User-centered development of an mHealth intervention to enhance self-management of exacerbations in patients with Chronic Obstructive Pulmonary Disease (COPD).

M-ACZiE project

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Rationale

Increased health care use

Lung function
Quality of life

Hospital admissions
Mortality

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Aim

To develop a **tailored mHealth intervention** to decrease the impact of exacerbations by enhancing **exacerbation-related self-management** in COPD patients.

Impact

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User-centered development design

(based on: Johnston, 2009; Van Meijel, 2004; Graig, 2008)

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Aims:
1) To specify different symptom fluctuation phases.
2) To identify potential relevant self-management behaviors.

Outcome
• Conceptual ‘exacerbation’ model.
• Overview of potential behavioral targets. (Korpershoek et al., 2017)
1C Problem analysis (1) *Expert perspective*

**International Delphi study**

*Aim:* To provide insight into expert opinion on relevance and feasibility of identified self-management behaviors.

*Design:* Two-round Delphi study with international expert panel (n=19).

**Outcome**

Consensus on relevant and feasible target behaviors for each phase of the conceptual model. (Korpershoek et al., 2017)
1C Problem analysis (2) Patient perspective

Qualitative study

Aim: To provide insight into patients perceptions, capabilities and needs with regard to exacerbation-related self-management.

Design:
• Grounded Theory approach.
• Semi-structured interviews (n=15).

Outcome
Conceptual model ‘factors influencing exacerbation-related self-management.’ (Korpershoek et al., 2016)
1D Needs analysis

Qualitative study

_Aim_: To explore perceptions of COPD patients and their HCPs towards using mHealth for exacerbation-related self-management.

_Design_:  
- Focus group interviews (_Patients_: n=13; _HCPs_: n=6).  
- Thematic analysis.

_Outcome_  
- Overview of potential benefits and barriers regarding mHealth use.  
- Overview of ideas for the mHealth intervention.
1E Current practice analysis

Aims:
1) To provide insight into current self-management support.
2) To explore how the mHealth intervention can be delivered to COPD patients by bringing it to the market.

Design:
1) Literature review & interviews with HCPs (n=10).
2) Business modelling

Outcome
- Overview of provided care by healthcare professionals.
- A business model for the mHealth intervention.
1F Intervention design

*Aim:* To develop a proto-type of the mHealth intervention.

*Steps:*
1) Develop logic model.
2) Select final target behaviors, perform COM-B analysis and select behavior change techniques.
3) Organise ‘pressure-cooker session’ with creative designers.
4) Reach consensus on first prototype with designers, health care professionals and patients.
Target behaviors

Self-monitoring/exacerbation detection & management
For academia/researchers: To increase the likelihood that mHealth interventions are effective and used, researchers should:
1) underpin the potential working mechanism; and
2) explore the market potential during the development phase.

For industry/practice: To increase the likelihood that mHealth interventions change health behaviors, target behaviours should be identified by scientific evidence. Behavior change techniques should be selected based on a thorough behavioral analysis.
Questions?

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Thank you for your attention!

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References