

Digital health and physical activity for individuals with chronic conditions

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- Describes the digital solutions aiming at improving a persons health and well-being
- Enhance health communication and information between patients and healthcare personal at a distance
- Digital health is contributing to transforming healthcare



What is digital health?

Why study the effect of digital health in promoting physical activity?

- Healthcare is facing enormous challenges with a gap between the demand and supply of healthcare services
→ Digital health is seen as part of the solution
- Digital health technologies are seen as enablers for more sustainable, efficient, personalized, patient-centered, and precise healthcare
- Can add to the digital divide and social inequality
- Using digital solutions as a delivery mode to promote physical activity levels can be a way to empower patients to manage their own health



Physical inactivity is a global problem

- Physical inactivity is one of the major risk factors and causes of at least 35 chronic conditions
- Physical activity is associated with symptom reduction in at least 26 chronic conditions, psychological benefits and maintained or improved quality of life
- Physical activity is acknowledged as a prominent health factor in the management of chronic conditions and multimorbidity



Still high percentage of people living with chronic conditions or multimorbidity not meeting the recommended levels of physical activity

Effect Of Digital Health Interventions Targeting Physical Activity On Physical And Psychosocial Outcomes In People With A Chronic Condition Or Multimorbidity

Systematic review

- **Participants:** Adults (18+) living with one or more of the following chronic conditions:
 - Osteoarthritis (knee or hip)
 - Type 2 diabetes
 - COPD
 - Heart failure or Ischemic heart disease
 - Hypertension
 - Depression
 - Anxiety
- **Intervention:** Any digital health solution promoting physical activity
- **Comparator:** Usual care
- **Outcomes:** Physical activity and physical function (objectively or subjectively measured), health-related quality of life, depression and anxiety



What did we find?

- 96 RCT studies included
- Using various types of interventions (i.e. exercise therapy, education, coaching)
- Most studies in type 2 diabetes (37%), fewest in hypertension (2%), depression/anxiety (2%), and multimorbidity (1%)
- Most intervention combine different digital solutions (i.e. telephone call, website, App)
- The most used type of digital solution was mHealth (i.e. telephone calls, texts, smartphones, Apps)



What is the effect?

Digital solutions promoted:



a small **improvement** on **physical activity**

a small **improvement** on **physical function**

a small **reduction** in **depression symptoms**

no change in **anxiety symptoms**

a small **improvement** on **health-related quality of life**

A closer look at the effect on physical activity and physical function

- An improvement of a 1000 steps per day
- An improvement of 20 meters on 6 minute walk test



Can lower the risk of all-cause mortality, and CVD morbidity and mortality

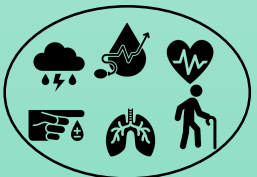


A change of 14.0 to 30.5 m may be clinically important across multiple patient groups

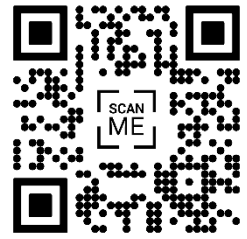
The Quality of Health Apps and Their Potential to Promote Behavior Change in Patients With a Chronic Condition or Multimorbidity

Systematic search in App Store and Google Play

- **Content:** Health Apps with free content targeting lifestyle behaviours such as physical activity and diet
- **Target Group:** Adults (18+) living with one or more of the following chronic conditions:
 - Osteoarthritis (knee or hip)
 - Type 2 diabetes
 - COPD
 - Heart failure or Ischemic heart disease
 - Hypertension
 - Depression
- **Outcomes:**
 - Quality by the Mobile App Rating Scale
 - Potential for behaviour change by the App Behavior Change Scale

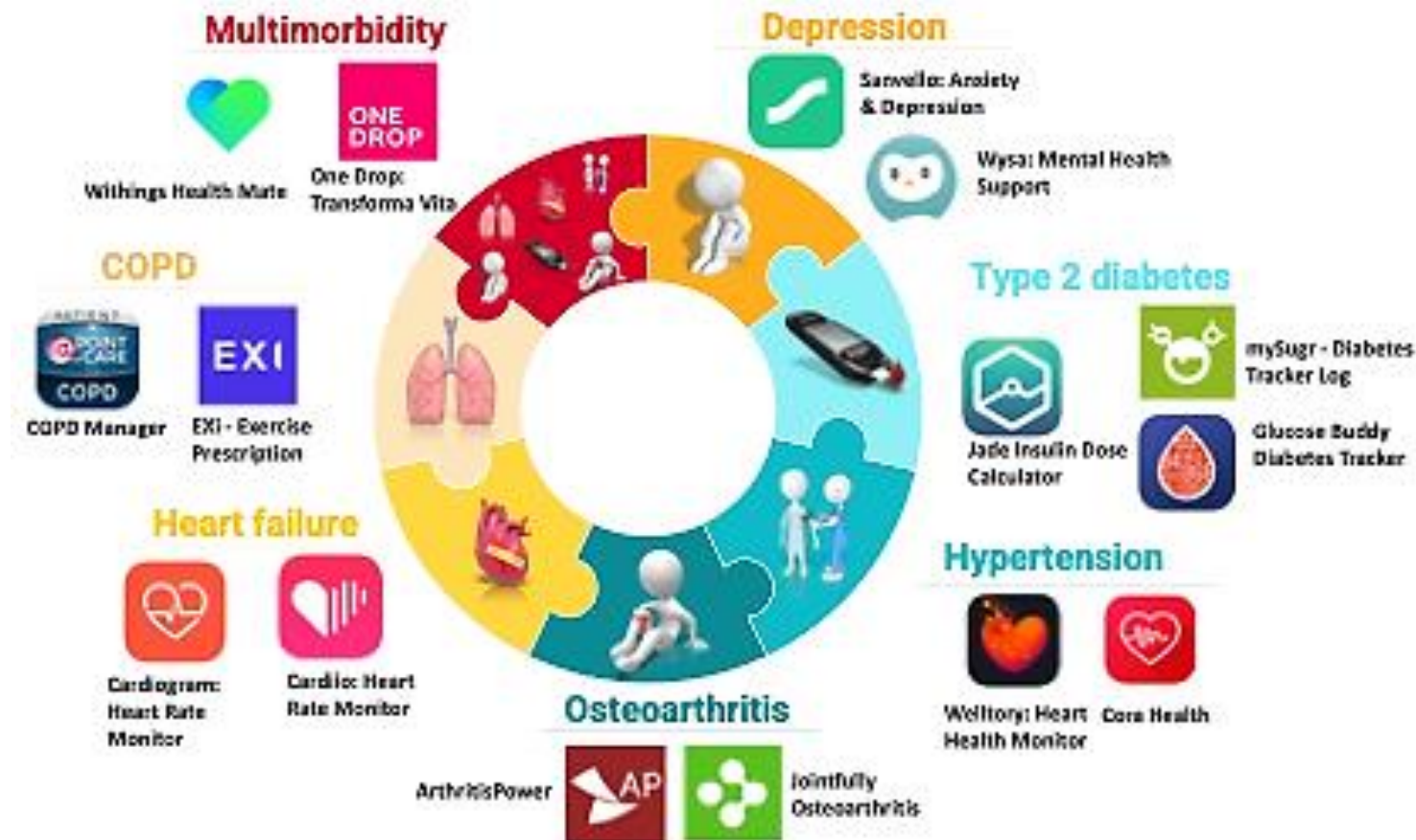


What did we find?



Want to take a closer look

- Included 60 Apps
- Only 8 out of the 60 apps (13%) were completely free
- Most common app features for supporting behavior change were the self-monitoring



What did we find?

- Apps were of acceptable quality but with a low-to-moderate potential for behaviour change
- Apps for depression tended to have the highest quality, while Apps for osteoarthritis had the lowest
- Apps for patients with multimorbidity tended to have the highest potential for behaviour change, while Apps for osteoarthritis had the lowest



What is next?

Hybrid virtual/in-person care models

To accommodate those you would like the consultation to be at home

Health Apps on prescription

Doctors in Germany can prescribe health apps, like they prescribe medicine

Passive data collection

Data from wearable devices like smartwatches to reduce patient burden

Remote monitoring technology

An active healthcare instead of an reactive

Digital health solutions for maintainance of PA

Keep people active after end rehabilitation

Artificial intelligence/automation

Planning individualized exercise program

Data-sharing obstacles
– data safety

Implementation

Cat thinking

Prof. H. Thimbleby, A. Olesch

Take home messages

- Digital health solutions have the potential to promote physical activity
- Despite high quality, Apps may lack the potential to achieving behaviour change
- Talk to your patients about the potential of using digital health solutions
- Focus on improving digital health literacy



Thank you for your attention!

Do you have any further questions or a desire to collaborate?

Get in touch:



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