

Digital Health Tools and Technology

Learning outcome:

After completion of the unit, students should be able to describe the use of various digital health tools and technology including ethical consideration

Definition of digital health

“the body of knowledge and practice associated with the development and use of digital technologies to improve health” (*The Global Digital Health Strategy 2020-2025*)

Digital technologies in healthcare

- Internet of Things
- Advanced computing
- Big data analytics
- Artificial intelligence (including machine learning) and robotics

Guiding principles in digital health

- I. Recognition that institutionalizing digital health within national health systems requires country-level decision-making and commitment
- II. Recognition that successful digital health initiatives require an integrated strategy
- III. Promotion of the appropriate use of digital technologies for health
- IV. Recognition of the urgent need to overcome the main barriers faced by least developed countries in implementing digital health technologies

'Core concept of digital health and categorization of digital tools'

- Digital health encompasses the use of technology to enhance health and healthcare delivery.
- It includes a variety of tools such as mobile health apps, telemedicine, and wearable devices.
- Digital tools can be categorized into three main groups: health information technology, telehealth services, and personal health devices.
- These tools aim to improve patient engagement, streamline healthcare processes, and facilitate remote monitoring.
- The integration of digital health solutions is essential for advancing personalized medicine and improving health outcomes.

Digital Health Literacy in older adults

- Digital health literacy is crucial for older adults to navigate online health resources effectively.
- It encompasses the ability to find, understand, and use health information from digital platforms.
- Enhancing digital skills can improve health outcomes and promote independence among seniors.
- Barriers such as limited technology access and lack of training can hinder digital health literacy.
- Community programs and tailored interventions are essential to support older adults in developing these skills.

Factors that influence individual health literacy

- Educational background and level of formal education
- Socioeconomic status and access to resources
- Cultural beliefs and values regarding health
- Age and cognitive abilities
- Availability of health information and communication channels

Sri Lankan context: current healthcare system and digital readiness

- The healthcare system in Sri Lanka faces challenges such as resource limitations and uneven access to services across regions.
- Digital readiness in the healthcare sector is gradually improving, with increasing adoption of telemedicine and electronic health records.
- Government initiatives aim to enhance healthcare infrastructure and promote digital health solutions.
- There is a growing emphasis on training healthcare professionals in digital tools and technologies.
- Collaboration between public and private sectors is essential for advancing digital health initiatives and improving overall healthcare delivery.

Sri Lankan context: digital health facilities

- Digital health services in Sri Lanka are increasingly enhancing access to medical care.
- Telemedicine platforms are bridging the gap between patients and healthcare providers.
- Mobile health applications are promoting health awareness and self-management among users.
- Electronic health records are improving the efficiency of patient data management.
- Government initiatives are supporting the integration of technology in healthcare systems.

Common technical issues in digital health tools

- Incompatibility with various devices and operating systems, leading to accessibility issues.
- Data privacy concerns, including unauthorized access and inadequate encryption measures.
- User interface challenges, resulting in poor user experience and navigation difficulties.
- Integration problems with existing healthcare systems, hindering seamless data exchange.
- Technical glitches and software bugs that disrupt functionality and reliability.

Categorization of Digital Health Tools

- Types of Tools: Apps, Wearables, Telehealth Platforms
- Purpose: Patient Monitoring, Rehabilitation, Education
- User Engagement: Interactive Features, Feedback Mechanisms
- Integration: Compatibility with Existing Healthcare Systems

Application of Digital Health in Health care delivery

- Digital health technologies enhance patient care through telemedicine and remote monitoring.
- Electronic health records streamline data management and improve communication among healthcare providers.
- Mobile health applications empower patients to manage their health and access information easily.
- Data analytics in digital health supports personalized treatment plans and predictive healthcare.
- Integration of artificial intelligence aids in diagnostics and operational efficiency within healthcare systems.

Telemedicine in Sri Lanka

- Implementation of remote consultations through video conferencing platforms to enhance access to healthcare services.
- Use of mobile health applications for monitoring chronic diseases and facilitating patient education.
- Establishment of telepsychiatry services to provide mental health support in underserved areas.
- Integration of telemedicine in rural clinics to connect patients with specialists in urban centers.
- Deployment of health information systems to streamline patient data management and improve service delivery.

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- Video conferencing
- Audio consultations
- Tele prescriptions
- Prescriptions sent by Short Message Service

Telerehabilitation

- Telerehabilitation is increasingly being adopted in Sri Lanka to enhance access to healthcare services.
- It provides remote therapy options, allowing patients to receive treatment from the comfort of their homes.
- The approach is particularly beneficial for individuals in rural areas with limited access to specialized care.
- Telerehabilitation utilizes digital platforms for consultations, assessments, and follow-up sessions.
- This method not only improves patient engagement but also optimizes resource allocation within the healthcare system.

Mobile health applications (mHealth)

- Mobile health applications (mHealth) are increasingly utilized in Sri Lanka to enhance healthcare delivery.
- These applications facilitate remote patient monitoring and improve access to medical information.
- mHealth solutions support health education and promote healthy lifestyle choices among users.
- The integration of mHealth in Sri Lanka addresses challenges such as limited healthcare resources and geographical barriers.
- Ongoing development and adoption of mHealth technologies are crucial for advancing public health outcomes in the country.

Teletherapy and remote consultation platforms

- Teletherapy services are increasingly accessible in Sri Lanka, providing mental health support remotely.
- Remote consultation platforms facilitate connections between patients and healthcare professionals without geographical constraints.
- These services enhance convenience, allowing individuals to seek help from the comfort of their homes.
- The rise of teletherapy has been accelerated by the need for safe healthcare options during the pandemic.
- Regulatory frameworks are evolving to support the integration of telehealth into the traditional healthcare system.

Wearable devices and sensors

- The adoption of wearable devices and sensors in Sri Lanka is on the rise, driven by advancements in technology.
- These devices are increasingly utilized in healthcare for monitoring vital signs and promoting wellness.
- Wearable technology is also gaining traction in fitness and sports, encouraging healthier lifestyles among the population.
- Challenges such as affordability and infrastructure development remain critical for broader implementation.

Electronic health records (EHRs)

- Electronic health records (EHRs) are increasingly being implemented in Sri Lanka to enhance healthcare delivery.
- EHR systems aim to improve patient data management and streamline communication among healthcare providers.
- The adoption of EHRs is expected to facilitate better patient outcomes through improved access to medical histories.
- Challenges such as infrastructure limitations and training needs for healthcare professionals remain significant barriers.
- Ongoing government initiatives and partnerships are crucial for the successful integration of EHRs in the healthcare system.

AI in health care in Sri Lanka

- The integration of artificial intelligence in Sri Lanka's healthcare system is enhancing diagnostic accuracy and patient care.
- AI technologies are being utilized for predictive analytics, improving disease prevention and management strategies.
- Machine learning algorithms are streamlining administrative processes, reducing operational costs in healthcare facilities.
- Telemedicine powered by AI is expanding access to healthcare services, particularly in rural areas.
- Ongoing research and development in AI applications are fostering innovation and improving health outcomes in the country.

Virtual/augmented reality solutions

- Implementation of virtual and augmented reality technologies enhances medical training and education in Sri Lanka.
- These solutions improve patient engagement and understanding of complex medical procedures.
- Virtual reality aids in pain management and rehabilitation therapies for various conditions.
- Augmented reality assists surgeons by providing real-time data and visualizations during operations.
- The integration of these technologies promotes innovative research and development in the healthcare sector.

Unique challenges and opportunities for older adults in Sri Lanka

- Older adults in Sri Lanka face significant health care access issues, often due to limited resources and infrastructure.
- Economic challenges arise from inadequate pension systems, leading to financial insecurity among the elderly population.
- Social isolation is prevalent, as traditional family structures evolve, impacting emotional well-being.
- Opportunities for engagement exist through community programs aimed at enhancing the quality of life for seniors.
- Technological advancements present a chance for older adults to connect and access services, though digital literacy remains a barrier.

Cultural considerations for technology adoption among Sri Lankan seniors

- Understanding traditional values is crucial for encouraging technology use among Sri Lankan seniors.
- Accessibility and user-friendliness of technology must be prioritized to accommodate varying levels of digital literacy.
- Social support from family and community can significantly influence seniors' willingness to adopt new technologies.
- Cultural attitudes towards aging and technology can impact seniors' perceptions and acceptance of digital tools.
- Tailoring technology solutions to align with local customs and practices enhances engagement and usability for older adults.

Barriers for technology adoption among Sri Lankan seniors

- Limited digital literacy and unfamiliarity with technology hinder usage among older adults in Sri Lanka.
- Financial constraints restrict access to devices and internet services for seniors.
- Lack of tailored training programs fails to address the specific needs of the elderly population.
- Social isolation and reduced support from family members contribute to reluctance in adopting new technologies.
- Concerns about privacy and security deter seniors from engaging with digital platforms.

Ethical aspects for technology adoption among Sri Lankan seniors

- Consideration of privacy and data security is crucial for seniors adopting technology in Sri Lanka.
- Accessibility and usability must be prioritized to ensure that older adults can effectively engage with new technologies.
- Ethical implications of digital literacy programs should be addressed to empower seniors without causing dependency.
- The potential for social isolation due to technology use highlights the need for balanced integration of digital tools.
- Stakeholder collaboration is essential to create inclusive policies that support ethical technology adoption among the elderly.

References

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Thank you