Abstract

Background: Chronic kidney disease (CKD) affects nearly 10% of the global population, with many patients progressing to end-stage renal disease (ESRD). Hemodialysis (HD), the most common renal replacement therapy, imposes physical, psychological, social, and environmental burdens. In Libya, these challenges are intensified by limited healthcare infrastructure, highlighting the need to evaluate the quality of life (QoL) of HD patients using validated tools.

Objectives: To assess the QoL of HD patients in Benghazi using the WHOQOL-BREF, identify demographic, clinical, and socioeconomic predictors, and propose targeted strategies for improving patient outcomes.

Methods: A cross-sectional study was conducted among 204 adult HD patients in Benghazi, recruited from Al Hawari Specialized Hospital and Benghazi Medical Center. Data were collected using the WHOQOL-BREF and a structured demographic/clinical questionnaire. Statistical analysis included descriptive statistics, t-tests, ANOVA, Pearson correlation, and multiple regression. Significance was set at $p < 0.05$.

Results: The Physical Health domain had the lowest mean score ($M = 41.04$), and the Social Relationships domain was the highest ($M = 68.67$). Kt/V was the strongest predictor of both Physical ($\beta = 16.03$, $p < 0.001$) and psychological domains ($\beta = 18.58$, $p < 0.001$). Psychological QoL was also influenced by hemoglobin ($\beta = -1.92$, $p < 0.001$), calcium ($\beta = 1.02$, $p = 0.004$), and PTH ($\beta = 0.007$, $p = 0.014$). Gender was significantly associated with the Environment domain ($p = 0.038$), with females scoring higher. Employment status showed no significant effect on any domain. Social and Environmental domains showed weak correlations with clinical biomarkers, suggesting influence from external cultural or systemic factors.

Conclusion: Dialysis adequacy, mineral metabolism, and psychosocial factors significantly affect QoL among HD patients. Interventions should prioritize optimizing dialysis, managing anemia and bone-mineral disorders, and incorporating structured psychological and social support, particularly within Libya's community-based context.

Keywords: Quality of life, Hemodialysis, WHOQOL-BREF, ESRD, Libya, Kt/V, Anemia, Biomarkers**.**