Leicester Kidney Exercise Team

Development of a Self-directed programme to increase Physical Activity in chRonic Kidney disease (SPARK)

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Purpose

Engaging in moderately-vigorous physical activity (MVPA) has been shown to improve the symptom burden of chronic kidney disease (CKD), reduce cardiovascular risk and improve quality of life, however the patient population remains inactive.
The SPARK project aims to create a self-directed intervention, underpinned by behaviour change theory, to promote MVPA for people with CKD not requiring renal replacement therapy (non-RRT CKD), and produce the positive results seen in other chronic diseases.

Method

An initial intervention was developed, iteratively reviewed and updated as advocated by the Medical Research Council (MRC) Framework for the Development of Complex Interventions. This process is described in Figure 1.

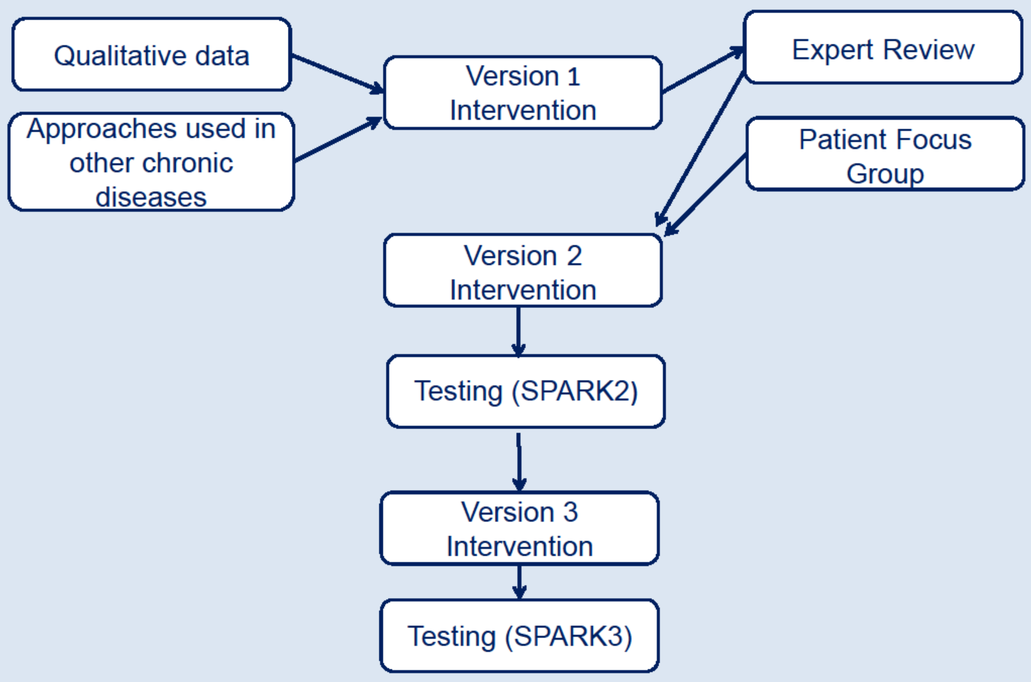

Figure 1: Flow chart of development process of SPARK intervention

The initial version of the intervention comprised a Behaviour Change intervention based on the Theory of Planned Behaviour and represented a 6 week walking and strength training programme. Motivational Interviewing is used to facilitate discussions regarding goal-setting and potential strategies to support the individual to engage in self-directed MVPA. Support is provided using written educational material and telephone calls every 2 weeks during the intervention period.

The expert review process accessed the views of a wide range of professionals and PPI, as shown in Figure 2. This was achieved using both panel sessions and individual meetings.

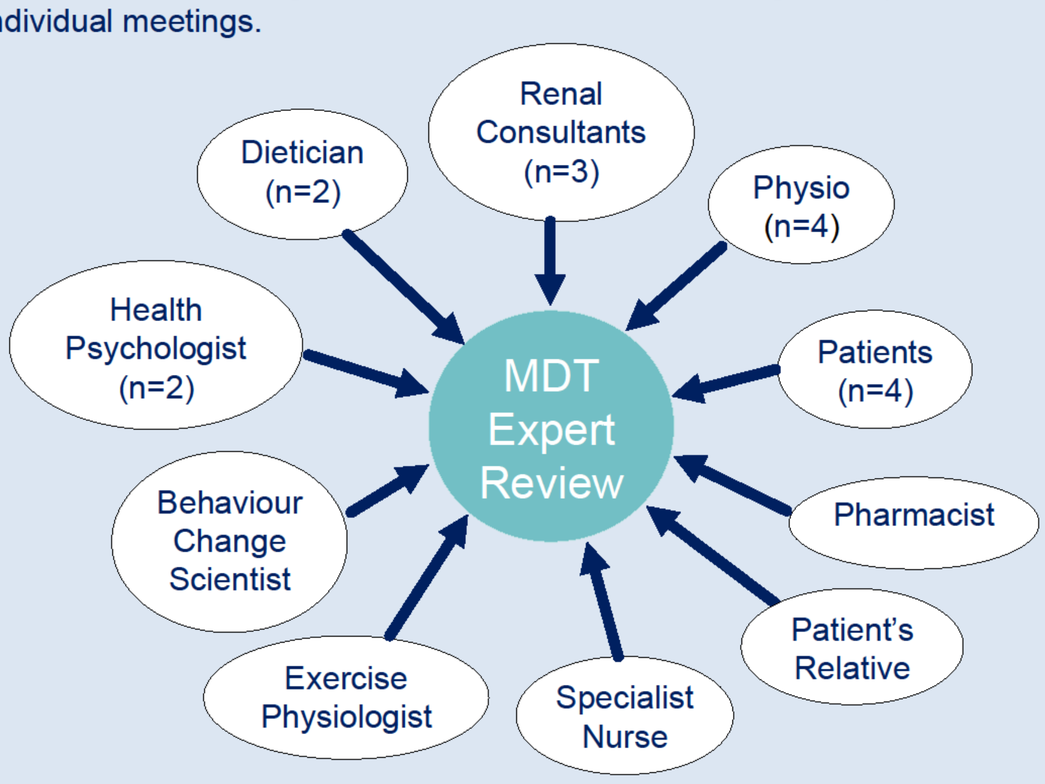

Figure 2: Professions represented at Expert Panel meetings

Two patient focus groups were held (n=10; 5 male; mean age=68 years; mean eGFR=42.4mL/min/1.73m^2) with patients recruited from out-patient appointments.
The group sessions were digitally recorded, professionally transcribed verbatim, anonymised and analysed in NVivo.

The transcripts were subject to deductive thematic analysis, identifying themes at a semantic level. Topics reviewed included the project aims; content and format of the intervention and the supporting material; types of exercise to be used; role of self-monitoring and level of support from professionals.

A further PPI session was held to review potential outcome measures to ensure selected questionnaires were addressing the issues relevant to patients.

Results

The following tables describe the changes made as a result of the review process.

Initial Design	Current design
6 week duration	8 week duration
2 boost phone-calls	3 boost phone-calls
No pedometers	Pedometers

Figure 3: Changes made to intervention design

Issue identified	Change made
Manual too big	Reduced repetition Change from 1 x A4 to 2 x A5 format
Key points get lost in the text	Added summaries at the start of each chapter in emphasise key points
Too much text	Added photos to illustrate the strength exercises. Converted text lists to be an illustrative figure.
Changes to BMI may be unrealistic during an 8 week walking programme	Reduced section on BMI and weight loss
Is "self-management" the right phrase to use?	Changed title and wording to "self-directed"
"Exercise" may have intimidating overtones	Change emphasis to "physical activity" or "being active".

Figure 4: Changes made to educational material

The next stage of the development process is to take the updated version of the intervention forward to testing in the SPARK2 phase of the project. It is anticipated that participants will attend for four sessions, as described in figure 5.

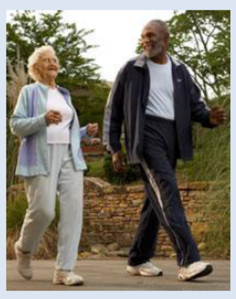

Figure 5: Design of SPARK2 testing

The primary aim of the SPARK2 testing will be to establish patient acceptability by investigating recruitment, retention and engagement rates. The semi-structured feedback interviews will be used to gain qualitative feedback regarding the patients' experience of engaging in the programme.

The design will be further updated based on the findings from SPARK2 before progressing to 12 months feasibility testing in SPARK3.

Conclusions

People with non-RRT CKD are an inactive population who have the potential to significantly reduce cardiovascular risk and improve quality of life by engaging in MVPA.
This intervention has been developed in a person-centred manner based on the MRC Framework for Developing Complex Interventions.

Positive feedback from both professionals and patients was received and thus the next stage of the SPARK project is to iteratively test the intervention design in practice.

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