

Investigating the role of wrist-worn technology in telemonitoring Parkinson's disease in daily life: a literature review

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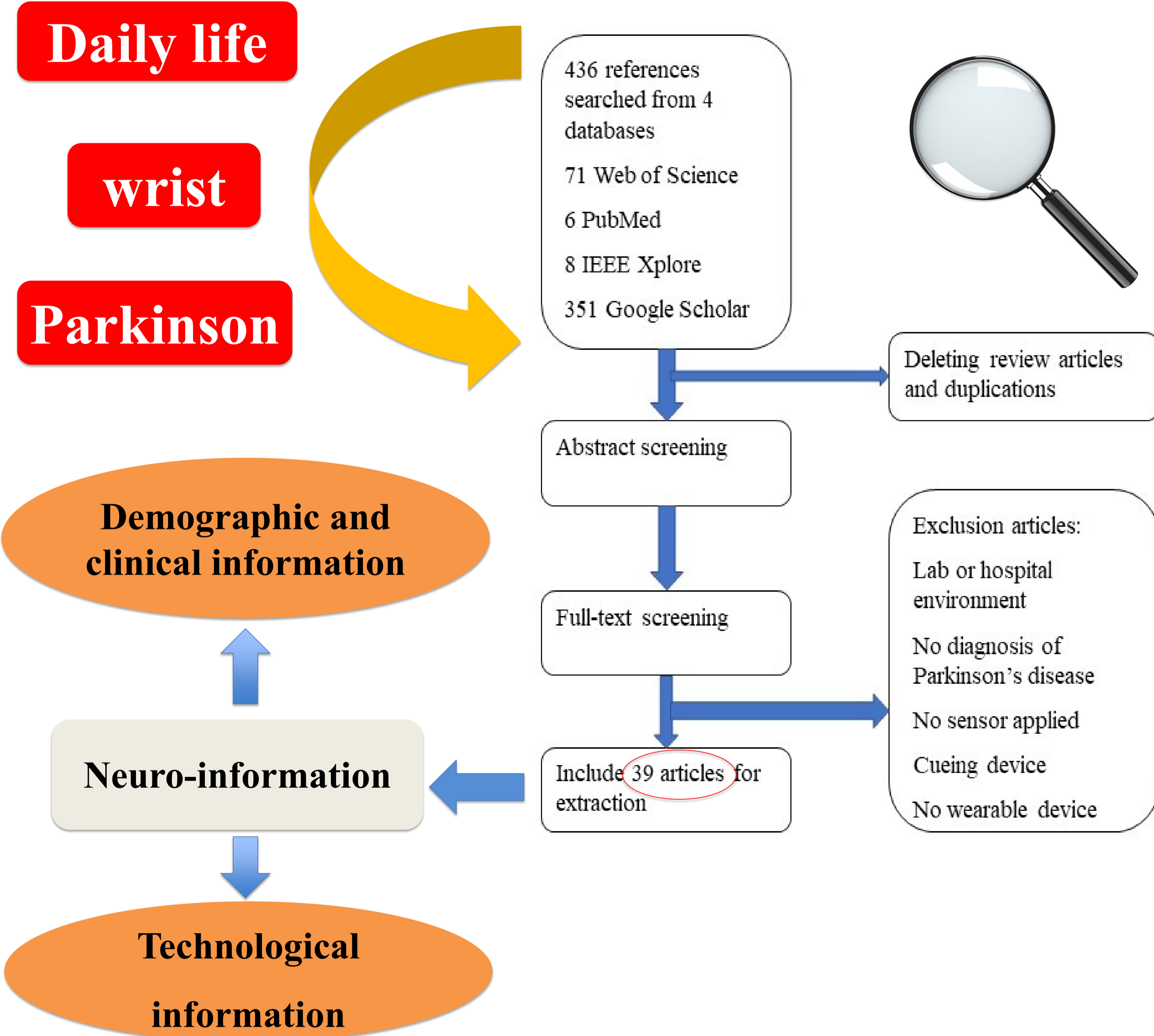
Background

- The slow and heterogeneous progression of Parkinson's disease (PD) over time makes timely diagnosis challenging.
- Wrist-worn digital devices, particularly smartwatches, are currently the most popular tools in the PD research field due to their convenience for long-term daily life monitoring.

Research Gap

While wrist-worn sensing devices have garnered significant interest, their value for clinical practice is still unclear.

Methodology



Conclusion and outlook

- The potential of commercial wrist-worn technologies in daily living: **personalized care management** by contributing to early detection, monitoring and tracking progression of both motor and non-motor symptoms of PD patients.
- As wearable healthcare sensors continue to advance, the **unmet needs for non-motor** symptom monitoring of PD patients in daily life may be addressed.

Results

- **Accelerometer**: the most commonly used sensor to measure the movement of people living with PD. (Figure 1)
- The main symptom monitoring in the daily life of PD patients: **motor** symptoms and **sleep** disorders. (Figure 2, 3)
- Few studies: **non-motor** symptoms and **progression** monitoring. (Figure 3)

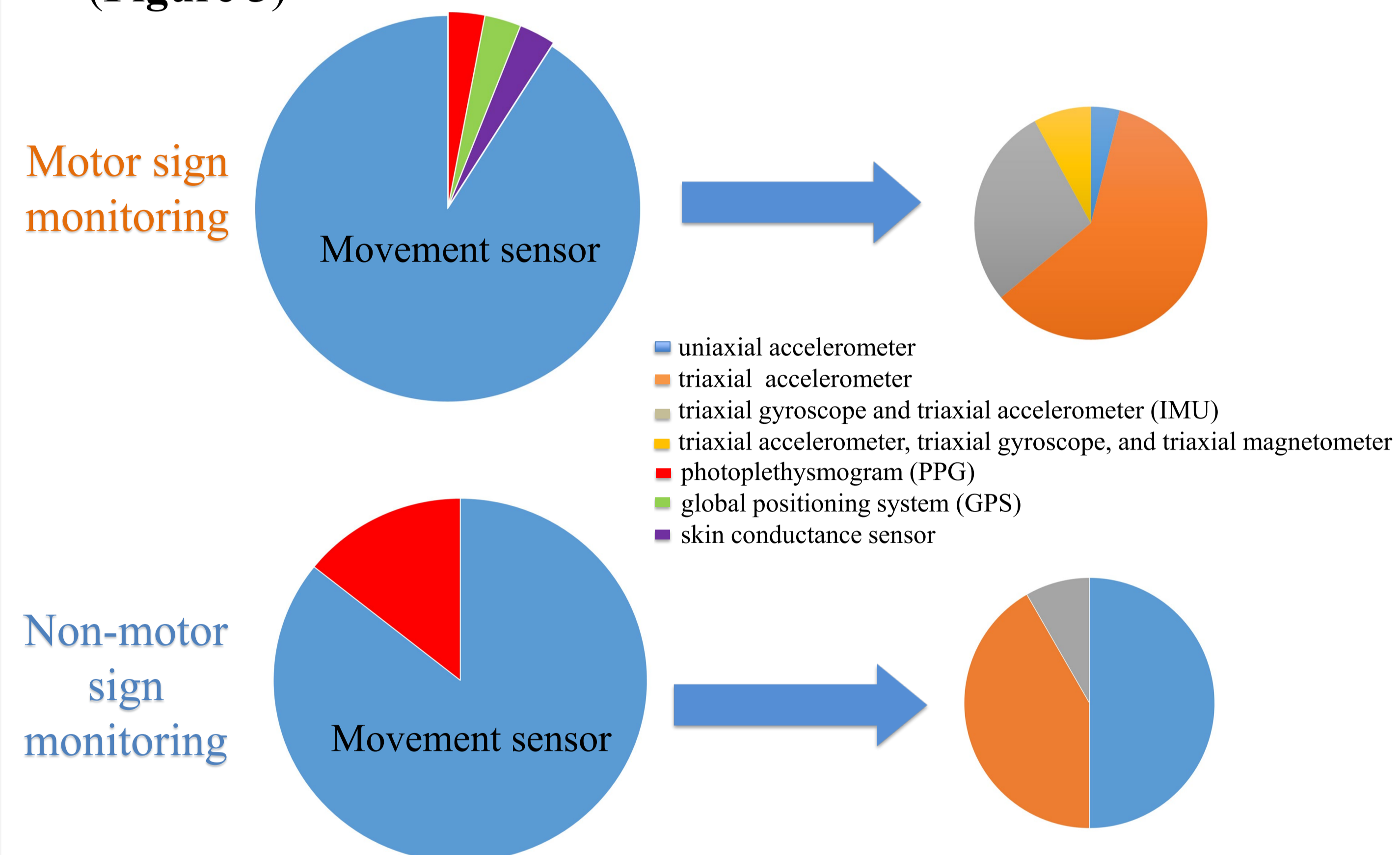


Figure 1: Pie chart showing the percentage of sensor types in PD signs monitoring devices.

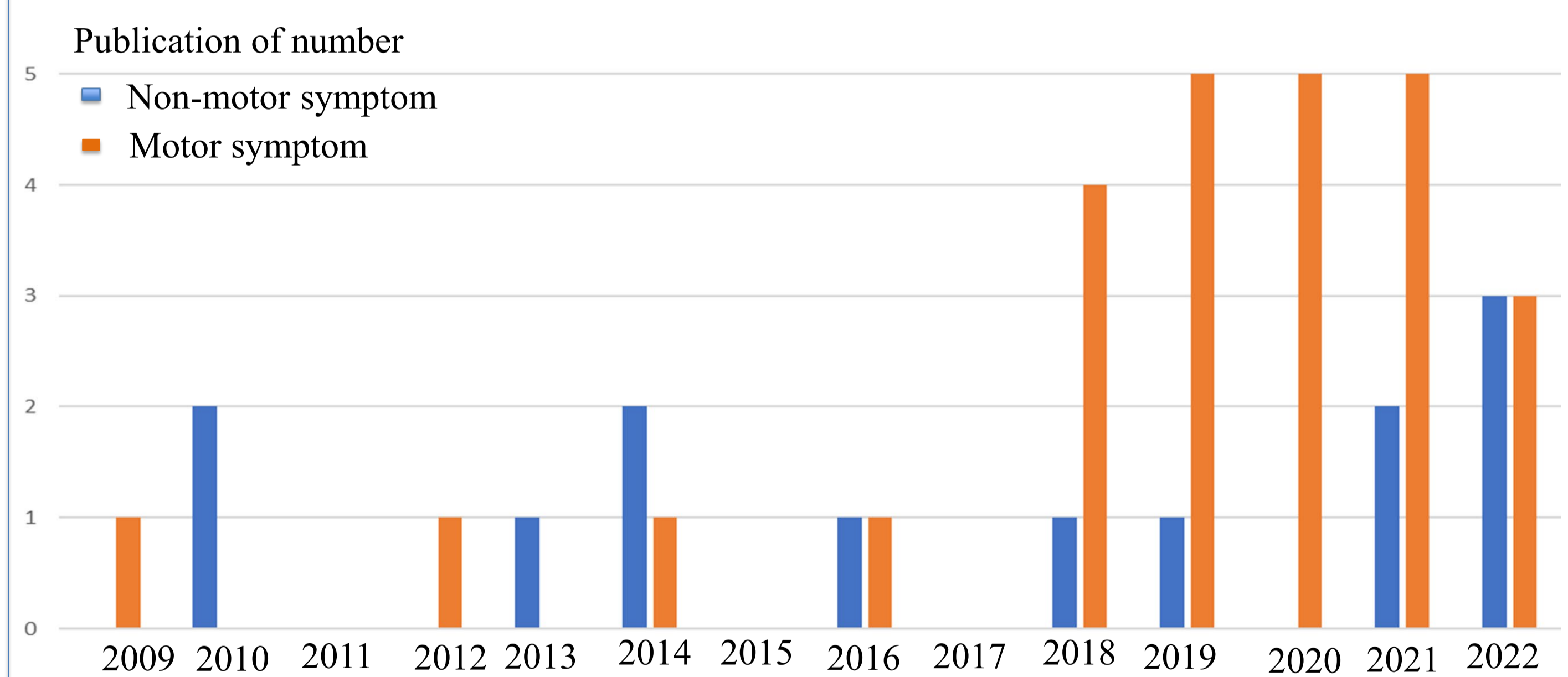


Figure 2: Number of studies using the wrist-worn wearable in the monitoring symptoms of PD over the years 2009-2022.

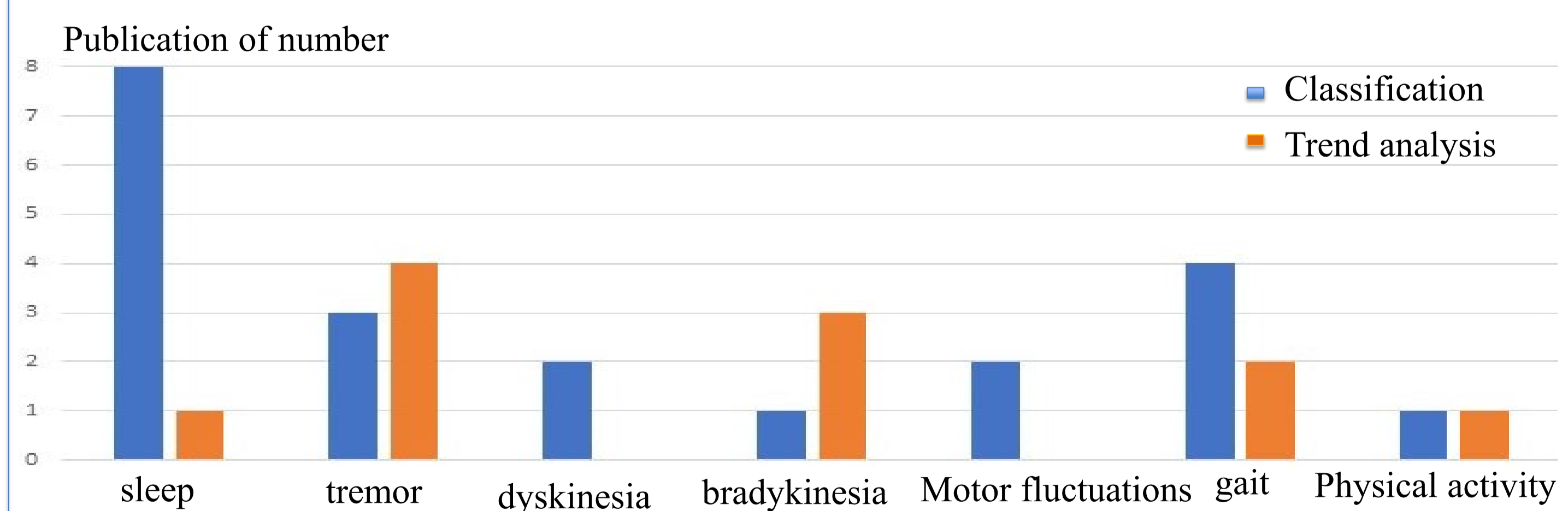


Figure 3: The technological application of wrist-worn sensors in monitoring PD patient symptoms.

Reference

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