



19th International Conference on Advanced
Computational Engineering and Experimenting
29 JUNE – 3 JULY 2026 | RHODES, GREECE

ABSTRACT:

Wheelchair Users' Satisfaction After Provision Using the WHO 8-Step Guidelines. A Pilot Study

Ivett Quiñones-Uriostegui¹, Aldo Alessi-Montero¹, Virginia Bueyes-Roiz¹, Lidia Nuñez-Carrera¹,
Ana Moreno-Hernández^{*2}, Jimena Quinzaños-Fresnedo³, Gerardo Rodríguez-Reyes⁴

*Corresponding author

¹Rehabilitation Engineering and Human Motion Analysis Laboratory, National Institute of Rehabilitation
Luis Guillermo Ibarra Ibarra, Mexico City, Mexico.

²Biomedical Engineering, Science and Engineering Department, Universidad Iberoamericana Puebla,
Unidad Territorial Atlixcáyotl, San Andrés Cholula, Puebla, México

³Neurologic Rehabilitation Division, National Institute of Rehabilitation Luis Guillermo Ibarra Ibarra,
Mexico City, Mexico

⁴Orthotics and Prosthetics Laboratory, National Institute of Rehabilitation Luis Guillermo Ibarra Ibarra,
Mexico City, Mexico

Email: ana.moreno.hernandez@iberopuebla.mx

Background: Wheelchairs are vital for the successful rehabilitation and inclusion of people with mobility disabilities; 10% of the population with disabilities needs a wheelchair, but only 15% have access to an adequate one. Not user-configured wheelchairs may lead to postural deformities and pressure ulcers, thus negatively impact user satisfaction, wheelchair skills, and quality of life.

Objective: To assess the impact of the 8-step “Guidelines on the provision of manual wheelchairs in less resourced settings” from the World Health Organization (WHO) on user satisfaction, wheelchair skills, and quality of life of Mexican manual wheelchair users.

Methods: 12 wheelchair users with spinal cord injury that received rehabilitation were recruited. Volunteers were provided with a wheelchair and cushion following the WHO 8-step guidelines. Assessment of QUEST, WHOQOL-Bref, and WST-Q were performed at the beginning of the study and 12 months later.

Results: Significant improvement was observed in terms of satisfaction (QUEST; $P = 0.009$) after receiving the wheelchair and the foam cushion (QUEST; $P = 0.004$). WHOQoI-Bref did not denote significant differences. For the dimensions assessed by the WST-Q scores, a significant 10.9% improvement was observed in both capacity ($P = 0.022$) and performance ($P = 0.009$).

Conclusions: The application of the WHO 8-step guidelines for wheelchair provision may contribute to increasing user satisfaction regarding the wheelchair and cushion devices as well as the prescription

process as determined by the QUEST. According to WST-Q, functional capacity and mobility may also be improved by following the 8-step guidelines.

Keywords: Wheelchair prescription, Quality of Life, WHO 8-step guidelines for wheelchair provision, QUEST, User satisfaction.