



## QUALITY OF LIFE AND MULTIMORBIDITY: A CHALLENGE FACING REHABILITATION AND WORKING CAPACITY AFTER TOTAL HIP REPLACEMENT

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### ABSTRACT:

**Introduction:** Pathological changes in the musculoskeletal system, including the hip joint, are often the prime cause of multimorbidity and significant disability. Individual-oriented physiotherapy, compatible with the concomitant diseases, promotes quality of life and restoration of working capacity.

**Purpose:** to evaluate the quality of life after an individualised rehabilitation program in patients with total hip replacement.

**Methods:** The subjects of the study are 72 multimorbid patients with total hip replacement who visited the Clinic for Physical and Rehabilitation Medicine at UMHAT “St. Marina”, located in Estreya Residence, Varna, Bulgaria, from 2021 until 2022; *research methods:* sociological (administrative questionnaire, WHOQOL BREF), functional, and statistical methods; *methods of influence:* individualised rehabilitation program.

**Results:** All multimorbid respondents suffer from coxarthrosis and concomitant chronic diseases, including cancer (1,4%). The overall self-assessment of quality of life increased by 15,39 points after the individual rehabilitation program. The average values in the domain “Physical health” increased by 7,125 points, in the domain “Psychological” - by 3,542 points, and in the domains “Social relationships” and “Environment”—by 0,417 and 4,306 points, respectively ( $p < 0.05$ ).

**Conclusions:** An individualised rehabilitation program assists in the recovery despite the restrictions associated with concomitant diseases. The results correspond with the strategy for the optimisation of national and public financial expenses for working capacity restoration. After the individual rehabilitation program was conducted, the overall self-assessment of quality of life improved. A positive dynamic is observed in all domains, mainly at the expense of “Physical health” and “Environment.”

**Keywords:** quality of life, disability, rehabilitation, hip replacement,

### INTRODUCTION

Total hip replacement (THR) is one of the greatest achievements in modern orthopaedics and is developing at a rapid pace, in response to increasing life expectancy and the need for complex health care with a view not only to restoring joint congruence, the function of the hip joint, but also the overall functioning of the individual in society [1]. The possibilities of surgery are revealed both in conventional and in custom prosthetics, with the respective advantages and disadvantages, which determine the individual approach in the choice of method and subsequent rehabilitation program, in achievement of the main goal - return to the usual way of life and functioning in everyday life and the social environment [2]. Rehabilitation resources and social adaptation are provided within the framework of financing from the state budget and a temporary decision of the Territory Expert Medical Commission [3, 4]. The awareness of the community about the benefits of early rehabilitation after THR, conducted in inpatient conditions, is insufficient. These circumstances, prolonging the patient’s recovery path, are serious barriers to the effectiveness of rehabilitation. Individualisation of the rehabilitation program contributes not only to the complete recovery of the patient after THR, but also helps to make it happen in the shortest possible time, the most important sign of which is the change in the general quality of life [5]. Self-report tools for Quality of Life (QOL) assessment are presented in generally accepted models for monitoring the results of the implemented specific rehabilitation program after THR in patients with comorbidity [6, 7].

## PURPOSE:

To evaluate the quality of life after a personalized rehabilitation program in patients with total hip replacement and multimorbidity.

## METHODS:

The study is part of a dissertation and was conducted after approval from the Research Ethics Committee at the MU - Varna with Protocol/Decision No. 103/27.07.2021. All participants are familiar with the procedures and have signed an informed consent form. The subjects are 72 multimorbid patients with total hip replacement who visited the Clinic for Physical and Rehabilitation Medicine at UMHAT "St. Marina", located in Estreya Residence, Varna, Bulgaria, from 2021 until 2022; *research methods*: sociological (administrative questionnaire, WHOQOL BREF), functional, and statistical methods; *methods of influence*: individual rehabilitation program, implemented in 7 consecutive days.

## RESULTS AND DISCUSSION

All of the respondents suffer from concomitant chronic diseases, including cancer. 33,3% of the patients are disabled - 8,3% of which have severe (over 90% without external assistance) and moderate disability (from 71-90%), and 16,7% have mild disability. More than half of the respondents (61,4%) are employed. The largest share of patients admitted to inpatient rehabilitation was within the 2-nd month after surgery (moderately protective phase) - 83.3 The overall self-assessment of quality of life increased by 15,39 points after the individual rehabilitation program. The average values in the domain "Physical health" increased by 7,125 points, in the domain "Psychological" - by 3,542 points, and in the domains "Social relationships" and "Environment" - by 0.417 and 4,306 points, respectively ( $p < 0.05$ ) (Table 1):

**Table 1.** Overall QoL and QoL by domains.

Overall QoL_admission	47,17			
Overall QoL_discharge	62,57			
<b>QoL domains</b>	<b>Mean</b>	<b>N</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
Physical_admission	8,21	72	2,589	,305
Physical_discharge	15,33	72	2,833	,334
Psychological_admission	10,00	72	3,117	,367
Psychological_discharge	13,54	72	2,621	,309
Social relationships_admission	8,54	72	2,136	,252
Social relationships_discharge	8,96	72	1,996	,235
Environment_admission	20,42	72	3,964	,467
Environment_discharge	24,72	72	3,358	,396

The rehabilitation program, developed by the Physical medicine and rehabilitation (PRM) specialist at the Rehabilitation Department, is aligned with the patient's rehabilitation phase and functional capacity. Combining both kinesiotherapy and physical modalities, even in the earliest stages before suture removal, referring to clinical experience and literature data, relies on their synergistic effect in the direction of overcoming pain, swelling, accelerating the healing of the surgical wound and reducing the risk of complications according to data from other researchers. The individualised rehabilitation program is in accordance with the principles of the patient-oriented approach and in-

cludes the selection and combination of means adapted to the needs of patients with multimorbidity [8, 9]. The average value of "physical domain" at admission is 8.21, and that of patients at discharge -15.33. A moderate positive correlation (0.495) was reported between the physical domain at admission and the physical domain at discharge. The correlation is statistically significant ( $p=0.000 < 0.05$ ). The average value of "Psychological area" at admission is 10.00, and that of the patients at discharge 13.54. A strong positive correlation (0.733) was reported between the Psychological Domains at Admission and the Psychological Domains at Discharge indicators. The cor-

relation is statistically significant ( $p=0.000<0.05$ ). The average value of “Social relationships” at admission was 8.54, and that of patients at discharge 8.96. A strong positive correlation (0.858) was reported between Social relationships on Admission and Social relationships on discharge. The correlation is statistically significant ( $p=0.000<0.05$ ). The average value of “Environment” on admission is 20.42, and that of patients on discharge 24.72. A strong positive correlation (0.772) was reported between the ‘Environment on Admission’ and ‘Environment on Discharge’ indicators. The correlation is statistically significant ( $p=0.000<0.05$ ).

## CONCLUSION

Most multimorbid respondents in this study are employed individuals with reduced quality of life. An individualised rehabilitation program assists in recovery despite the restrictions associated with concomitant diseases. The results correspond with optimising national and public financial expenses for working capacity restoration. At the heart of this approach is the optimal use of rehabilitation resources, with the primary goal of satisfying patients personal needs and improving their quality of life.

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