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The Unified Theory of Acceptance and Use of Technology 2 model in the healthcare context

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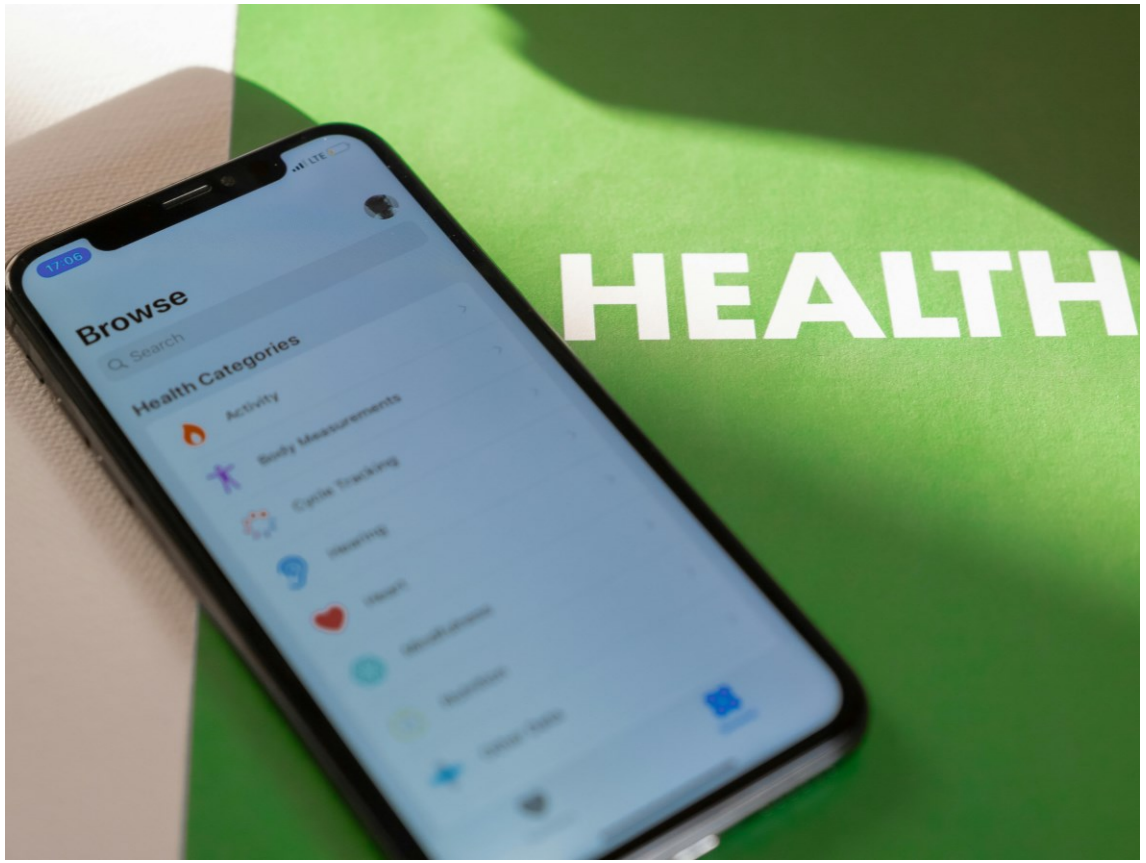
BACKGROUND AND MOTIVATION

Technology is **transforming healthcare** (mHealth, telehealth, AI), but adoption is key. How do we **predict and encourage acceptance?**

Understanding **why people accept or reject health technology** is crucial for designing better health applications and communication strategies.

Technology acceptance models e.g., Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) used for **predicting acceptance of information technology [1]**



Source: plexels.com | digital health

TECHNOLOGY ACCEPTANCE IN ORGANIZATIONAL CONTEXT

To explain the **acceptance and use of information technology**, the UTAUT model was developed, which combines **eight different models [2]**

The model was specifically developed to predict the acceptance of information technology **by employees in an organizational context [2]**

The model with its four predictors (PE, EE, SI, FC) is used in **various fields e.g., information systems, marketing, social studies and management [3]**

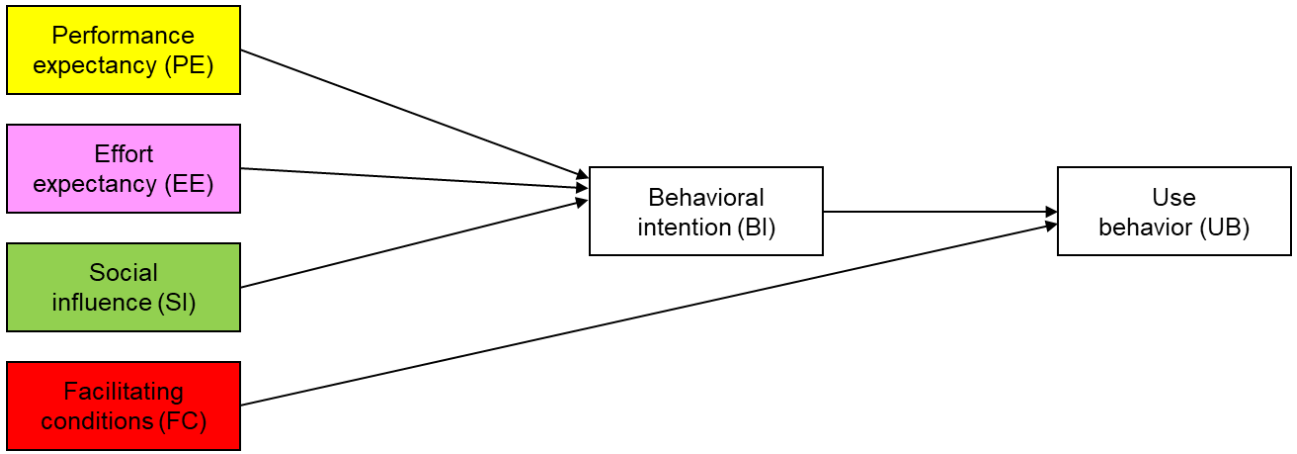


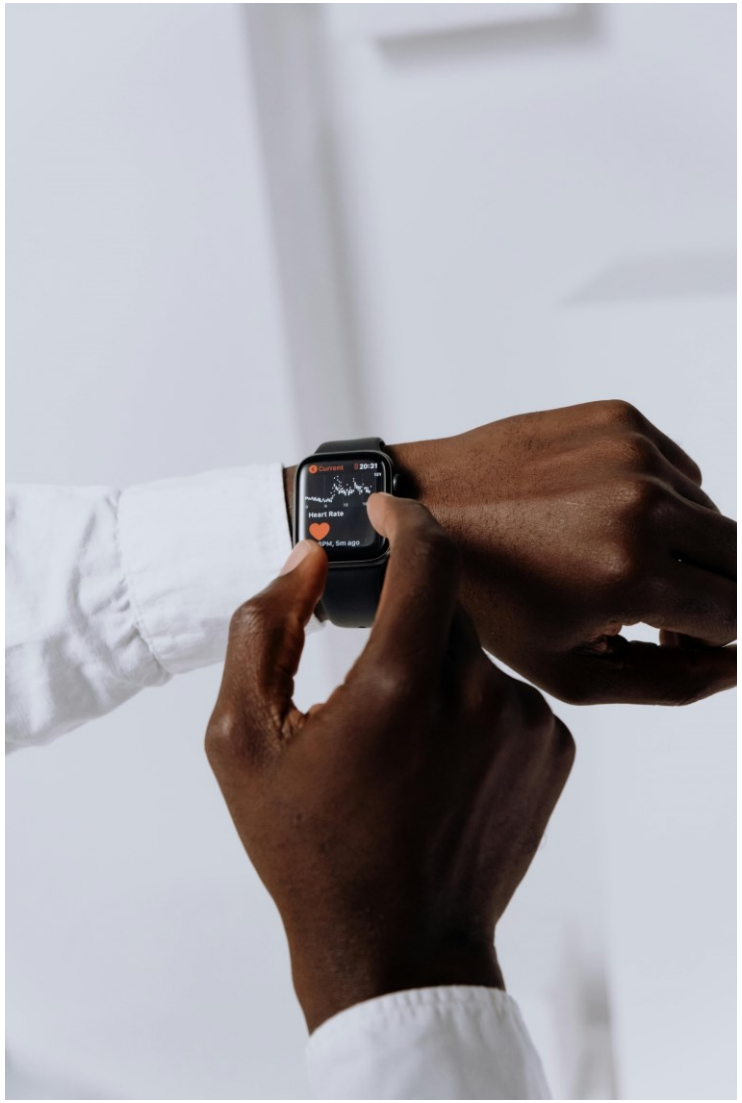
Figure 1: simplified UTAUT model [2]

TECHNOLOGY ACCEPTANCE IN CONSUMER CONTEXT

In 2012, Venkatesh et al. developed the UTAUT2 model, which aims to **better explain behavioral intention and actual use behavior** in dealing with new technologies [4]

UTAUT2 is an **extension of the UTAUT model** as it integrates three additional predictors: **hedonic motivation, price and value, and habit [1]**

The specific nature of the UTAUT2 model lies in **its explicit focus on the individual user context** and the assumption of **voluntary use [4]**



Source: plexels.com | consumer technology

UTAUT2 MODEL

Exogenous constructs:

PE: Benefits of mHealth apps for health

EE: Ease of using mHealth apps

SI: Social influences e.g., recommendations

FC: Resource availability e.g., internet

HM: Joy in the use of mHealth apps

PV: Cost/benefit consideration

HT: Integrating mHealth apps into life

Endogenous constructs:

BI: mHealth acceptance

UB: Actual mHealth app usage

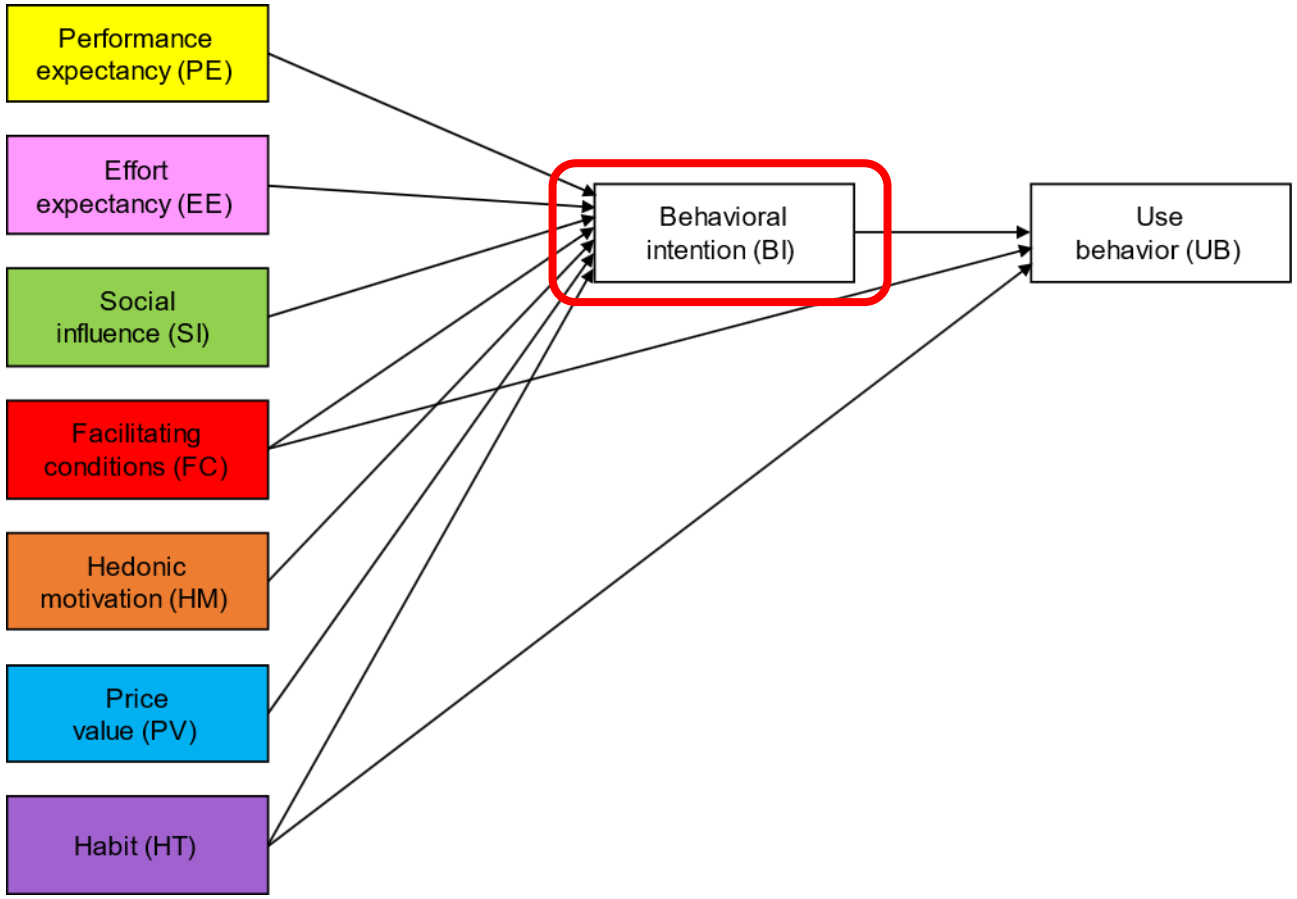


Figure 2: simplified UTAUT2 model [1]

PREDICTING mHealth ACCEPTANCE

mHealth apps (e.g., diabetes apps) offer **significant potential for chronic disease management & health improvement [5, 6, 7]**

Untapped potential due to **acceptance problems** among (diabetes) patients [8, 9]

However, is **"standard" UTAUT2 sufficient** to predict acceptance in this specific health context?

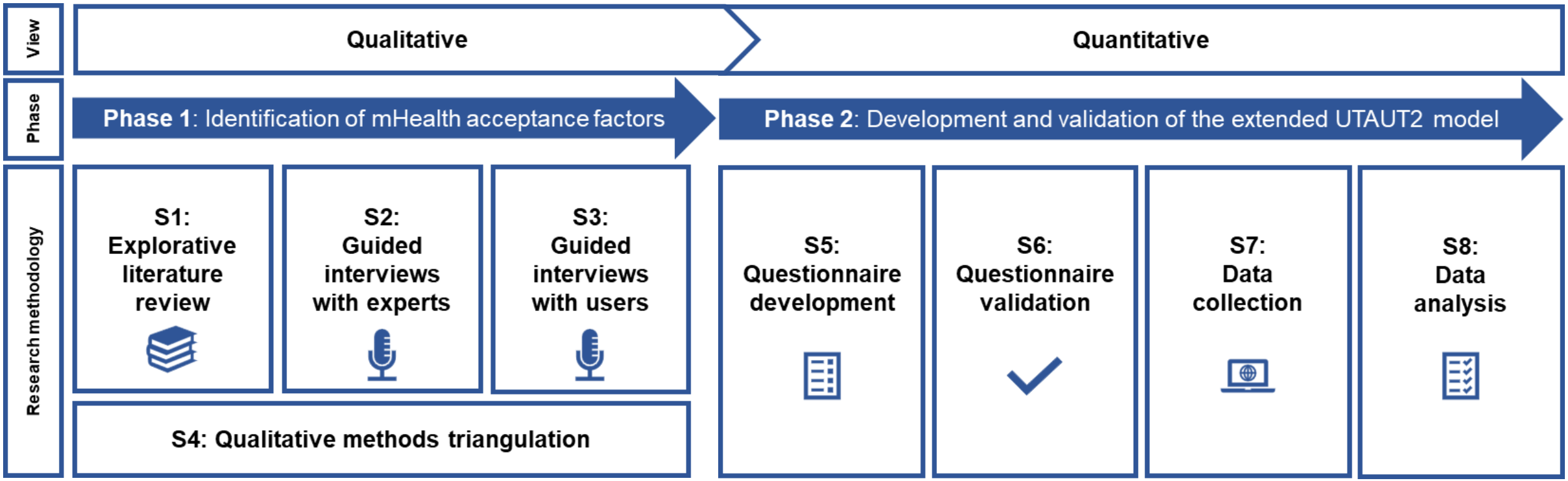
Source: National Institute of Diabetes and Digestive and Kidney Diseases

RESEARCH GAP

mHealth acceptance factors: only partially represented in the UTAUT2 model [10-13]

Unclear whether predictive power of UTAUT2 can be improved by specific mHealth constructs, leading to increased use of the UTAUT2 model in the mHealth context.

STUDY DESIGN – MIXED-METHODS APPROACH



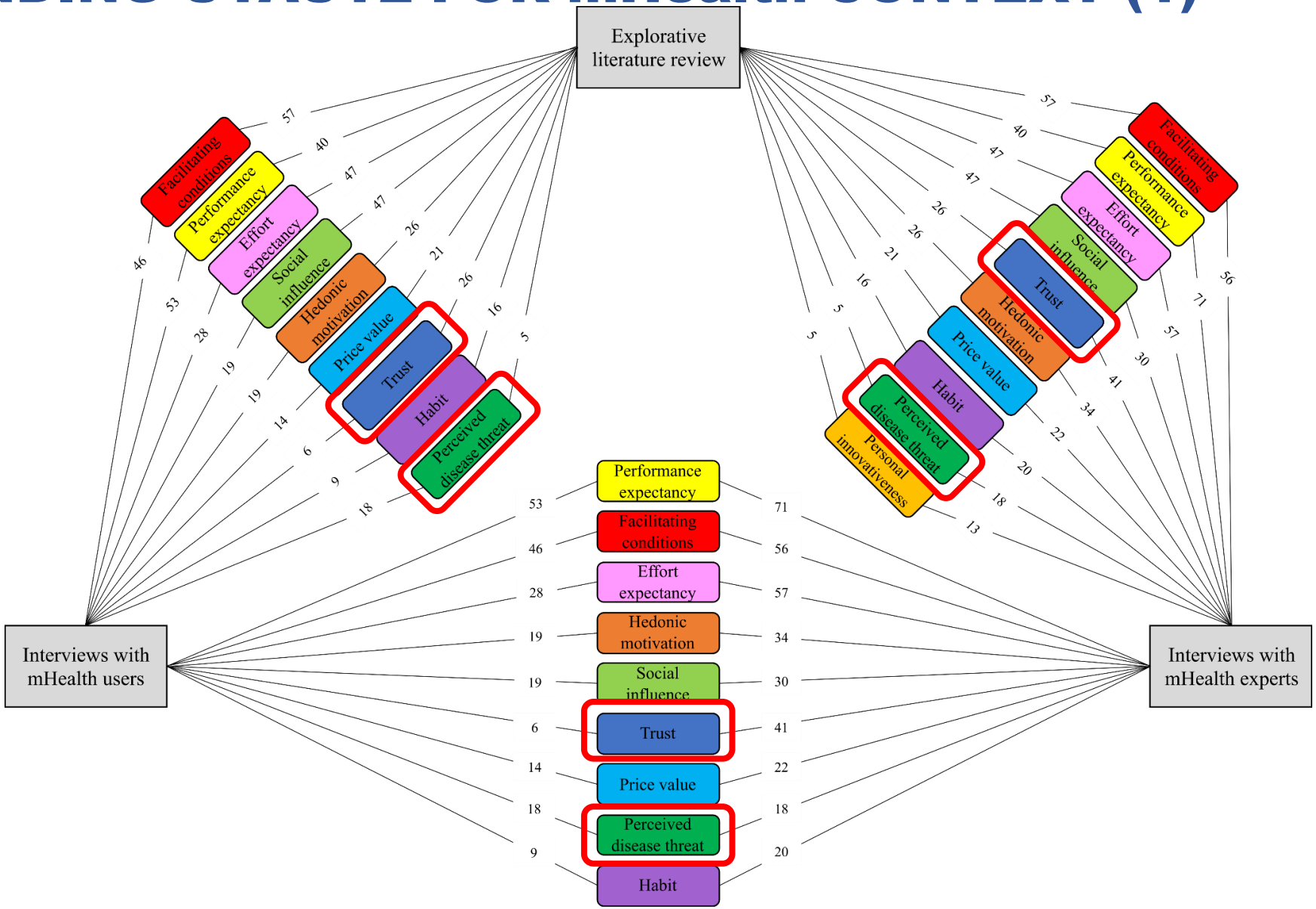
Schretzlmaier P, Hecker A, Ammenwerth E. Suitability of the Unified Theory of Acceptance and Use of Technology 2 Model for Predicting mHealth Acceptance Using Diabetes as an Example: Qualitative Methods Triangulation Study. *JMIR Hum Factors* 2022;9(1):e34918. doi:10.2196/34918

Schretzlmaier P, Hecker A, Ammenwerth E. Extension of the Unified Theory of Acceptance and Use of Technology 2 model for predicting mHealth acceptance using diabetes as an example: a cross-sectional validation study. BMJ Health Care Inform 2022;29(1)

RESULTS: EXTENDING UTAUT2 FOR mHealth CONTEXT (1)

Qualitative methods triangulation (S4)

- **All** exogenous **UTAUT2 constructs** confirmed
- New constructs **"trust"**, **"perceived disease threat"** identified
- **Suitability** of UTAUT2 confirmed



RESULTS: EXTENDING UTAUT2 FOR mHealth CONTEXT (2)

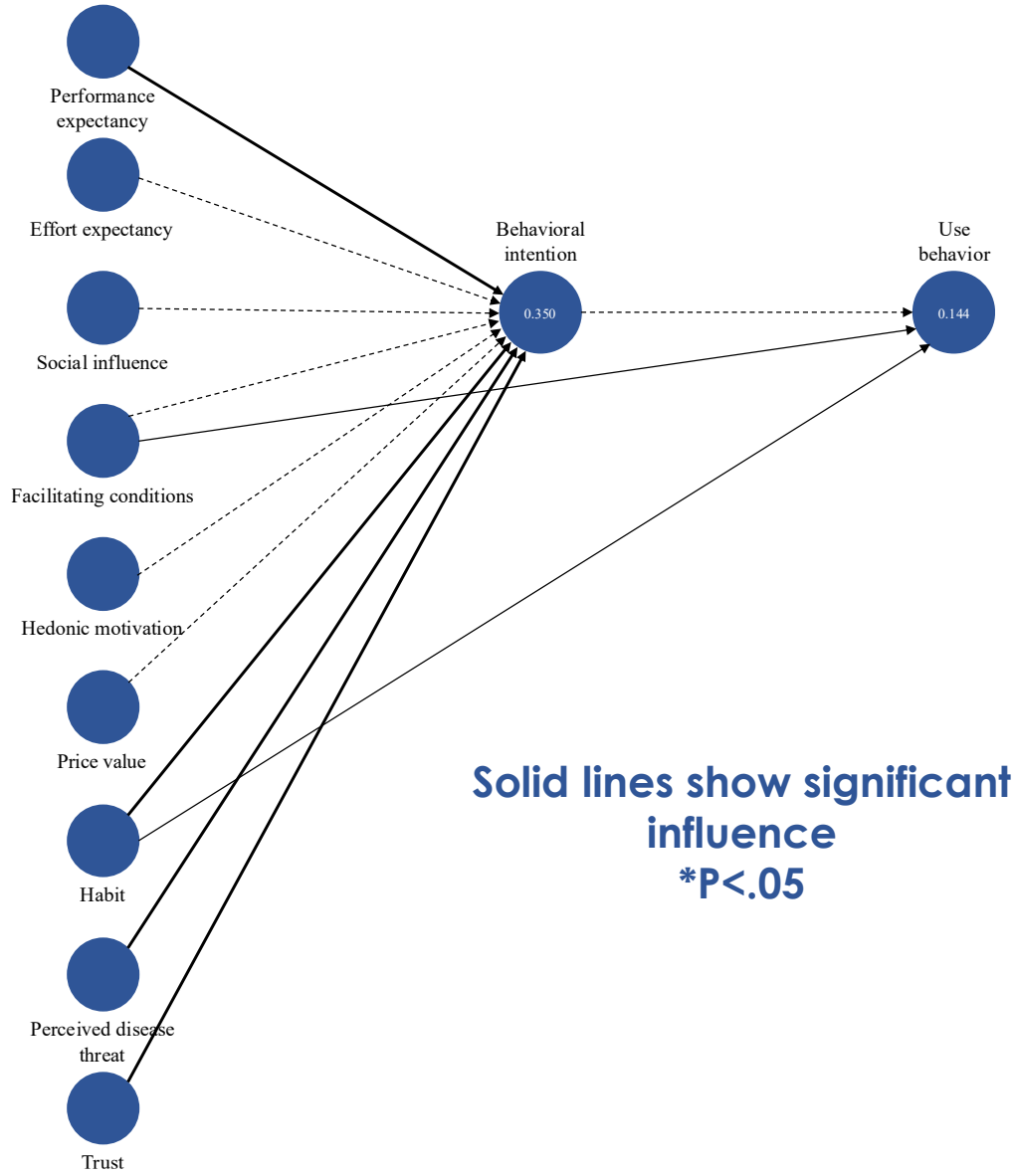
Check path coefficients

Significant influence on predicting mHealth acceptance (BI):

- Performance expectancy (PE)
- Habit (HT)
- Perceived disease threat (PDT)
- Trust (TR)

Check coefficient of determination (R^2)

Explains 35% of the variance in mHealth acceptance (BI)



Solid lines show significant influence
***P<.05**

MEANING AND PRACTICAL RELEVANCE

The context (mHealth) **significantly changes** which UTAUT2 constructs are most important. A standard "consumer" model (UTAUT2) is **"not enough".**

The focus in the mHealth context investigated was on **clear health benefits (PE), building trust (TR), seamless integration into routine (HT), and leveraging user health awareness (PDT).**

The findings are specific to **active users of mHealth apps** and may be **different for other applications, non-users, or populations with other health conditions.**

Source: plexels.com | light

BROADER APPLICATIONS OF UTAUT2 IN HEALTH CONTEXT

Nymberg et al., 2024: UTAUT2 used to study home blood pressure monitoring acceptance [16]

Palas et al., 2022: Extended UTAUT2 applied to elderly mHealth adoption [17]

Mokmin & Ibrahim, 2021: UTAUT2 to evaluate the acceptance of a chatbot designed for health literacy education [18]

Source: plexels.com | blood pressure

FUTURE DIRECTIONS TO IMPROVE HEALTH COMMUNICATION

Investigate **effective communication strategies** to learn from users which acceptance factors, e.g., PE (clear health benefits), are **addressed by specific features of health technology** [15, 19]

Investigation of **tailored communication messages and channels** based on the specific UTAUT2 acceptance factors for **different target groups** (e.g., patients, clinicians) [10, 17]

Exploring **communication approaches** to address acceptance problems of **new health innovations** and to explain new health-related constructs (e.g., safety, AI transparency)[4, 14]

Source: plexels.com | future technology

CONCLUSION & CALL TO ACTION

For **health contexts** (e.g., mHealth), standard UTAUT2 often needs **further extension** with domain-specific factors (like trust, etc.)

Understanding the acceptance factors is the **crucial first step in developing (health) applications** that people will accept and use

Call to action: Use UTAUT2 findings for health communication research and practice. Developing **effective messages and strategies** based on **key acceptance factors** will help reach users and improve their **acceptance of health technology.**

Source: plexels.com | call to action

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Thank you for your attention!

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