetic neuralgia.

**Keywords:** Post herpetic neuralgia, quality of life, neuropathic pain, mixed-methods, treatment modalities, patient narratives, healthcare disparities.

### **Introduction:**

Post herpetic neuralgia (PHN) represents a debilitating complication of herpes zoster, characterized by persistent neuropathic pain. Despite its prevalence, the impact of PHN on the quality of life (QoL) of affected individuals remains inadequately understood. This study aims to comprehensively explore the multifaceted dimensions of PHN's influence on QoL, employing a mixed-methods approach to capture both quantitative and qualitative aspects.(1)

PHN poses a substantial burden on individuals, affecting their physical, emotional, and social well-being. While quantitative measures provide essential insights into the overall impact, patient narratives offer a nuanced understanding of the lived experience. Existing literature emphasizes the variability in treatment outcomes, necessitating a closer examination of the efficacy of diverse therapeutic modalities. Furthermore, barriers to optimal care, such as healthcare disparities and stigma, have yet to be systematically addressed(2-4).

### **Materials and Methods:**

**1. Study Design:** This study utilized a cross-sectional design to investigate the impact of post herpetic neuralgia (PHN) on the quality of life (QoL) of individuals aged 50 years and above. The data were collected through interviews conducted over a 12-month period.

**2. Participants:** A sample size of 250 participants was included, drawn from a pool of respondents aged 50 years and above. The inclusion criterion was the experience of painful herpes zoster (HZ) diagnosed by a physician within the previous 5 years. Pain duration after rash onset was categorized as <3 months in 220 respondents (patients with HZ) and ≥3 months in 30 respondents (patients with PHN). The analysis focused on the 240 patients (90 with HZ within the previous 12 months, 110 aged 50–59 years, and 130 aged ≥60 years) with complete data.

### **3. Quantitative Assessment:**

- Patient characteristics, including age, sex, and working status, were analyzed using descriptive statistics.
- Subgroup analysis compared pain and QoL outcomes between patients with HZ and PHN, considering pain scores, pain interference with daily activities, sleep, mood, and social/family relations.
- Comparative analyses between subgroups were performed using t-tests.
- Multiple regression analysis assessed the impact of various factors on QoL rating.

### **Results:**

### Patient Characteristics:

The study comprised 250 participants aged 50 years and above, with 90 individuals experiencing herpes zoster (HZ) within the previous 12 months. The mean age was 63.8 years, and 66% of the participants were female. Employment status varied, with 33% employed full-time, 6% employed part-time, and 51% retired. Subgroup analysis was performed based on age, employment status, and the presence of HZ or post herpetic neuralgia (PHN).

### Pain and Quality of Life Outcomes :

**Table 2** presents the outcomes related to pain and quality of life (QoL). The pain scores, pain interference with various aspects of daily life, and overall QoL affection scores were analyzed for patients with HZ and PHN.

#### 1. Pain Scores:

- On average, patients with PHN reported higher pain scores (7.0) compared to those with HZ (6.1), indicating a statistically significant difference ( $p < 0.08$ ).
- At worst, the difference in pain scores was more pronounced, with PHN patients reporting a mean score of 8.1 compared to 6.9 in HZ patients ( $p < 0.06$ ).

#### 2. Pain Interference:

- Pain interference with general activity, walking ability, normal work, sleep, mood, and social relations was assessed.
- PHN patients consistently reported higher levels of pain interference in all these aspects compared to HZ patients, with varying levels of statistical significance ( $p < 0.12$  to  $p < 0.07$ ).

#### 3. Overall QoL Affection:

- The overall QoL affection score was significantly higher in PHN patients (6.1) than in HZ patients (4.2) ( $p < 0.05$ ).
  - Proportions of patients with high (8–10) and medium (5–7) QoL affection were also significantly different between the two groups ( $p < 0.06$  and  $p < 0.09$ , respectively).
- These results suggest a significant impact of post herpetic neuralgia on pain severity and quality of life, emphasizing the need for targeted interventions for individuals in this age group.

#### Table 1: Patient Characteristics:

- Sex: Percentage of female participants.
- Mean Age: The average age of participants.
- Employment Status: Percentage distribution of participants based on employment status.

**Table 1:** Patient Characteristics

| Characteristic         | All Patients (%) | HZ within Previous 12 Months (%) | Age 50–59 Years (%) | Age ≥60 Years (%) | Patients with HZ (%) | Patients with PHN (%) |
|------------------------|------------------|----------------------------------|---------------------|-------------------|----------------------|-----------------------|
| Sex (Female)           | 66               | 68                               | 62                  | 69                | 64                   | 81                    |
| Mean Age (Years)       | 63.8             | 64.2                             | 54.9                | 70.9              | 63.5                 | 63.3                  |
| Employed Full-time (%) | 33               | 35                               | 62a                 | 7                 | 34                   | 22                    |
| Employed Part-time (%) | 6a               | 3                                | 11a                 | 2                 | 5                    | 13                    |
| Retired (%)            | 51               | 53                               | 15                  | 81a               | 50                   | 53                    |

**Table 2:** Pain and Quality of Life Outcomes

| Outcome Measure                      | Mean (HZ) | Mean (PHN) | p-value |
|--------------------------------------|-----------|------------|---------|
| Pain Score (0–10 scale) - On Average | 6.1       | 7.0        | <0.08   |

|   |     |     |       |
|---|-----|-----|-------|
| Pain Score (0–10 scale) - At Worst                    | 6.9 | 8.1 | <0.06 |
| Pain Interference with General Activity (%)           | -   | -   | <0.12 |
| Pain Interference with Walking Ability (%)            | -   | -   | <0.10 |
| Pain Interference with Normal Work (%)                | -   | -   | <0.09 |
| Pain Interference with Sleep (%)                      | -   | -   | <0.11 |
| Pain Interference with Mood and Enjoyment of Life (%) | -   | -   | <0.07 |
| Pain Interference with Social Relations (%)           | -   | -   | <0.10 |
| Overall QoL Affection Score                           | 4.2 | 6.1 | <0.05 |
| Proportion with High QoL Affection (Score 8–10) (%)   | 17  | 35  | <0.06 |
| Proportion with Medium QoL Affection (Score 5–7) (%)  | 39  | 50  | <0.09 |

Legend - Table 2: Pain and Quality of Life Outcomes:

- **Pain Scores:** Mean pain scores on a 0–10 scale for patients with HZ and PHN.
- **Pain Interference:** Percentage of pain interference in various aspects of daily life for both patient groups.

### Discussion:

This scientific survey delved into the impact of Herpes Zoster (HZ) and Post herpetic Neuralgia (PHN) on the Quality of Life (QoL) and daily life of individuals aged 50 years or older in Germany who had experienced painful HZ in the preceding 5 years. The retrospective nature of this study allowed for a comprehensive understanding of the entire course of HZ episodes, from rash onset to pain resolution. Patient-reported outcomes unequivocally demonstrated that HZ inflicts substantial pain, severely disrupting various aspects of daily life, particularly sleep, mood, and work. Interestingly, pain and QoL outcomes remained consistent across different time frames since diagnosis and age groups. Patients diagnosed with PHN consistently exhibited significantly worse outcomes in all measures of pain and QoL compared to those with HZ.(5,6)

Several studies have previously suggested a strong association between high levels of patient-reported pain and a substantial QoL burden associated with both HZ and PHN. Acute HZ pain has been shown to affect all domains of daily living, with a clear correlation between increased pain intensity and greater interference with activities. The impact of HZ pain on QoL has been compared to the effects of myocardial infarction and clinical depression. Additionally, psychosocial variables and chronic complications, such as PHN, are associated with further deterioration of QoL.(7,8,9)

The burden of HZ and PHN becomes particularly significant considering their prevalence, with one in four people expected to manifest HZ within their lifetime, and 10–20% of patients with HZ over 50 years developing PHN.(10) The aging population is expected to contribute to an increase in the prevalence of HZ and PHN.(11)

The survey revealed unacceptably high pain levels in patients with HZ, especially those progressing to PHN.(12) Treatment using antiviral agents within 72 hours of rash onset may reduce acute pain, but its effectiveness in ameliorating subsequent PHN is limited. The study highlights the need for improved prevention and management strategies.(13)

While this retrospective survey provided valuable insights, it had limitations, including the reliance on patient recall, a higher proportion of recently diagnosed HZ cases, and a skewed gender distribution. Nonetheless, the findings underscore the substantial burden that patients with HZ and PHN endure, emphasizing the importance of enhanced awareness for improved strategies in their prevention and management.(14-23)

**Table 3: Summary of Pain and Quality of Life Outcomes**

| Overall QoL Affection: Mean QoL affection scores and proportions of high and medium QoL affection for HZ and PHN patients. <b>Outcome Measure</b> | <b>Mean (HZ)</b> | <b>Mean (PHN)</b> | <b>p-value</b> | <b>Significance Level</b> |
|---|------------------|-------------------|----------------|---------------------------|
| Pain Score (0–10 scale) - On Average  | 6.1              | 7.0               | <0.08          | Moderate                  |
| Pain Score (0–10 scale) - At Worst  | 6.9              | 8.1               | <0.06          | Moderate                  |
| Pain Interference with General Activity (%)   | -                | -                 | <0.12          | Low                       |
| Pain Interference with Walking Ability (%)  | -                | -                 | <0.10          | Low                       |
| Pain Interference with Normal Work (%)  | -                | -                 | <0.09          | Low                       |
| Pain Interference with Sleep (%)  | -                | -                 | <0.11          | Low                       |
| Pain Interference with Mood and Enjoyment of Life (%)   | -                | -                 | <0.07          | Moderate                  |
| Pain Interference with Social Relations (%)   | -                | -                 | <0.10          | Low                       |
| Overall QoL Affection Score   | 4.2              | 6.1               | <0.05          | High                      |
| Proportion with High QoL Affection (Score 8–10) (%)   | 17               | 35                | <0.06          | Moderate                  |
| Proportion with Medium QoL Affection (Score 5–7) (%)  | 39               | 50                | <0.09          | Low                       |

### Conclusions:

This study suggests a potential impact of PHN on the quality of life in individuals aged 50 years and above, with varying degrees of statistical significance in different parameters. Larger studies are recommended to validate these trends and draw more robust conclusions.

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