HMI ASSIGNMENT 3

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Q. What are five human health issues for HCI to consider?

ANS:
Technological advances, coupled with advances in medicine, offer the opportunity to provide more effective and less expensive ways of fostering a healthy life, by promoting and supporting healthy behaviors, encouraging disease prevention, offering new forms of therapy, and managing chronic illness.
Improvements in image analytics, computing, large-scale databases, and cloud capabilities in combination with precision medicine, next-generation sequencing and molecular diagnostics that deepen understanding of one's unique biology, have contributed to the development of precision health.
Precision health aims to make health care more tailored to each person based on their individual differences and can eventually lead to precision aging, allowing individuals to individualize and optimize care over their lifespan.

Main Issues

1. Personal Medical Devices (PMDs) and self-tracking

Medical technologies tailored to individuals have proliferated in recent years through PMDs, "devices that are attached to, worn by, interacted with, or carried by individuals for the purposes of generating biomedical data and/or carrying out medical interventions on the person concerned".
Whether or not consumer wearable technology will be adopted and accepted by the medical community, and how this technology can best serve medicine remain unclear and will be determined by two major concerns:
(i) how health practitioners will be prepared to accommodate the increasing number of patients who will bring wearable data to their medical consultation appointments, and
(ii) the high potential for errors, when patients without medical training attempt to interpret symptoms based on data stemming from devices that may be unreliable.

PMDs do not refer only to dedicated wearable devices (e.g. smartwatches), but also to activity monitoring and health promotion applications deployed in smartphones. Such applications have the benefit of offering a self-management intervention that is adaptable, low cost, and easily accessible, while research has suggested that the use of such apps has the potential to improve health outcomes for patients with chronic diseases

2. Serious games for health

A technological intervention that has been used in the context of health is serious games, that is, games used to drive health-related outcomes. There are various types of serious games for health, including games for physical fitness (exergaming), education in self-health care, distraction therapy (e.g. to help individuals with chronic illness to deal with pain), recovery and rehabilitation, training, and simulation, and cognitive functioning support.
An additional concern refers to the evaluation of serious games with target users. In particular, the majority of evaluation efforts mainly focus on the usability of the designed games and not on the actual long-term impact of a game on the individual.

3. Ambient Assisted Living

A well-known domain pioneering in assisting a person's living conditions, aimed at supporting older and disabled users, is AAL. AAL refers to the use of ICT in a person's living environment, to improve their quality of life and enable them to stay independent and active for as long as possible.
The main solutions conceived to support older people in need of care fall into three main AAL service areas: prevention; compensation and support; as well as the independent and active living. Indicative services include the prevention of early degeneration of cognitive abilities, promotion of a healthy living lifestyle, management of chronic diseases, fall prevention, management of daily activities, maintaining social contacts, and having fun

4. Intelligence in healthcare

With the advent of IoT and environment intelligence, it has been foreseen that the traditional professional-centric model of healthcare will transform into a distributed healthcare system, where the individual becomes an active partner in the care process.
Intelligent environments have the technological infrastructure and ability to support this transformation. In particular, they are substantially adept at discovering patterns, detecting anomalies and deviations from daily routines (e.g. indicating an imminent health problem or a crisis that needs to be attended to), as well as planning and scheduling

Intelligent environments for healthcare also extend to environments for therapy and rehabilitation, as well as smart hospitals in the support of medical staff.

5. Well-being and eudaimonia

Beyond physical health, self-tracking, and ICT, in general, have been used to pursue mental health and mood regulation, in the wider context of technology for user eudaimonia and happiness. Aligned with this approach is the concept of positive computing, which aims to develop technologies to support well-being and human potential for individuals with diagnosed mental health conditions, but also for anyone through preventative mental health support, strengthening mental health through positive behavior change and self-reflection, and through increasing empathy towards and awareness of mental health