Overview of Health in HCI

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History of Health at CHI

- **Represented by different subcommittees**

Specific Application Areas

- e.g., technology for the elderly

Interaction Beyond the Individual

- e.g., collaboration among multiple healthcare providers in hospitals

Understanding People: Theory, Concepts, Methods

- e.g., how people use technology for promoting exercise in daily lives

History of Health subcommittee at CHI

- **Overview**

CHI 2011-2013: Featured Community

CHI 2017-2018: Health, Accessibility, Aging

CHI 2019-2022: Health

Featured community

(CHI 2011-2013)

SIGCHI Health Community

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Abstract
In this paper, we describe a vision for a Health Community as part of the CHI conference. Significant interest in issues related to interactive systems for health has been demonstrated repeatedly within SIGCHI. An explicit community focused on health would serve to foster further collaboration, dissemination of research results and findings from practitioners, and discussion of some of the most pressing issues facing our society as a whole currently.

Keywords
Community, Health, Medicine, Well-being, Aging, Assistive Technologies, Nutrition, Wellness, Fitness, Healthfulness, Healthcare

ACM Classification Keywords
J.3 Life and Medical Sciences: Health; K.4.1 Public Policy Issues: Computer-related health issues, ethics, human safety, privacy; K.4.2 Social Issues: Assistive Technologies for Persons with Disabilities; K.4.3 Organizational Impacts

General Terms
Human Factors, Legal Aspects, Management

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Introduction
In recent years, the medical informatics community has begun to recognize human-computer interaction (HCI) and better understanding of the social and human elements as important to a sound Health Information Technology (Health IT) strategy. Meanwhile, research in HCI has found healthcare a rich and interesting domain of inquiry. Furthermore, concepts of health, including fitness, nutrition, mental health, aging, assistive technologies, and other considerations of well-being have often been core to research and industry projects related to HCI and interactive systems. Despite this interdisciplinary interest, however, there exists a largely untapped potential to create deeper and more profound connections among the medical, informatics, human-computer interaction, design, medical sociology and medical anthropology communities.

Health, Accessibility, and Aging

(CHI 2017-2018)

Health, Accessibility and Aging

The “health” component of this subcommittee is suitable for contributions related to health, wellness, and medicine, including physical, mental, and emotional well-being, clinical environments, self-management, and everyday wellness. The “accessibility and aging” subcommittee is suitable for contributions related to accessibility for people with disabilities and/or technology for and studies involving older adults (i.e., senior citizens). Accessibility papers are those that deal with technology design for or use by people with disabilities including sensory, motor, and cognitive impairments. We have indicated below which ACs will handle the “health” papers and which will handle “accessibility and aging”; **please add the keyword “health,” “accessibility,” or “older adults” as appropriate to your submission in PCS so that we can be sure to direct your submission to the appropriate subset of this committee.** Note that if your paper primarily concerns interactions of older adults with their healthcare providers, then the *Health* keyword is probably a better fit, whereas papers reflecting on how older adults use technologies and/or designing interfaces and interactions suited to the needs of older adults are better suited for the accessibility and aging component of this committee. We strongly suggest that authors review this

Ref. CHI 2018 website

Health (2019 - 2022)

This subcommittee is suitable for **contributions related to health, wellness, and medicine, including physical, mental, and emotional well-being, clinical environments, self-management, and everyday wellness.** Accepted papers will balance the rigor required in all CHI submissions with awareness of the challenges of conducting research in these challenging contexts. The research problem can be grounded in both formal and informal health and care contexts. Submissions to this subcommittee will be evaluated in part based on their inclusion of and potential impact on their stakeholders. **We welcome papers that are empirical, theoretical, conceptual, methodological, design, and systems contributions.** Papers must have **a clear and novel contribution to HCI** in terms of **our understanding of people's interaction with technology in a healthcare context, or the design of health and wellness technologies.** For example, systematic reviews or usability studies associated with clinical trials must also have contributions for the HCI community.

(from CHI 2022 website)

Related disciplines

Health informatics

Medical informatics

Biomedical informatics

Nursing

Medicine

Public health

Psychology

Behavioral Science

Discussion

Why was Health not a dedicated subcommittee until 2018 despite the long history of health-related research in HCI?

What's changed for authors after Health became a dedicated subcommittee in 2019?

Health related Venues: Similarities and Differences

- CHI
- AMIA
- JAMIA
- Pervasive Health

Health in CHI

- Empirical Contribution
- Theoretical Contribution
- Conceptual Contribution
- Methodological Contribution
- Design Contribution
- System Contribution

AMIA

- Applications Track
  - Design
  - Technology
  - Implementation
  - Use
  - Evaluation
- Foundations Track
  - Conceptual Contribution
  - Methodological Contributions
- Policy Track
  - Informatics-relevant Policies
  - Policy Recommendation
  - Policy Evaluations

Pervasive Health

- Assessment Contributions
- Development Contributions
- Deployment Contributions
- Legal and Financial Perspectives

In specific to pervasive healthcare technologies, standards and procedures to fully benefit from the digital revolution

JAMIA

- Research and Application
  - Formulation
  - Implementation
  - Evaluation
  - Investigation
  - Methodology
- Institutions
  - Experience in implementing information systems or informatics methods
- Leaders of the Topic
  - Policies and regulations
  - Research direction
  - Perspectives on the success or failure of informatics initiatives

Target Audience

Pervasive health

- Healthcare professionals, Industry, Decision-makers, HCI researchers,

AMIA and JAMIA

- Healthcare professionals, Policy Makers, HCI researchers

CHI

- HCI researchers, Industry

Discussion

What are the benefits and challenges of having interdisciplinary conferences and journals such as JAMIA and AMIA?

How to Evaluate Technologies for Health Behavior Change in HCI Research

- Klasnja et al. argue that current methods of determining whether technologies are effective at leading to behavior change are not feasible.

- New methods should be evaluated by researchers within the HCI community.

  - Focusing on implementing certain strategies that lead to behavior change

  - Compare rates at baseline, during intervention, and then after

  - Implement these in intervention vs control groups

  -Learn the “how” and “why” through qualitative components, efficacy should not be the primary goal, instead investigate patterns of use, and user experiences

How to Evaluate Technologies for Health Behavior Change in HCI Research

- The paper draws on areas of inquiry within HCI research by discussing the importance of field studies with qualitative components
  - These strategies can inform on the “how” and “why” an intervention is effective
- The paper draws on areas of inquiry outside of HCI by 1) *Criticize current methods:* discussing health science research to claim it is not feasible to determine behavior change in short studies during the early developmental phase 2) *Support methods proposed:* social psychological literature to develop the evaluations for an intervention
  - RCT’s do not reveal the “how” or “why”
- The paper expands on these areas by stating that through the evaluation of both internal HCI concepts and external health science concepts on how behavior change works, we can determine efficacy and the “hows” and “whys”

How to Evaluate Technologies for Health Behavior Change in HCI Research

- The typical HCI contributions this paper is making are on methodological contributions. The contribution was appropriate to this paper because it laid out current methods of evaluating behavior change, and stated how this is simply not feasible. Then, the author proposed different ways of determining whether a technology is working the way it is supposed to work.

Main Takeaways

- Determining behavior change with short term studies is not feasible, efficacy studies (HS and RCT are poor fit)
- RCT's show whether a technology can lead to behavior change, but doesn't show the "why" or the "how"
- Fields studies with qualitative components reveal the "why and "how"
- Primary evaluation should not be efficacy, but user experiences and understanding the design components that work are most important
- Encourage tailoring efficacy evaluations to determine problematic design elements
- Hope is to systemize and customize evaluations for common intervention strategies

Discussion

What type of contributions does this paper aim to make? Methodological or opinion contribution?

How have you utilized methods mentioned in this paper (outside and within HCI research) in your own work?

A Review of 25 years of CSCW Research in Healthcare: Contributions, Challenges, and Future Agendas.

- Geraldine Fitzpatrick and Gunnar Ellingsen. A Review of 25 dates of CSCW Research in Healthcare: Contributions, Challenges, and Future Agendas. Computer Supported Cooperative Work (CSCW) 22 (2013).

  a. "present an overview of the **development of health-related research** in CSCW, identifying the **major themes and approaches**, and **summarising insights** from this research about the practical work of healthcare, health ICT policies and agendas, and technology support for collaborative care work. "
  b. "we step back to critically reflect on the **practical effect of the research for real systems**."

A Review of 25 years of CSCW Research in Healthcare: Contributions, Challenges, and Future Agendas.

- Workplace study with design prototypes focused on smaller scale interactions

  The critical role of workplace studies in CSCW : "the role of workplace studies in CSCW is crucial and critical: to dismantle prevalent common-sense notions of cooperative work by uncovering how orderly cooperative work is routinely and inconspicuously accomplished." (Kjeld Schmidt, 2000)

A Review of 25 years of CSCW Research in Healthcare: Contributions, Challenges, and Future Agendas.

- Key themes and contributions
  a. Artefact and technology mediated healthcare work
  b. Locating healthcare work in space and time
  c. Expanding contexts of healthcare work
  d. Designing systems to support healthcare work

A Review of 25 years of CSCW Research in Healthcare: Contributions, Challenges, and Future Agendas.

- Reflection on the implications of 25 years of CSCW research
  a. Evaluation and generalising from CSCW studies
  b. Moving to a concern for change and larger-scale concerns
  c. The methodological challenge for CSCW studies
  d. Practical impact challenge for CSCW studies
  e. The challenges of a changing healthcare field and new models of care

A Review of 25 years of CSCW Research in Healthcare: Contributions, Challenges, and Future Agendas.

- implications for future research
  a. Research focused on larger ICT initiatives
  b. follow the patient trajectory around the multiple settings
  c. Patient centered research
  d. Recognize Non-healthcare specific CSCW findings and expertise

Discussion

What has CSCW research been focused on for the past 8 years?