

Benefits of electric buses on the quality of life of public transport drivers

MARCH 2023

Author: Joselyn Delgado Miranda

In Mexico, more than **180,000** people¹ work as drivers in urban, suburban, or fixed route collective transport.

Drivers

94% Men

6% Women



Working conditions and risks for bus drivers

Physical discomfort

Due to the time spent sitting and the repetitive movements they make, **73% of drivers have high musculoskeletal discomfort with a high intensity in the neck and 67% have discomfort in the lumbar region, hips and thighs.** These problems are exacerbated in mechanically-driven buses.

Stress levels

The drivers' working conditions translate into high stress levels, which can manifest as increasing levels of hostility, impatience, and trouble in falling asleep. In addition to diminishing the quality of life, it also affects the efficiency in driving and, therefore, the service they offer.

Risks

Associated with the environment: Risk of suffering accidents, as well as exposure to violent events.

Associated with the work itself: Perform repetitive tasks for a large amount of time, as well as working under irregular and precarious conditions.

Long working hours

A driver can experience between 8 to 12 hours seated while driving.

Often, working hours do not include meals or rest time.

Hearing loss

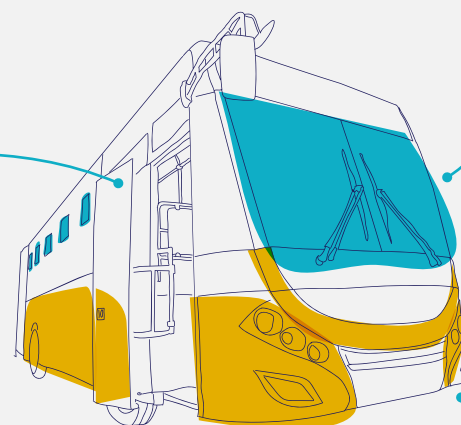
Drivers are constantly exposed to **high levels of noise pollution** caused by bus engines and motorists' horns. In addition to the discomfort and stress that this causes, there is a high risk of hearing loss².

Electric bus equipment that improves the driving experience for drivers

Equipment that provides greater safety

Automatic closing door system

"There is a certain amount of time where the doors will open and close to ensure no one falls from the vehicle. Other, older vehicles can have delayed open times or make it difficult to see people boarding."



System for defogging windows

"There is also a system to defog glass, you no longer need a cloth to wipe it."

Assisted steering

"It's very, very smooth to drive them, the steering [...]: It's like a car, an automatic one, or like driving a very comfortable van"

Equipment that provides greater comfort

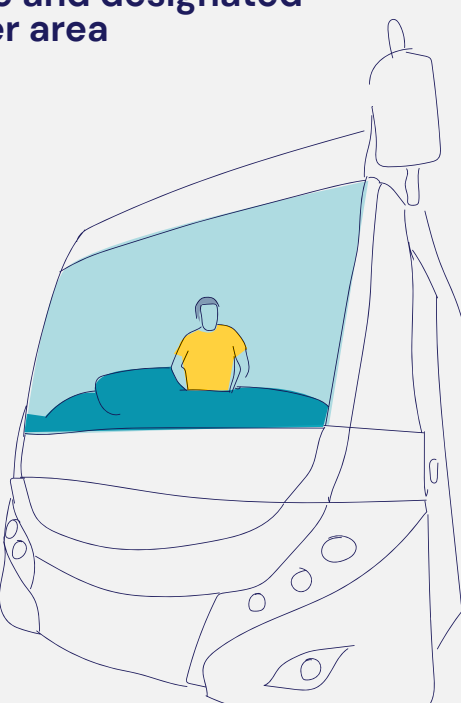
Front and side visors

Large and designated driver area

Adjustable seating (ergonomic)

"The comfort of being in an electric bus is very, overwhelming, very different from what a bus is"

"More than anything, the greatest benefit as a driver is the comfort of being able to use the front or side visors when the sun is bright, and the air conditioner that in reality is never an option, just the fan blowing hot air."



Air conditioning

Insufficient ventilation can cause poor mood and tiredness in users and drivers. The average temperature of the Guadalajara Metropolitan Area (AMG) is 20.3°C and in summer can reach 40°C.

Users and riders will wait for the electric bus because they are the only buses that have air conditioning in AMG. The journey becomes more comfortable for both drivers and users.

"On other routes you would bring a car fan and connect it to the vehicle so you could get some air. Simply because it's electric you you can be cooled and from there your driving can change because on other routes the heat would be stressful. Not here, here you are cooled."

Why are seats important?

Common discomfort with other seats:



Benefits of ergonomic seats:

Eye fatigue

Headache

Degeneration of the spinal discs

Deteriorating spinal health

Stiffness in the neck

Flank pain

Lower back pain

Foot cramps



Posture alignment

Reduces neck pain

Reduces back pain

Relieves hip pressure

Comfort and stress reduction

Conclusion

The perceived benefits of driving an electric bus for drivers can contribute to improving their **quality of life by reducing stress levels and daily physical discomfort caused by driving⁴.**

References

1. INEGI (2019), Censos económicos
2. Aquino, Jael Maria de, Gomes de Medeiros, Sílvia Elizabeth, Mata Ribeiro Gomes, Betânia da, Batista Ferreira e Pereira, Emanuela, Brandão Neto, Waldemar, & Gomes Terra, Marlene. (2017). Condiciones de trabajo en conductores de autobús: de servicio público a fuente de riesgo. Index de Enfermería, 26(1-2), 34-38. Recuperado en 03 de marzo de 2023, de http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1132-12962017000100008&Ing=es&tlng=es
3. Mendinueta-Martínez, M., Herazo-Beltrán, Y., Rebollo-Cobos, R., & Polo-Gallardo, R. (2017). Diferencias en el riesgo postural y en la percepción de molestias músculoesqueléticas en conductores de autobuses de transporte urbano con transmisión mecánica o automática. Archivos Venezolanos de Farmacología y Terapéutica, 36(6), 174-178
4. The benefits presented are elaborated from experiences shared by the drivers themselves and although they constitute exploratory results they can serve as a basis for developing specific studies that allow analyzing the effects of electric buses on the physical and mental health of public transport drivers.
5. Note: This infographic is derived from the collection of information that was carried out for the analysis of *Inclusión laboral femenina en el transporte público. Estudio de caso del Programa "Mujeres Conductoras" en Jalisco, México* (Women's inclusion in the public transportation labor force. Case study the "Mujeres Conductoras Program in Jalisco, Mexico).