Transdisciplinary ethical principles and standards for mobile mental health

Abstract
This position paper addresses the continued ethical challenges in mobile mental health and the need for transdisciplinary ethical principles and standards to facilitate the development of ethically designed mental health technologies. By comparing and synthesising ethical codes of conduct across disciplines in digital mental health – namely psychology, healthcare, human computer interaction, computer science, and engineering – we suggest transdisciplinary ethical principles and standards to facilitate the development of ethically designed mental health technologies. These preliminary findings form part of a larger research project which seeks to develop a transdisciplinary approach to the ethical design, marketing, and implementation of mental health technologies.

Author Keywords
mobile mental health; digital mental health; codes of conduct; ethics; principles; standards; transdisciplinary

CSS Concepts
• Social and professional topics~Computing / technology policy • Applied computing~Law, social and behavioral sciences~Psychology
Introduction
There has been much discussion of the ethics of mobile mental health [4-6,13,15-17]. Issues include privacy and data security; risks and safety concerns; benefits and evidence; and related issues of transparency, trust, and informed consent. While there has been greater awareness of the ethics of mobile mental health, there are limited transdisciplinary frameworks to effectively guide and improve ethical practice. Mobile mental health is a multisector industry, requiring collaboration of many disciplines including psychology, healthcare, computer science, human computer interaction (HCI), and engineering. Research has shown the importance of multisector involvement in the design of mobile mental health, yet there is a lack of shared language and standards bridging the unique demands of each discipline. To address this, we reviewed ethical codes across disciplines in digital mental health to compare principles and standards with a view of promoting transdisciplinary guidance and best practices. Data collection and preliminary insights are described.

Search and review of ethical codes
Search for ethical codes of conduct was performed in Google search using the terms 'psychology codes of ethics', 'computer science codes of ethics', 'HCI codes of ethics', 'engineering codes of ethics', 'healthcare codes of ethics', and 'codes of ethics for mental health'. We were interested in reviewing professional codes of ethics and excluded other discussion on ethics (including academic research) from review. A sample of 11 professional codes were selected across disciplines (Box 1). Codes were reviewed and data extracted pertaining to ethical principles and standards. Findings were synthesised into transdisciplinary ethical principles and standards for digital mental health.

Psychology
- American Psychological Association [2]
- The British Psychological Society [8]
- European Federation of Psychologists’ Associations [10]

Healthcare
- Health and Care Professions Council [11]
- American Medical Association [1]

Computer science/HCI
- Association for Computer Machinery [3]
- The British Computer Society [7]
- Department of Health and Social Care [9]

Engineering
- National Society of Professional Engineers [14]
- Institute of Electrical and Electronics Engineers [12]
- The Royal Academy of Engineering [18]

Box 1. Professional codes of ethics sampled in the study

Ethical principles and standards
Most codes described ethical principles as guidelines and best practices to be aspired to, with accompanying standards governed by the professional bodies. While thematically similar, there were differing ethical principles and focus across the codes reviewed. For example, psychology codes of ethics prioritised client care and welfare, and standards related to duty of care and competence. Comparatively, engineering codes, while also prioritising benefits and avoidance of harm, emphasised standards related to professional reputability and responsibility. Findings were synthesised into eight ethical principles: beneficence, nonmaleficence, competence, integrity, justice, fidelity, responsibility, and respect for rights and dignity of all people (Box 2). These transdisciplinary ethical principles and standards are presented in Figure 1.

Discussion
This position paper proposes preliminary transdisciplinary ethical principles for digital mental health. While our review found some principles and standards were more prevalent than others (eg, avoidance of harm), we consider all transdisciplinary principles to be equally relevant and important for ethical practice. We encourage multidisciplinary teams to reflect on these principles in the development of digital mental health and to consider how innovative design can be used to overcome potential ethical conflicts. In their ethical reflections and deliberations, it is also important for development teams to consider not only their own ethical practices, but the principles and values embedded in the technologies they design and develop. Digital mental health should reflect these key principles and standards to ensure safe, accurate, and effective delivery of care for all.
### Ethical principles

**Beneficence**
Doing good or benefiting others, directly or indirectly

**Nonmaleficence**
Doing no harm or managing harms to gain benefits

**Integrity**
Being honest, moral, and accountable for one’s actions

**Fidelity**
Being faithful and consistent in promises and deeds

**Justice**
Being fair and reasonable in action and interactions

**Competence**
Being appropriately skilled and knowledgeable

**Responsibility**
Having a duty or obligation to perform in a certain manner

**Respect for the rights and dignity of all people**
Respecting human rights, differences, and freedoms

### Nonmaleficence

- Avoidance of harm
- Safety
- Safeguarding
- Security

### Competence

- Knowledge and skillset
- Acknowledging limitations of self, team, and products
- Evidence-base/Scientific rigour
- Continuing development of self, team, and products
- Quality
- Reflection on motives, actions, and outcomes
- Reliability of methods, products, and interventions
- Validity of methods, products, and interventions

### Responsibility

- Legal compliance
- Professional standards
- Ethical compliance
- Communication/Public outreach
- Collaboration/Cooperation for transdisciplinary design
- Evaluation of methods, actions, products, outcomes
- Documentation of methods, actions, and outcomes
- Peer review
- Reporting of ethical concerns and breaches
- Social responsibility
- Duty of care
- Environmental impact/sustainability
- Interoperability of systems

### Integrity

- Accountability
- Honesty
- Managing conflicts of interest
- Transparency of motives, actions, communications
- Accuracy
- Authorship/Intellectual property rights
- Objectivity
- Reputability
- Appropriate data use

### Justice

- Fairness in actions, interactions, and design
- Fair trade
- Accessibility of resources and services for all
- Inclusiveness
- Conservation of resources

### Fidelity

- Trustworthiness
- Continuity/Consistency of actions, outcomes, products
- Faithfulness

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Box 2. Descriptions of transdisciplinary ethical principles

Figure 1. Transdisciplinary ethical principles and abridged standards
References
[12] Institute of Electrical and Electronics Engineers. 2014. IEEE Policies. Institute of Electrical and Electronics Engineers, NY, USA.