

Nurses' Perception of an AI-Sensor Based Bed Exit Warning on a Specialized Unit for Patients with Delirium

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Background

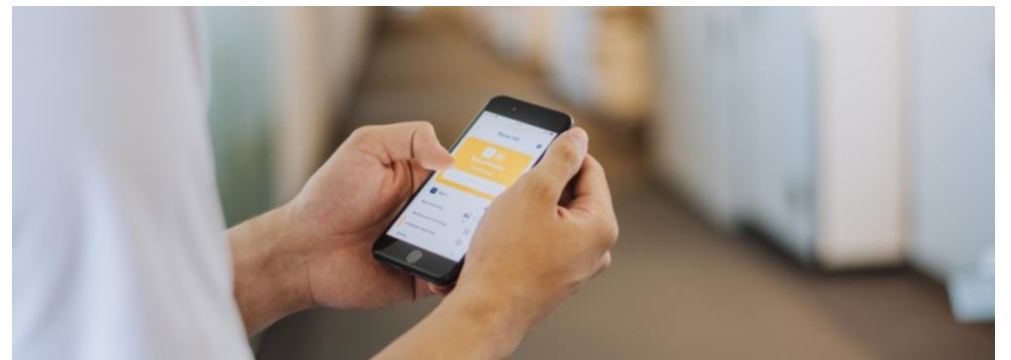
Patients with delirium are at an increased risk of falls during hospitalization, leading to potential subsequent health complications^{1,2}. Various technologies to prevent falls have been developed in previous years. Many of these have disappeared from the market again due to their poor practicability and subsequent non-acceptance by nursing staff. At the DelirUnit of the University Department of Geriatric Medicine, FELIX PLATTER, the innovative fall prevention and detection system QUMEA®³ was developed and used as standard practice over two years. Nurses are warned by QUMEA® when a patient gets up, so they can support them and prevent falls.

Aims

This project aims to evaluate the perceptions of nurses on the DelirUnit regarding their experience with the QUMEA® system.

Methods

A survey was conducted among the multidisciplinary team of the DelirUnit (N=24) to assess the usefulness, reliability, usability and privacy of the system. The questionnaire included 42 questions scored on a 4-point Likert scale, with responses rated as follows: 2 for 'very positive', 1 for 'positive', -1 for 'negative' and -2 for 'very negative'. Descriptive statistics were calculated using R Studio.

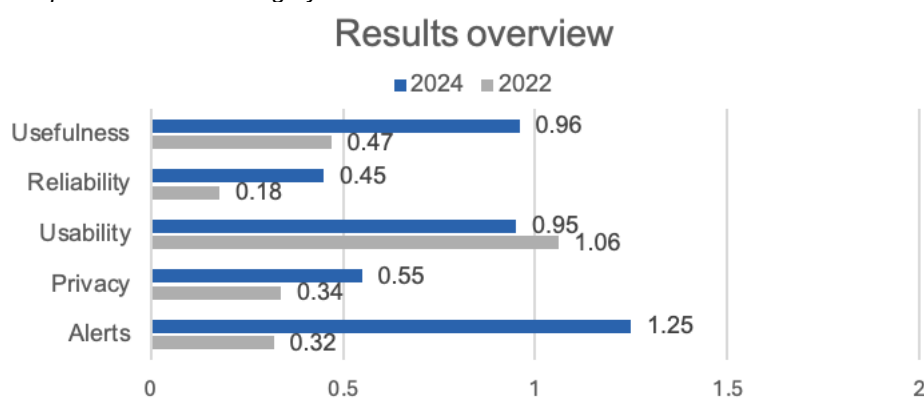


Results

42% of participants rated QUMEA® as 'very good,' and 58% rated it as 'good,' with no negative ratings reported.

The survey encompassed the following main categories: Benefits, Reliability, Usability, Privacy, and Alerts. Figure 1 provides an overview of the mean values of the categories and compares the data from 2022 and 2024. The relevant subcategories from 2024 are described below.

Figure 1:
Comparison of Main Category Mean Values in 2022 and 2024



Usefulness (overall M=0.96)

- General usefulness (M=1.09) and usefulness for patients (M=1.48) were rated very positively.
- The workload (M=0.8) has the lowest rating because it is higher due to the system.

Reliability (overall M=0.45)

- The nurses can rely on QUMEA® (M=1.0) and appreciate it.
- The false warnings are the only point rated negatively by the nurses with M=-0.21

Usability (overall M=0.95)

- The system's operation (M=1.43) and app interface (M=1.65) were rated very positively, indicating that employees quickly adapted to using QUMEA® (M=1.43).
- The training of external temporary staff received a negative rating (M=-0.3).

Privacy (overall M=0.55)

- The employees have confidence in QUMEA® and rate data protection positively with M=1.09.
- However, employees still feel partially monitored and rate this aspect only slightly positively at M=0.18.

Alerts (overall M=1.25)

- The warnings have a high priority among the employees (M=1.14) and the alarms are even higher at M=1.81.
- The alerts on the mobile phone are appreciated by the employee (M=1.44) while the alerts via call bells are clearly rejected (M=-1.05)

Conclusion

- Nurses have a positive perception of the QUMEA® system and appreciate the system in their daily work.
- The alerts on mobile phones have been rated very positively after implementation.
- There are only small concerns from employees regarding data privacy.

References

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3. QUMEA®. <https://qumea.com>