

Questionnaire Title: Nurses' Perspectives on AI-Enabled Wearable Health Technologies

Section 1: Participant Information and Assurance Letter

Dear Participant,

You are invited to participate in a research study titled "Nurses' Perspectives on AI-Enabled Wearable Health Technologies." This study is being conducted by the Department of Health Informatics at Qassim University. The purpose of this research is to understand your perceptions, experiences, and attitudes regarding the use of wearable health technologies integrated with artificial intelligence (AI) in clinical practice.

Your participation is highly valuable and important. The information you provide will contribute to a deeper understanding of how wearable devices and AI can be effectively integrated into clinical workflows, particularly for chronic disease management. This research aims to improve nursing practices, enhance patient outcomes, and support the future development of digital health strategies.

The questionnaire will take approximately 15 to 20 minutes to complete. Participation is entirely voluntary, and you are free to decline or withdraw from the study at any point without any consequences or need to provide a reason.

All data will be treated with strict confidentiality. No personal identifiers will be collected, and your responses will be used solely for academic purposes. Findings from this study may be published in scientific journals or presented at conferences; however, your identity will never be disclosed.

By proceeding with this questionnaire, you provide your informed consent to participate in this study.

Thank you for your time and valuable contribution to this research.

Sincerely,
Dr. Haitham Alzghaibi
Department of Health Informatics,
Qassim University
Mobile. 0555992566

Section 2: Demographic Information

1. Age:

- 18–25
- 26–35
- 36–45
- 46–55
- 56+

2. Gender:

- Male
- Female

3. Highest educational qualification:

- Diploma
- Bachelor's Degree
- Master's Degree
- Doctorate

4. Current workplace:

- Hospital
- Primary Care Center
- Home Healthcare
- Private Clinic
- Academic Institution

5. Work role:

- Registered Nurse (RN)
- Nurse Practitioner (NP)
- Clinical Nurse Specialist
- Nursing Educator

6. Department:

- ICU
- Cardiology
- Emergency
- General Medicine
- Surgery
- Pediatrics

7. Work shift:

- Day Shift
- Night Shift
- Rotating Shifts

8. Hospital Name:

- King Abdulaziz Hospital
 - King Khalid Hospital
 - Qassim University Hospital
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Section 3: General Awareness and Use of Wearables

9. Have you ever used a wearable health device?

- Yes
- No

10. Are wearable devices integrated into your hospital/clinical setting?

- Yes
- No

11. Have you worked with patients using wearable health devices?

- Yes
- No

12. How often do you recommend wearable devices to patients?

- Never
- Rarely
- Sometimes
- Often
- Always

13. How comfortable are you using digital health technologies?

- Very Uncomfortable
- Uncomfortable
- Neutral
- Comfortable
- Very Comfortable

14. What is the most common patient age group you observe using wearable devices?

- Pediatrics
- Young Adults
- Middle-aged Adults

- Elderly

15. In your experience, which types of wearable technologies are most commonly used by patients? (Select all that apply)

- Smartwatches (e.g., Apple Watch, Galaxy Watch)
- Fitness Trackers (e.g., Fitbit)
- Blood Pressure Monitors
- Glucose Monitors
- Smart Rings
- ECG Monitors
- Smart Clothing
- Other: _____

16. What are the main purposes for which patients use wearable devices? (Select all that apply)

- Activity Tracking
- Chronic Disease Monitoring
- Sleep Monitoring
- Remote Consultations
- Medication Reminders
- Emergency Alerts
- General Health Awareness
- Other: _____

17. What benefits have you observed in using wearable devices for chronic disease management? (Select all that apply)

- Reduced hospital visits
- Improved medication adherence
- Enhanced patient-provider communication
- Increased patient engagement
- Reduced workload
- Early detection
- More comprehensive patient data
- Better tracking of vital signs

18. What challenges have you encountered when integrating wearable data into clinical practice? (Select all that apply)

- Lack of guidelines
- Patients misinterpret data
- Lack of EHR integration
- Accuracy concerns
- Time constraints
- Inconsistent patient use
- Increased patient anxiety

19. How do you support patients in using wearable devices for chronic disease management? (Select all that apply)

- Provide training
- Do not encourage device use
- Educate patients
- Monitor wearable data
- Discuss data during consultations
- Recommend devices

20. What improvements would you recommend to enhance the usefulness of wearable devices? (Select all that apply)

- Standardized guidelines
- User-friendly interfaces
- More training for healthcare professionals
- Better EHR integration
- Customizable alerts
- Improved accuracy

21. What are your perceptions of using AI in analysing wearable data? (Select all that apply)

- Concern about AI replacing human decisions
- AI reduces workload
- AI-generated alerts help
- AI detects early signs
- AI improves data interpretation
- AI must be supervised

22. What challenges do you perceive in integrating AI for wearable data analysis? (Select all that apply)

- AI bias concerns
 - Limited training
 - Ethical concerns
 - Integration difficulties
 - Healthcare professional resistance
 - Lack of trust in AI
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Section 4: Perceptions of AI-Enabled Wearable Devices

	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	AI-powered tools can reduce the workload of physicians.	☐	☐	☐	☐	☐
2	Wearables integrated with AI can improve personalised care for chronic disease patients.	☐	☐	☐	☐	☐
3	AI-driven analysis of wearable data can help prevent disease-related complications.	☐	☐	☐	☐	☐
4	I would trust an AI system to provide recommendations based on patients' wearable health data.	☐	☐	☐	☐	☐
5	Integration of wearable device data with AI can make remote consultations more effective.	☐	☐	☐	☐	☐
6	AI-powered tools can make sense of large volumes of wearable device data better than human providers.	☐	☐	☐	☐	☐
7	AI-driven interpretations of wearable data must be supervised by healthcare professionals.	☐	☐	☐	☐	☐
8	I am concerned that AI use could lead to a loss of human touch in patient care.	☐	☐	☐	☐	☐
9	AI-powered tools are helpful in nursing care.	☐	☐	☐	☐	☐
10	Wearable devices can replace some healthcare visits.	☐	☐	☐	☐	☐
11	The accuracy of wearable data is a concern in decision-making.	☐	☐	☐	☐	☐
12	There is a lack of clear guidelines on how to use wearable device data.	☐	☐	☐	☐	☐
13	Patients often misinterpret the data from their wearables.	☐	☐	☐	☐	☐

14	Patients do not consistently use wearable devices.	☐	☐	☐	☐	☐
15	Integrating wearable device data into EHR systems is difficult.	☐	☐	☐	☐	☐
16	Patients frequently ask for clinical interpretation of wearable data.	☐	☐	☐	☐	☐
17	Wearable device notifications may cause patient anxiety.	☐	☐	☐	☐	☐
18	Patients may over-rely on wearable data without seeking medical advice.	☐	☐	☐	☐	☐
19	Wearables help in remote patient monitoring and telehealth interventions.	☐	☐	☐	☐	☐
20	Data from wearables assists in clinical decision-making.	☐	☐	☐	☐	☐
21	Wearables improve patient medication adherence.	☐	☐	☐	☐	☐
22	Wearables contribute to fewer unplanned hospital visits.	☐	☐	☐	☐	☐
23	Wearables help manage chronic diseases.	☐	☐	☐	☐	☐
24	Patients provide more useful data during consultations when using wearables.	☐	☐	☐	☐	☐
25	Wearables improve early detection of health issues.	☐	☐	☐	☐	☐
26	My hospital/clinic should invest more in wearable technologies.	☐	☐	☐	☐	☐
27	Standardised protocols are needed for wearable device integration.	☐	☐	☐	☐	☐
28	I have received adequate training to interpret wearable data.	☐	☐	☐	☐	☐
29	Training on wearable devices should be part of nursing education.	☐	☐	☐	☐	☐
30	There is sufficient institutional support for wearable technology use.	☐	☐	☐	☐	☐
31	I feel confident using wearable data in patient care.	☐	☐	☐	☐	☐
32	My facility supports wearable use in patient monitoring.	☐	☐	☐	☐	☐

33	I encourage patients to use wearable health technologies.	☐	☐	☐	☐	☐
34	Patients using wearables report fewer health concerns due to self-monitoring.	☐	☐	☐	☐	☐
35	Wearables motivate patients to maintain a healthier lifestyle.	☐	☐	☐	☐	☐
36	Patients with wearables regularly monitor their health conditions.	☐	☐	☐	☐	☐
37	Patients often make health decisions based on wearable data.	☐	☐	☐	☐	☐
38	Patients trust the data from their wearables.	☐	☐	☐	☐	☐
39	Wearables help patients adhere to prescribed treatments.	☐	☐	☐	☐	☐
40	Patients using wearables are more engaged in managing their health.	☐	☐	☐	☐	☐
41	Patients with wearable devices have better health awareness.	☐	☐	☐	☐	☐

Section 5: Open-Ended Questions

1. In your opinion, how can AI-enabled wearable technologies improve the diagnosis and management of diseases in clinical practice?
2. What do you perceive as the main advantages and challenges of using AI and wearables to support medication adherence and prescription refill processes?
3. How do AI-enabled wearable devices influence communication between nurses, patients, and other healthcare professionals, and what is their overall impact on healthcare outcomes?