The Future Challenges

Keeping Healthy at Home:

Keeping Active During Covid-19

West of England Academic Health Science Network

Wiltshire HEALTH AND CARE

Activ®

The Future Challenges: Keeping Active During Covid-19

Project Contributors

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Approvals

Project Partners	Role	Approval Received
West of England AHSN Senior Leadership Team	Sponsor	9 August 2021
KiActiv®	Innovator	4 August 2021
Wiltshire Health and Care	Host	30 July 2021

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Funding

The West of England AHSN, under their Office for Life Science commission, funded the Future Challenges programme to aid the adoption and spread of promising innovations.

[1] KiActiv® is the trading name of Ki Performance Lifestyle Limited

The work described here was a Covid-19 response project that was added to the programme at the request of Wiltshire Health and Care.

Assurance rating

* This report can be used for context and background information	☐
** This report can help inform decision making, when considered with other information	☒
*** This report is the best available evidence to date	☐

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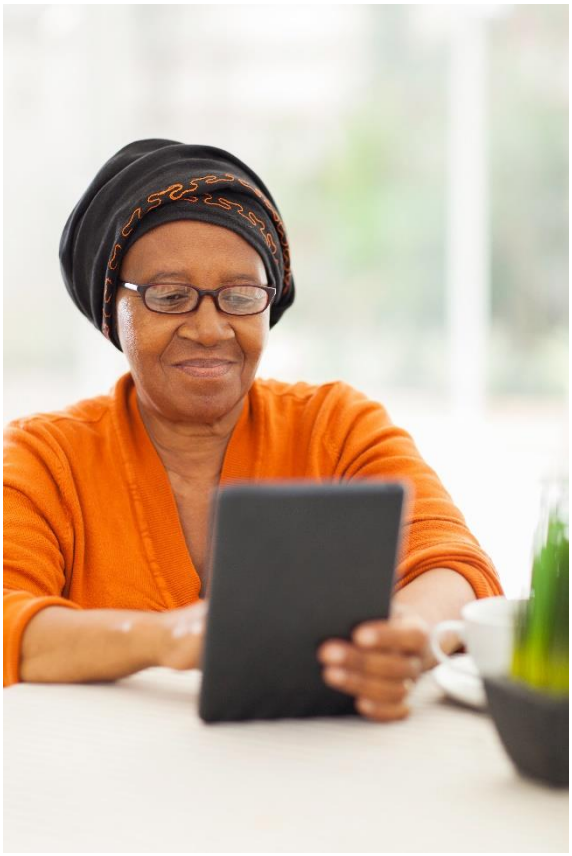


Contents

Executive summary

Background

The West of England AHSN's Future Challenges Programme provides support for innovators and local partners to pilot and validate new technologies and services in real-world settings. The "Keeping Active During Covid-19" project was launched in May 2020 when Wiltshire Health and Care (WHC) had to pause the provision of face-to-face community Pulmonary Rehabilitation (PR) during the Covid-19 pandemic. The clinical team were concerned that patients with chronic respiratory conditions would not be able to maintain an adequate level of physical activity and their condition would deteriorate.

Innovation

This pilot evaluated KiActiv® Health, a personalised and guided online intervention that empowers participants to optimise physical activity within their everyday lives. KiActiv® Health provides an interactive personalised dashboard to display accurate physical activity data and is supported remotely by phone calls with a dedicated KiActiv® Mentor over 12-weeks. At the end of the 12-weeks, participants retain access to their personal dashboard and activity monitor, enabling them to continue their self-management using the technology if desired.

Purpose / objective

As WHC was unable to provide group face-to-face PR, the clinical team and commissioners felt that KiActiv® Health could be useful for those patients who would normally be referred for PR. The main objective of this pilot was to offer a remote solution to support isolated, vulnerable patients who are living with a respiratory condition.

Methodology

Patients were assessed by the WHC respiratory team for suitability prior to participation. 29 participants with a respiratory diagnosis and a Medical Research Council Dyspnoea Scale score three or more, who were assessed as likely to benefit from maintaining their physical activity during shielding, were invited. All 29 contacted KiActiv®, 28 were recruited and 25 completed the 12-weeks. Data for this pilot was analysed from a range of sources: the KiActiv® Health platform, KiActiv® Mentor calls, a self-administered online questionnaire (completed pre- and post-intervention) and a post-intervention questionnaire provided by the WHC clinical team (completed by only 13 patients).

Key findings

- High levels of engagement in KiActiv® Health were demonstrated by participants, including uploading physical activity data at least every other day (59%) and interacting with the online dashboard once every four days (24%).
- A statistically significant number of participants reported that they felt more confident in their ability to be physically active following KiActiv® Health.
- No other statistically significant differences were found in the responses to the other five questions asked.
- On completion of the 12-week programme, 85% (n=11) of participants who responded felt KiActiv® Health had met their expectations, either fully, or to some extent.

- Many patients reported having to face a variety of barriers to physical activity change, which were largely dictated by external factors, such as weather and illness.
- 95% (n=11) of respondents indicated they believed it was important to be able to receive at-home care for their condition during the Covid-19 pandemic, with 85% of respondents feeling that this would remain important for them post-pandemic.
- 61% (n=8) of respondents expressed feeling better as a result of their participation in KiActiv® Health, with reported benefits being both physical and mental.

Lessons learned and conclusions

This small pilot suggests that for certain participants with a respiratory condition, who experience difficulty in accessing existing face-to-face services, KiActiv® provides an alternative management solution and meets some of the components of national guidelines for PR. The programme facilitates increased self-management skills, following an assessment and a recommendation by a health professional. Participants in the project received person-centred care along with tailored individual advice on managing their daily activity to best support their respiratory diagnosis. The remote nature of KiActiv® Health overcomes the travel barrier; ensuring participants were supported from the safety of their own homes. It may also provide a good alternative to face-to-face PR for those who would otherwise have received no intervention.

Recommendations

This was a Covid-19 response project; as such, it did not evaluate the impact of KiActiv® Health on physical activity behaviours or provide a cost-based analysis of benefit. Despite this, and the small sample size, we believe the evidence collected supports the consideration of ongoing use to allow further real-world validation, and to assess the utility of the product as part of the overall care offered to this cohort of patients.

Further opportunities to integrate KiActiv® Health alongside existing clinical pathways were identified, and these could be evaluated separately to demonstrate impact on particular patient groups (e.g., those in very rural areas). It may also be useful to consider developing educational content that can be delivered remotely to complement the KiActiv® programme, if it were to be used as a direct alternative to face-to-face PR. Further evaluation of health benefits and cost utility would support the case for widespread adoption of the KiActiv® Health product.

1. Background

The West of England AHSN's Future Challenges Programme is an innovative new way of supporting innovators and local partners to pilot new technologies and services and validate them in a real-world setting. The key aim of the programme is to generate evidence to support the wider introduction of promising innovations to address an identified health and care challenge. The "Keeping Active During Covid-19" project was launched in May 2020 at the request of Wiltshire Health and Care (WHC), an NHS community service provider.

WHC had identified a risk that during the Covid-19 pandemic when the provision of face-to-face community Pulmonary Rehabilitation (PR) was paused; which was that chronic respiratory patients who were shielding at home would become deconditioned, leading to potential further deterioration in their long-term condition.

2. The KiActiv® intervention

KiActiv® Health is a digital therapy that aims to empower people with long-term conditions and those on rehabilitation pathways to self-care at home using their personal everyday physical activity. It utilises a personalised, mentor-guided digital service which aims to empower individuals to make sustainable behaviour change in the context of their health, capacity and environment.

The KiActiv® Health service is available 24/7 and requires no visits to clinics or gyms. It can provide an accessible option for those who are unable or have chosen not to take up PR, or are unable to, who previously may have received limited continuing support.

In the context of a respiratory diagnosis, physical activity has numerous benefits and is the cornerstone of PR. Being physically active improves breathing and can reduce other symptoms of Chronic Obstructive Pulmonary Disease (COPD), as well as benefiting mental and physical wellbeing, and quality of life. Many people find being active helps them more than inhaled drugs[2].

However, for many people living with a respiratory diagnosis, physical activity is something that is often dreaded or feared, and there is a common misconception that for physical activity to be valuable it must be vigorous, or exercise based. As such, understanding that physical activity is more than just exercise and sport, and that every move matters, is vital for empowering effective self-management.

Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure, and as such, it is important to account for all of the movement in an individual's lifestyle, and not just exercise.

[2] British Lung Foundation, 2019: https://www.blf.org.uk/

KiActiv®'s approach evaluates physical activity across multiple dimensions that are independently important to health, using their patented method of data analysis. Much like the multiple aspects of diet known to be important, physical activity is a heterogeneous behaviour, which cannot be accurately reflected in a single metric.

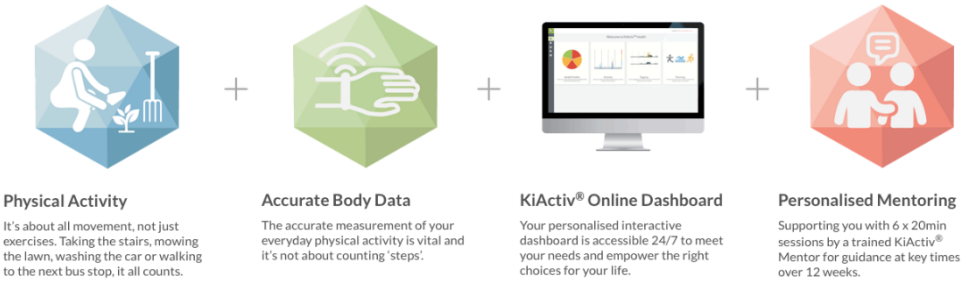
3. KiActiv® and physical activity for health

Research has demonstrated that personalised multi-dimensional physical activity profiles are crucial to providing an accurate and comprehensive understanding of an individual's physical activity (Thompson *et al.* 2015; Thompson and Batterham, 2013). Importantly, this overcomes the danger of developing a false picture of one's physical activities and moves away from this idea that exercise is the only type of movement beneficial to our health. The KiActiv® service aims to expand the therapy window, from just one to two hours of exercise per week, to include all ~112 hours of a waking week and provides a personalised understanding of the value of movement in daily routines and how to find opportunities to move more. For individuals living with a respiratory diagnosis, focusing on movements they enjoy or feel comfortable with, and learning how to pace themselves, can help alleviate fear and deliver the numerous benefits of physical activity and promote self-care. Staying physically active can take a variety of forms, from small, everyday changes, such as walking an extra bus stop or taking the stairs instead of the lift, to the structured exercise in PR programmes.

The focus of KiActiv® is on empowering individuals to make the right choices for their health and to create new habits relating to their physical activity that benefit them now and in the future. The KiActiv® approach to behaviour change is underpinned by Self-Determination Theory (Deci and Ryan, 2000; Ryan and Deci, 2000; Williams, Deci and Ryan, 1998), which suggests that sustainable behaviour change relies on people internalising the value of the behaviour, knowing how to change, and being supported to have authentic self-choice in doing so.

It focuses on the fulfilment of people's need for autonomy, competence and relatedness, as drivers for initiating and maintaining changes in behaviour. Across the 12-week programme, KiActiv® Health aims to support these needs and enable people to make self-endorsed behaviour change, which through the emphasis on personal understanding and intrinsic value are sustainable in the long-term.

Figure 1: Infographic of the KiActiv® Health programme



KiActiv®'s proprietary technology evaluates minute-by-minute physical activity data from a validated wearable monitor, cleanses the data, and displays it instantly in the user's personalised online dashboard, available 24/7 to provide meaningful and actionable feedback.

Patients are also supported by a trained, dedicated KiActiv® Mentor throughout the 12-week programme at six key time points. The Mentor calls aim to help patients build an understanding of the value of their daily activities and the confidence to plan, monitor and improve, without compulsion or prescription.

At the end of the 12-weeks the patients retain access to their personal dashboard and activity monitor, enabling them to continue their self-management using the technology if desired.

4. The KiActiv® pilot in Wiltshire Health and Care (WHC)

This pilot evaluated the use of the KiActiv® Health service, a personalised and guided online intervention that empowers participants to optimise physical activity within their everyday lives. WHC were introduced to KiActiv® prior to the pandemic as a supplemental way to offer activity-based support to their respiratory patients.

KiActiv® had already been commissioned in other areas of community health to support those with type 2 diabetes and other long-term conditions in a community setting. To complement this, the West of England AHSN decided to undertake an additional pilot under the Future Challenges Programme and to evaluate this patient cohort, as it had not been completed previously.

The West of England AHSN is also evaluating the use of KiActiv® Health in patients with COPD through the "Moving to Better Health" project in Bristol, North Somerset and South Gloucestershire (BNSSG) and the results from this will be reported in 2021.

Under the programme theme of 'Keeping Healthy at Home,' the main objective of this pilot was to offer a remote solution to support isolated, vulnerable patients who are living with a respiratory condition.

The project partners collaboratively wrote this project report and KiActiv® completed the data analysis unless otherwise stated.

5. Methodology

5.1 Aims

The WHC respiratory team felt that KiActiv® could offer support and encouragement to some vulnerable respiratory patients, to enable them to keep active during this difficult time of global pandemic and national restrictions. It is known that inactivity is detrimental to patients with a respiratory diagnosis and PR has shown to increase activity levels, reduce breathlessness and fatigue and improve quality of life, in turn reducing secondary care management costs[3].

The WHC team also thought that KiActiv® may have the ability to provide benefits to vulnerable respiratory patients whilst keeping them safe in their home environment and avoiding deterioration and a potential hospital admission. This pilot aimed to implement the use of KiActiv® for patients impacted during the Covid-19 pandemic that would benefit from remaining physically active while shielding at home. The West of England AHSN agreed to fund up to 30 licences as part of an initial pilot under The Future Challenges programme.

5.2 Objectives

1. Is the KiActiv® Health technology accepted and used by clinically vulnerable respiratory patients in a pilot use during the Covid-19 pandemic, when physical restrictions were in place?
2. What were the barriers and enablers to participants' implementation of physical activity behaviour change?

5.3 Recruitment

The WHC respiratory team aimed to recruit 20-30 participants onto the KiActiv® Health 12-week service from the South Wiltshire area. Initially, referrals came from patients already known to the WHC team.

Additionally, practice nurses from local surgeries were emailed information and asked to send in further referrals. Although there was positive feedback from staff, responses from only four out of 15 surgeries in the South Wiltshire area were received.

Patients were assessed by the WHC respiratory team for suitability prior to participation. 29 participants were selected to receive invitations to join KiActiv® Health. Participants received usual GP care once enrolled on to the programme. However, due to Covid-19, face-to-face care would have been reduced and converted to telephone conducted reviews where possible.

[3] NHS England 2020 service guidance pulmonary rehabilitation: https://www.england.nhs.uk/wp-content/uploads/2020/03/pulmonary-rehabilitation-service-guidance.pdf

Those that were referred by GPs but screened out by the WHC respiratory team included participants without access to the internet and other clinical concerns such as unstable cardiac disease or having a cognitive impairment.

5.4 Data collection

Data was collected through a combination of primary and secondary data from the WHC respiratory team, KiActiv® and The West of England AHSN.

5.5 Inclusion and exclusion criteria

Those with a respiratory diagnosis (with an MRC score three or more[4]) who would benefit from maintaining their physical activity during shielding were included.

Additionally, those with unstable cardiac disease, concerning history of falls or significant cognitive impairment were excluded.

Some patients were not offered the opportunity to participate by WHC due to a lack of internet access or appropriate IT device availability.

[4] https://www.pcrs-uk.org/mrc-dyspnoea-scale

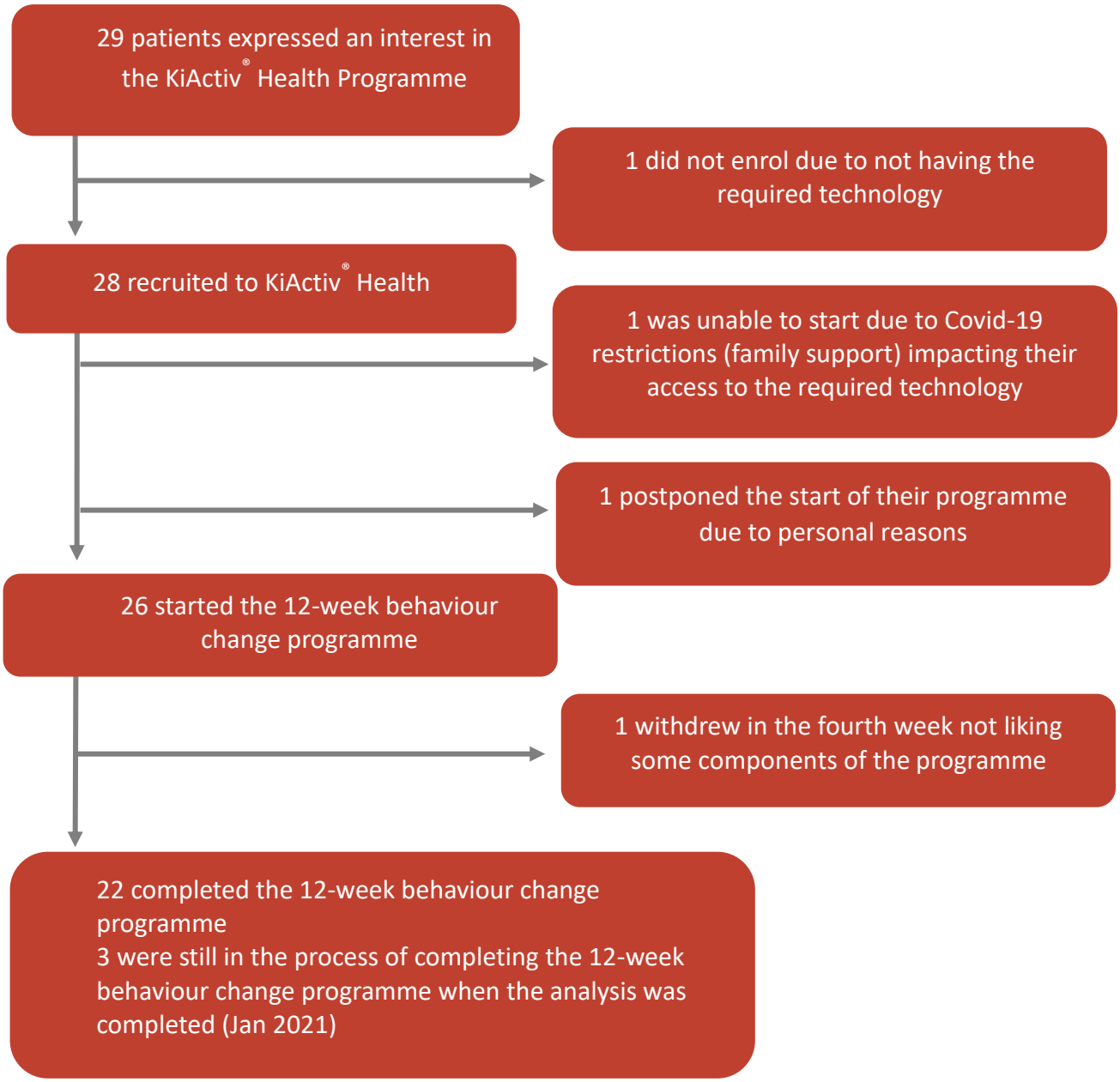
6. Findings and data insights

Please note, not all numbers in charts may add up to 100% due to rounding up.

6.1 Participants

Of the 29 participants who contacted KiActiv® after receiving an invitation, 28 were recruited (97%) and an overview of their participation is displayed in Figure 2.

Figure 2: KiActiv® Health programme participation rates



Of the 28 participants who enrolled on KiActiv® Health, 18 were women (64%), median age was 61 years and mean body mass index was 31.9 kg/m^2. On enrolment, 15% of participants were current smokers and 8% vapers.

One patient reported having a lung cancer diagnosis (4%), eight participants (27%) reported having an asthma diagnosis and 19 participants (68%) reported a COPD diagnosis. Of those with a COPD diagnosis, four (21%) had also been diagnosed with asthma. Six participants had previously attended a PR programme of which four had completed, however the timeframe of when this intervention was completed is not known to the project team. 21 participants had not completed PR previously, some of the reasons included: six had never been offered a PR programme; five could not attend due to work commitments; four had declined PR; one was a new diagnosis and for five participants WHC were unable to identify from their notes whether or not they had been offered a PR service previously.

Figure 3. Age of patients enrolled on KiActiv® Health

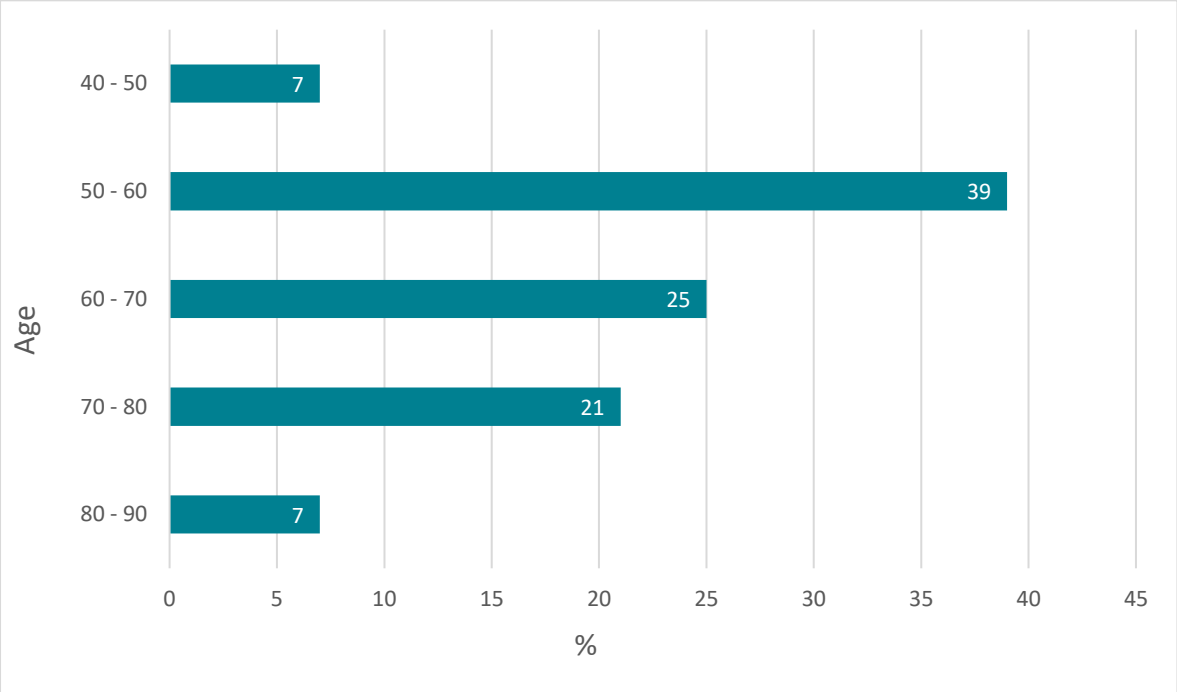


Figure 4: Sex of patients enrolled on KiActiv® Health

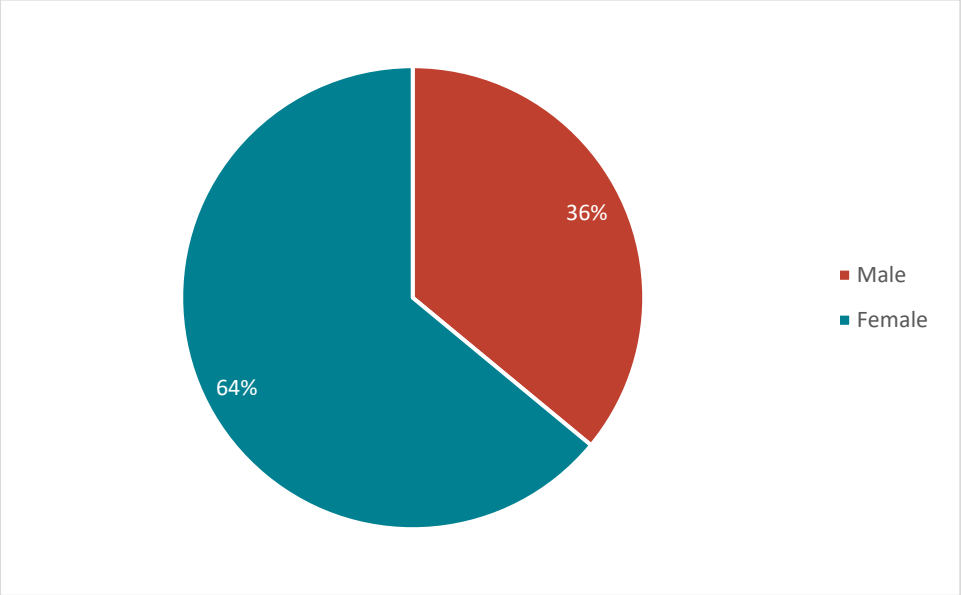


Figure 5: BMI of patients enrolled on KiActiv® Health

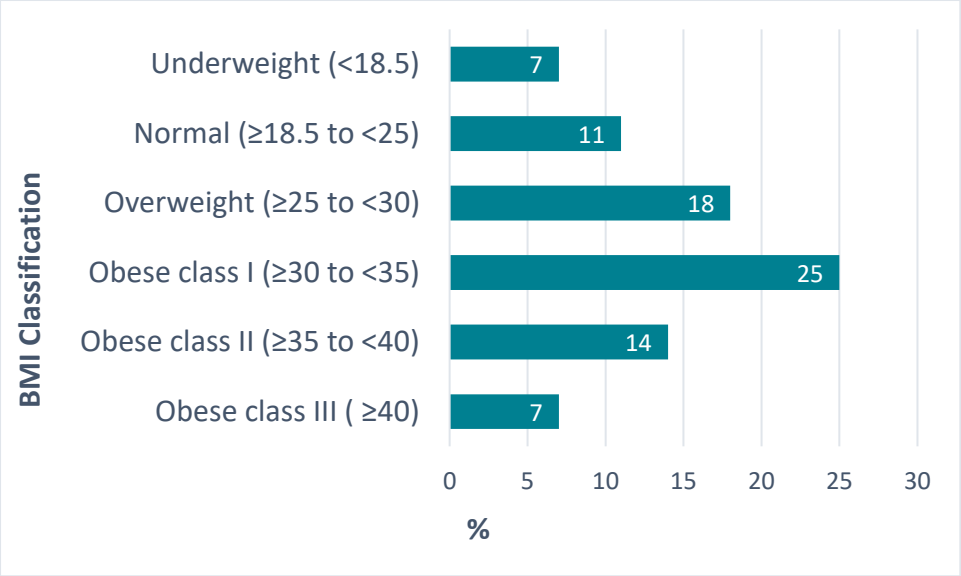
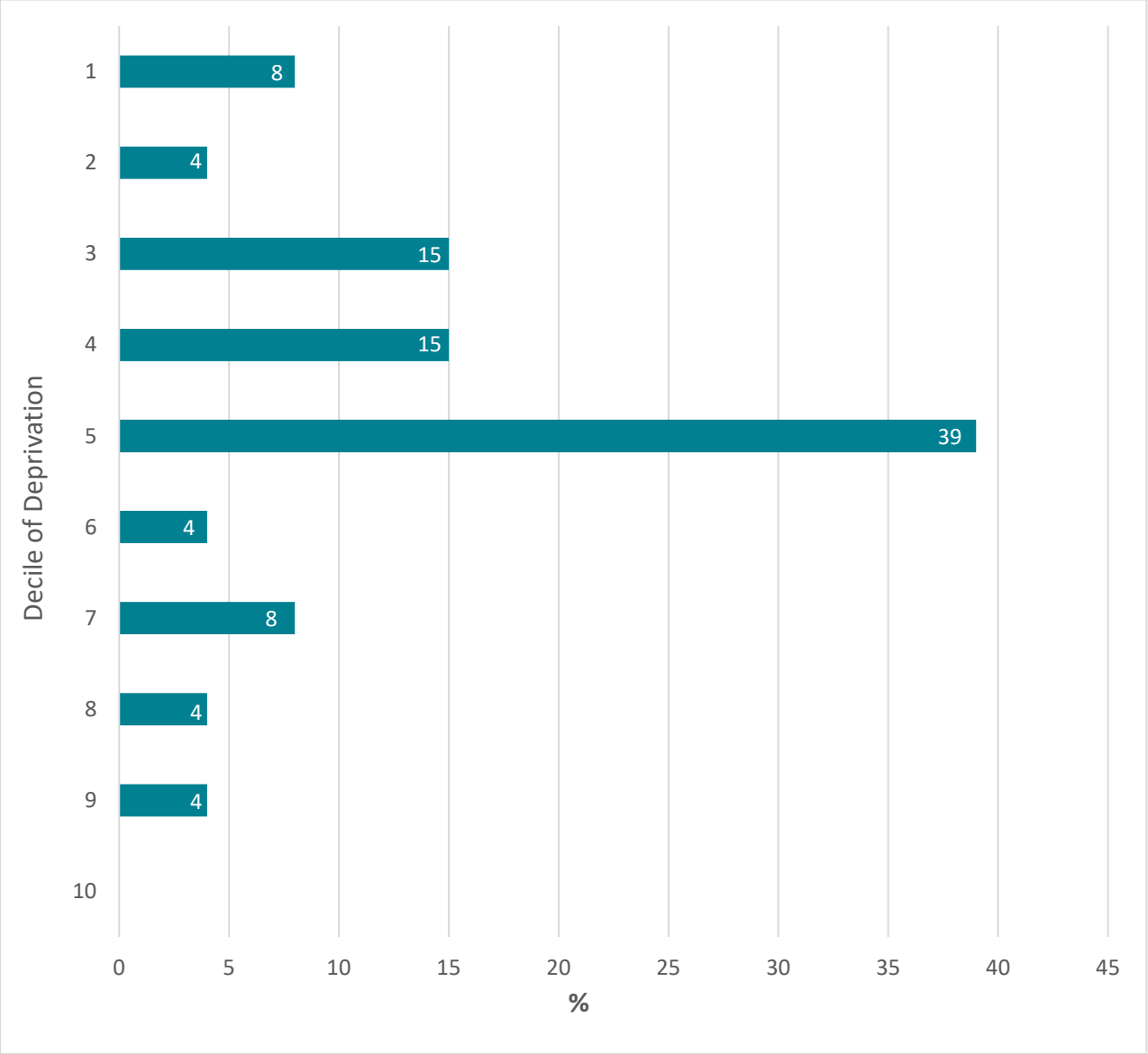


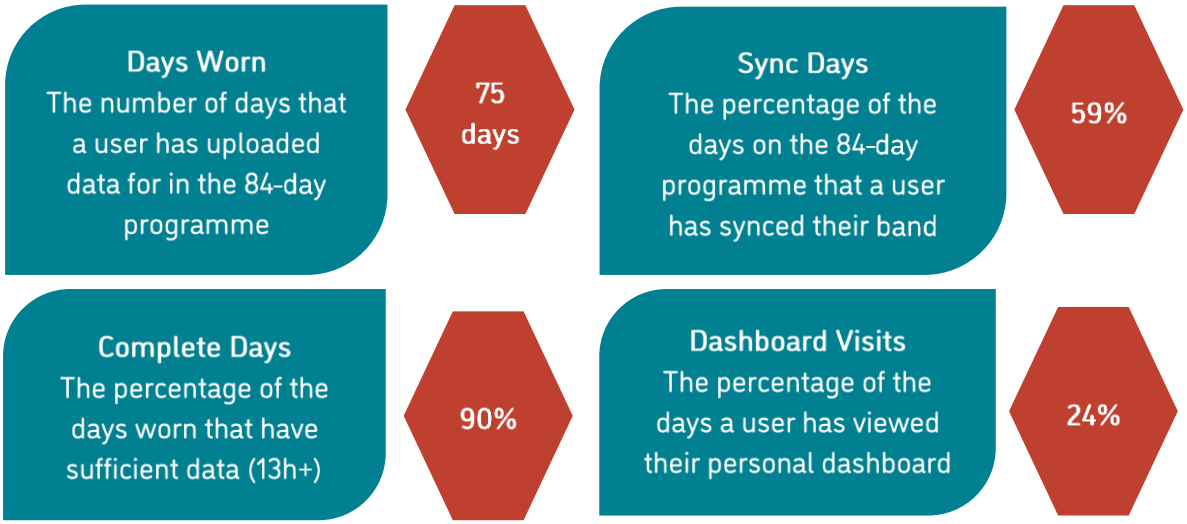
Figure 6: Percentage of patients referred from each decile of deprivation



6.2 Engagement

Participants demonstrated a high level of engagement during the programme, as indicated by the number of days they wore the physical activity monitor, how often they uploaded their data to their dashboard, and how often they engaged with their dashboard online. Figure 7 (on next page) represents the group average across four measures of engagement:

Figure 7: Group average engagement data



The above analysis shows that across the whole cohort:

- Physical activity data was collected for 89% of the 12-week period
- People uploaded their data through the KiActiv® Health mobile app more than once every two days
- People visited their dashboard approximately once every four days.

6.3 Physical activity in people with respiratory conditions

Individuals with respiratory conditions typically engage in very little physical activity due to worsening symptoms, exertional dyspnoea (shortness of breath) and fatigue (Carson *et al*., 2013; Hill *et al*., 2015). Indeed, the mean baseline Physical Activity Level (PAL: Total Energy Expenditure [TEE]/Basal Metabolic Rate [BMR]) in this pilot of 1.74 is slightly lower than the mean of 1.79 assessed in a representative sample of the UK population (Brage *et al*., 2020), indicating our participants were less active than the average UK adult at baseline. In the absence of an additional intervention, it can be assumed that these physical activity behaviours are unlikely to improve.

Previous research with COPD patients indicates that without a formalised intervention physical activity levels over a 16-week period remain stable in less severe stages (GOLD A, B and C[5]; Agarwal *et al*., 2012) and decline in those with the most severe COPD (Global Initiative for Chronic Obstructive Lung Disease 2011 Group [GOLD] D).

When observed over a period of 18 months to three years, physical activity has been shown to substantially decrease across all severity stages of COPD (Durheim *et al*., 2015; Waschki *et al*., 2015).

[5] The GOLD criteria is a staging or grading system used to describe the severity of a patient's COPD: https://goldcopd.org/

Similarly, asthma is known to have an adverse impact on physical activity levels and, likewise, low levels of physical activity result in deconditioning, making future physical activity more difficult and leading to worse asthma outcomes (Panagiotou, Koulouris and Rovina, 2020). Indeed, a recent systematic review concluded that people with asthma engage in less physical activity than people who do not have asthma (Cordova-Rivera *et al*., 2018). As such, physical activity should be a key part of the treatment plan for patients with COPD (Ramos *et al*., 2019; Emtner, 2011) and/or asthma (Global Initiative for Asthma, 2019) as it has positive effects both physiologically and psychologically.

There is currently no standardised approach for the analysis of continuous free-living[6] physical activity data and all methods of analysis will contain uncertainty about the effects of factors such as seasonal variation, normal disease-related changes in physical activity, and reactivity at baseline. As this was an open pilot study with a small number of participants, we have not attempted to evaluate these behaviours.

6.4 Self-administered online questionnaire

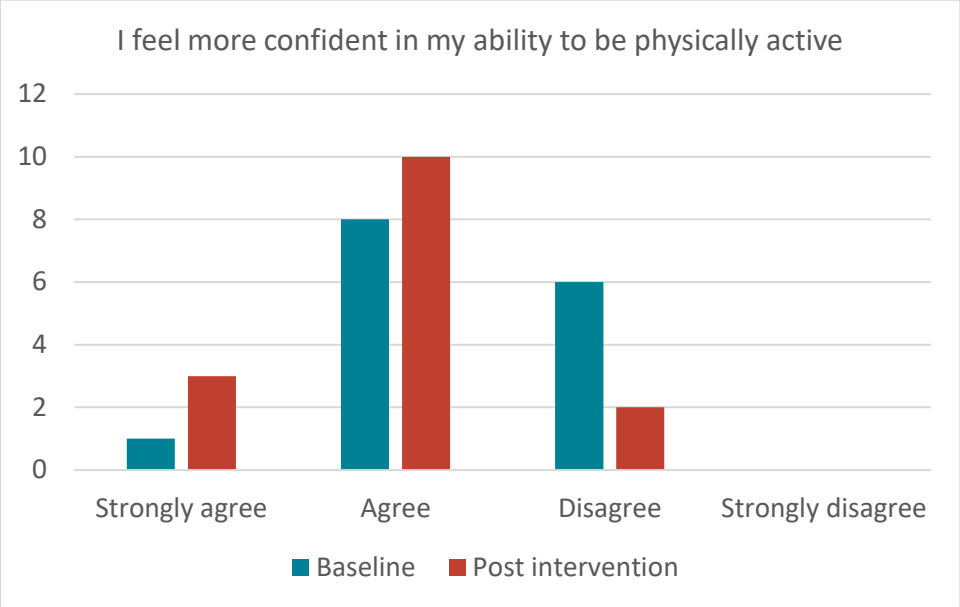
A self-administered online questionnaire was completed by participants at baseline (pre-intervention) and following completion of the 12-week KiActiv® Health programme (post-intervention). It consisted of single-item questions to address specific outcomes.

There was a significant difference ($P < 0.05$) between pre- and post- programme scores[7] (n=15) in the "I feel more confident in my ability to be physically active" as shown in *Figure 8,* indicating that participants felt more confident in their ability to be physically active following KiActiv® Health. There was no statistically significant difference between the scores of the other five questions ($P > 0.05$; *Appendix 1*).

[6] Free living physical activity is the level of activity of patients, within their physical limitations, at their own pace, and in their own environment

[7] Pre and post scores for participants were not matched – see limitations section

Figure 8: Responses to the single-item question *"I feel more confident in my ability to be physically active"*.



6.5 Patient experience

6.5.1 Impact of the coronavirus pandemic:

During the project participants experienced changes in the Covid-19 national guidelines and recommendations, including a loosening of restrictions towards the end of the summer 2020 and full lockdown conditions in November 2020 and January 2021. In Mentor sessions, participants discussed the decisions they made in their own lives, to manage their risk of contracting Covid-19. Some chose to remain at home and shield, others limited their time out of their homes to supermarket shopping and outdoor activity such as walking.

Many expressed their frustration with the restrictions on their daily lives, feeling *"fed up"*. One participant commented being *"totally demotivated by the lockdown"* that he was using the lockdown as *"an excuse not to be active".* At the start of the November 2020 lockdown, another participant commented that *"This last two weeks has been more frustrating than the first lockdown because I've realised that just by moving around that little bit more, how much better I feel"* and that his increased awareness of the impact of lockdown had resulted in feelings of frustration.

a) Pre-programme expectations:

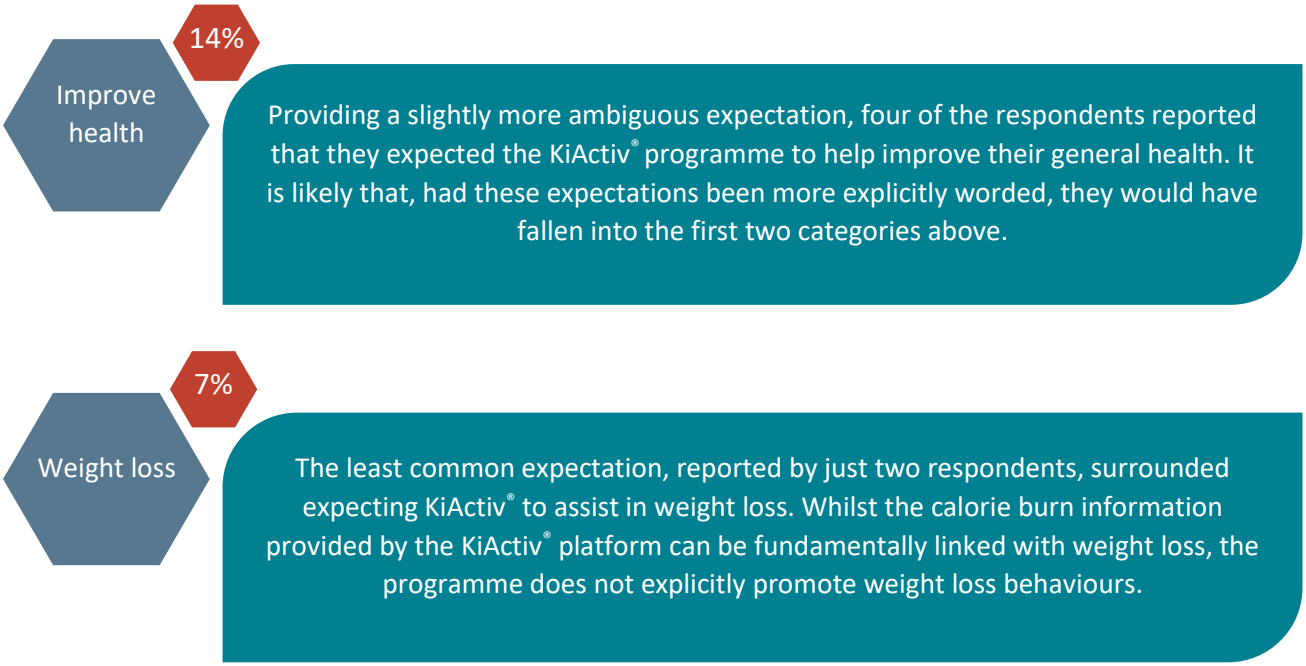
Prior to starting the KiActiv® Health programme participants reported their expectations of the programme, with many detailing their primary goals.

Clinicians gave each patient a brief explanation of what the programme involved and encouraged them to have a look at the KiActiv® website to see what they thought. Each patient also received an information leaflet (*Appendix 3*).

There was a total of 28 responses to KiActiv® data collection; all 23 participants expressed at least one expectation, with some detailing multiple expectations within the same response. These expectations could be categorised into the following:

Figure 9: participant expectations prior to stating the KiActiv® programme

Figure 9 cont.:

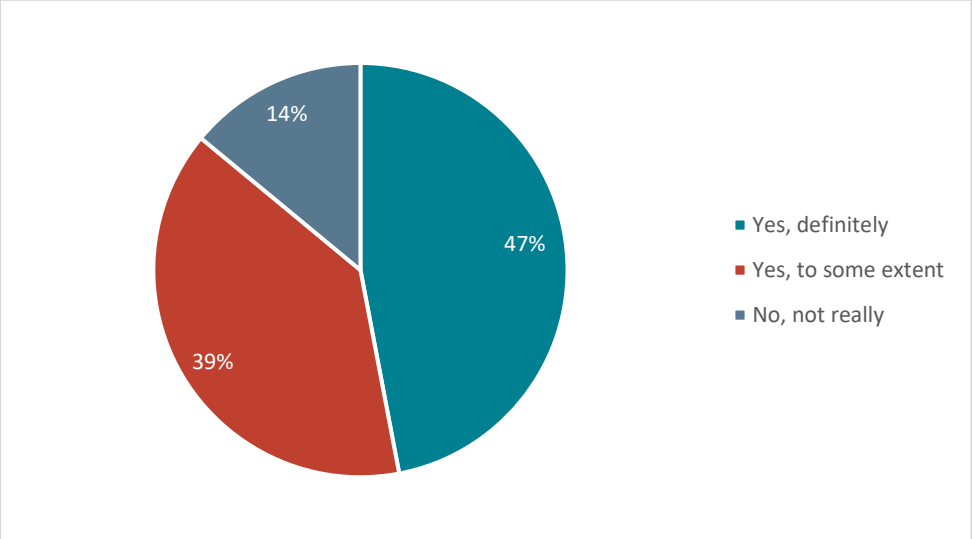


b) Post programme expectations feedback:

On completion of the 12-weeks, participants reported whether their expectations of the programme had been met. There were 13 responses to this question when asked during the final KiActiv® Mentor session, which not all participants chose to attend. 11 of the 13 participants (85%) reported that they felt as though KiActiv® Health had met their expectations either fully or to some extent.

Further detail in their responses highlighted that the programme had predominantly helped them to increase their physical activity levels and general fitness, whilst also developing a greater knowledge and understanding of the multidimensional nature of physical activity.

Figure 10: Participant responses of programme meeting expectations



The two participants (15%) who felt that the programme had not met their expectations provided further insight into their answers. One was due largely to a mismatch in expectation, with the participant anticipating direction to specific exercise classes to undertake, whilst the other simply stated they had no prior expectations.

6.5.2 Barriers to change:

Whilst undertaking KiActiv® Health, many patients faced a variety of barriers to change their physical activity levels, which were largely dictated by external factors. These were noted in their session notes by their KiActiv® Mentor to provide further detail and context. Whilst the majority of these barriers reflect those seen under any other circumstances, they also encompass new barriers relating to the Covid-19 pandemic and its consequential lockdown restrictions. A total of 81 barriers were noted (summarised in Figure 11).

Figure 11: Barriers to changing physical activity behaviour

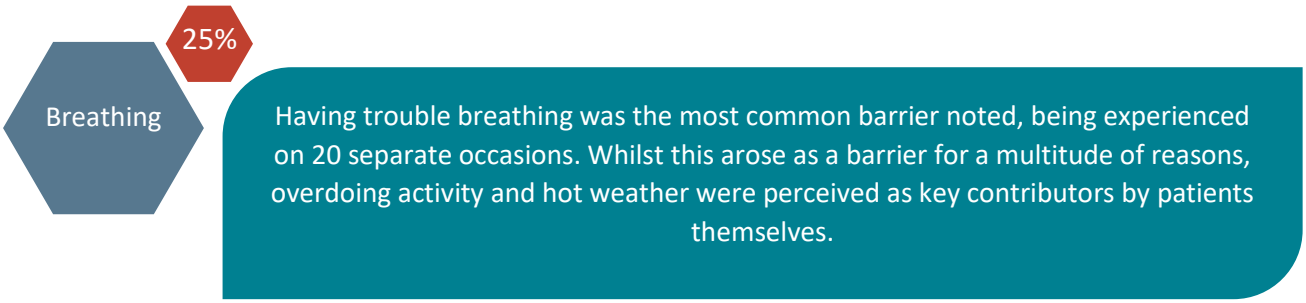
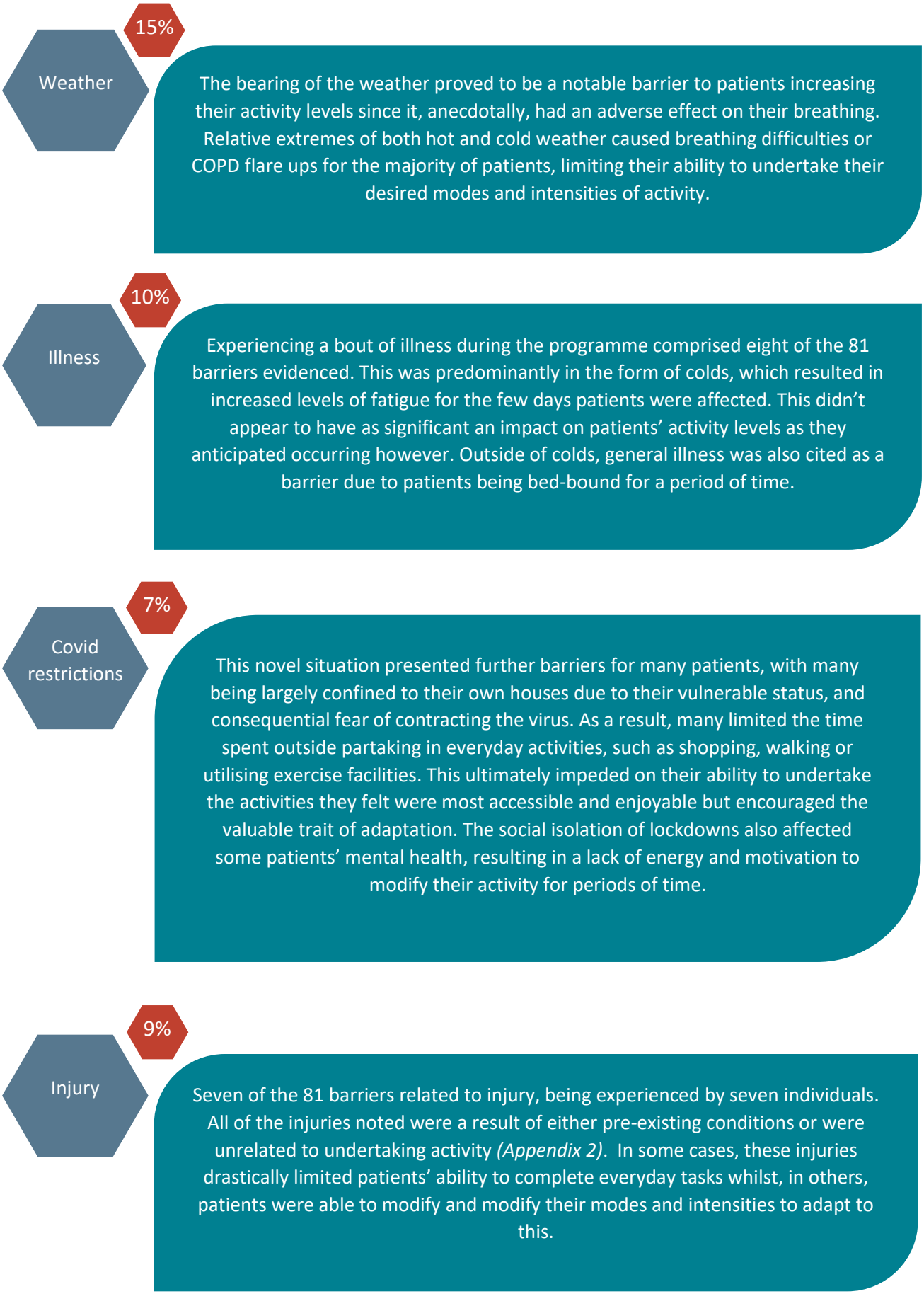


Figure 11 cont.:



Other, less frequent barriers included mental health problems and the impact of other medication on patients' energy levels, alongside technology, family issues and the difficulties around working from home.

Despite this, the majority of patients were able to demonstrate great resilience to adapt to and overcome these barriers, and it is important to recognise the significance of these traits for eliciting sustainable behaviour change (Wood, 2015).

6.5.3 Programme benefits:

Throughout the programme, participants anecdotally noted a variety of benefits they were experiencing, which were duly reported within their session notes. A thematic analysis was undertaken to classify these benefits into six categories.

a) Awareness of all movement, not just exercise:

Prior to starting the KiActiv® Health programme, many participants felt that they were unable to increase their physical activity levels and as they considered activity solely in terms of traditional, structured exercise, sports or fitness classes. On viewing their data, many participants were surprised at the misalignment between their perceptions and the reality of their lifestyle.

Expanding their understanding to appreciate the accessible nature of activity provided them with countless occasions throughout the day to incorporate movement and make gradual improvements.

"You don't consider it an activity as it's just part of the household tasks."

b) Conscious of daily activity:

The emphasis on everyday physical activity and general movement throughout KiActiv® Health proved accessible and engaging for participants. Encouraging them to make changes in ways most appropriate for them, be that through everyday chores, planned exercise or general pottering, was a novel suggestion for many. The detailed data presented by the online dashboard helped participants to identify their relative strengths and shortcomings, enabling informed decisions on how to improve their physical activity. It also offers participants transparent real time data, removing reliance on diary-based records of activity.

"That just by moving around that little bit more, how much better I feel."

"It's spurred me on and made me move even more. It's been good."

c) Motivation

Through shifting the narrative away from sport and fitness, the programme enabled participants to develop volitional and attainable solutions which in turn enhanced the quality of their motivation and their overall engagement in physical activity (Standage and Ryan, 2012). There are many determinants to motivation and accountability may have also played a role in their increased engagement.

The cyclical relationship between recognising positive change in themselves and further engaging with the programme and their activity is clear - when participants notice the benefits, they feel more empowered to continue making these beneficial changes.

"You've given me a source of inspiration."

"In the New Year I'm hoping to get some more cardiovascular activity, something more intense."

"It's shown me at times I can surprise myself. I can burn the calories, I can do moderate activity."

d) Positive mindset

The benefits of physical activity are not limited to physical health, it has a concurrent impact on participants' mood and wellbeing. The programme's emphasis on self-management puts participants in control of their own activity and health, and this empowerment allowed participants to re-evaluate the negative preconceptions that they previously had surrounding activity. Participants also commented on their increased resilience, feeling capable of managing future setbacks to sustain their new levels of activity when faced with novel barriers in the future.

"It was very encouraging, especially after my setbacks last week. It's made me feel a lot better and more positive!"

e) Establishing routine

Providing realistic and sustainable ways to include more physical activity into their routine helped participants to begin to establish new and alternate habits that focused on movement and developing an active lifestyle.

The increased awareness always enabled them to find a balance in their activity and energy expenditure, recognising the importance of pacing to allow this gradual increase in activity to not become overwhelming.

"The biggest thing is that I am much more aware of movement and that I do get some exercise."

f) Health benefits

Many participants reported feeling fitter throughout the programme, be that due to undertaking activities they had previously stopped, such as walking up and down the stairs, or being able to walk for notably longer without the need for sticks.

"It's good for the soul and good for the breathing too."

"My walking has improved and I do seem to have a bit more wherewithal to do my everyday tasks."

"My sugar levels are fantastic at the moment."

6.5.4 Questionnaire responses:

A self-administered questionnaire was also provided by the Clinical Team at WHC to 27 participants[8] following their 12-week programme. This included sending the questionnaire to one patient who withdrew in the 4th week and one who decided to postpone the start to try to independently capture their reasons. One patient had died by the time this questionnaire was sent. This post programme questionnaire was designed to collect impartial feedback and insights from participants about KiActiv® Health.

13 participants completed this online questionnaire, providing further data on the impact of the intervention. It should be noted that the time period between completing the 12-weeks and filling in the questionnaire varied greatly, between two-weeks and 17-weeks post. This variation and time delay from completing the programme to being sent the questionnaire may explain why there was less than 50% response rate. The responses to the questions asked are discussed below. Responses show that 62% of participants felt better having participated in KiActiv® Health (Figure 12).

[8] Questionnaire data was collected by WHC and was therefore sent to all participants initially enrolled in the pilot

Figure 12: How much better do you feel having participated in KiActiv®? n=13 (%)

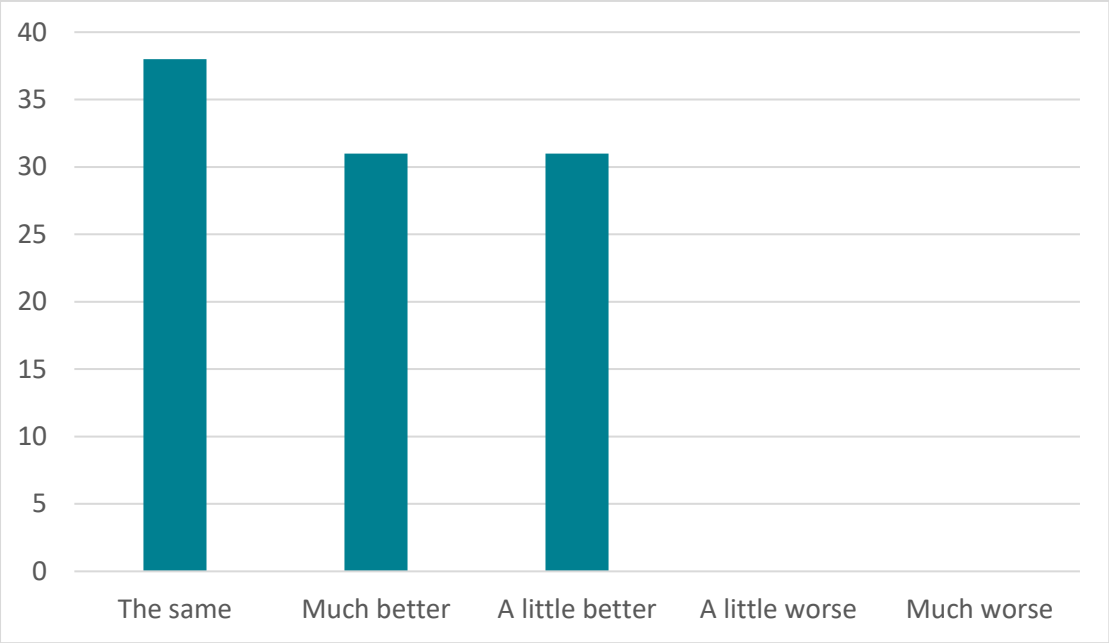
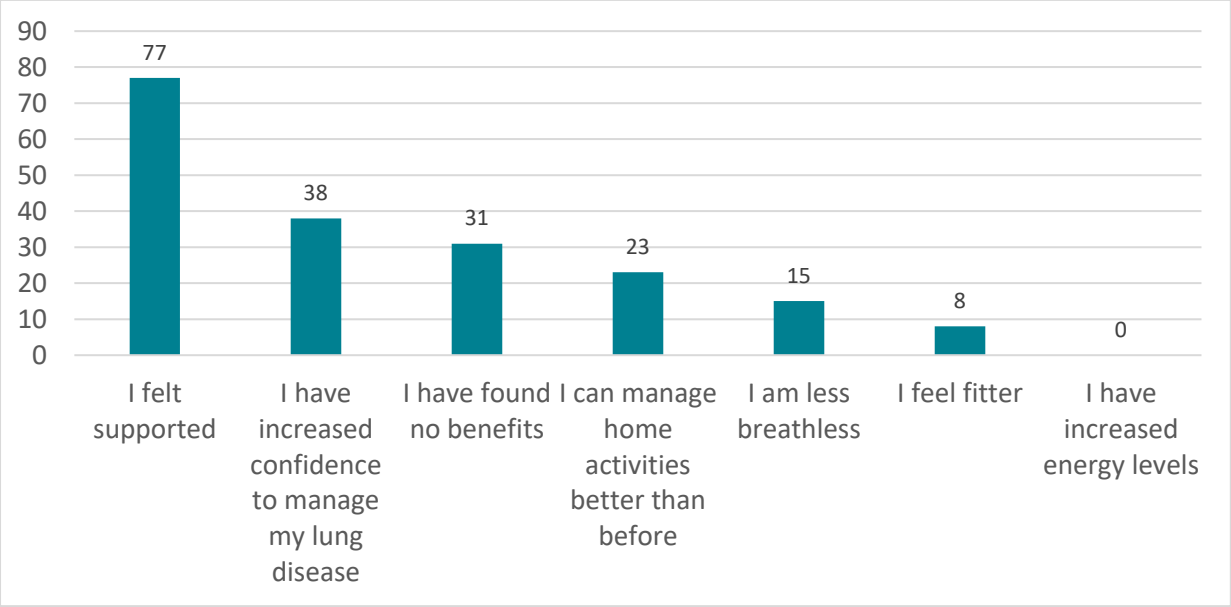


Figure 13: What benefits did you gain from participating in KiActiv®? Tick all that apply n=13 (%):



Two of the four participants who ticked "I have found no benefits", also ticked "I felt supported", with 11 of the 13 respondents identifying at least one benefit.

The low response to "I feel fitter" appears to highlight that participants' perceptions of fitness relate to exercise and not movement.

There were no responses to “I have increased energy levels”; this may be due to the small sample size who completed the questionnaire or because this may be an unrealistic outcome for this patient cohort.

Figure 14: How important is it to you to receive healthcare in your home for your lung condition? (During this COVID pandemic vs once pandemic is over?) n=13 (%)

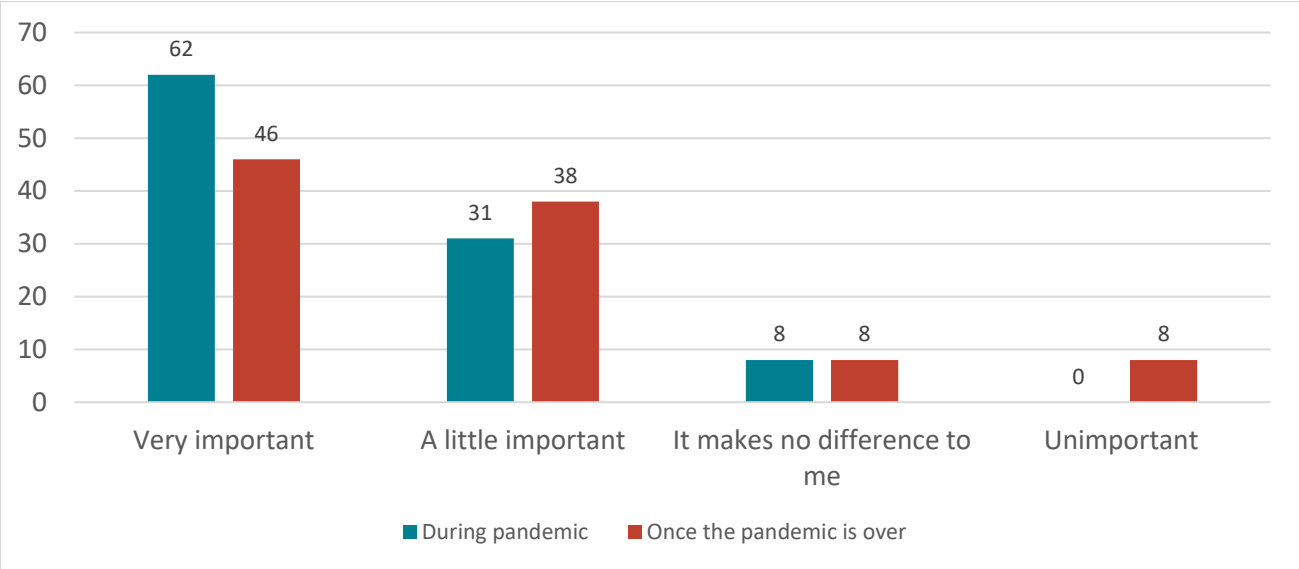
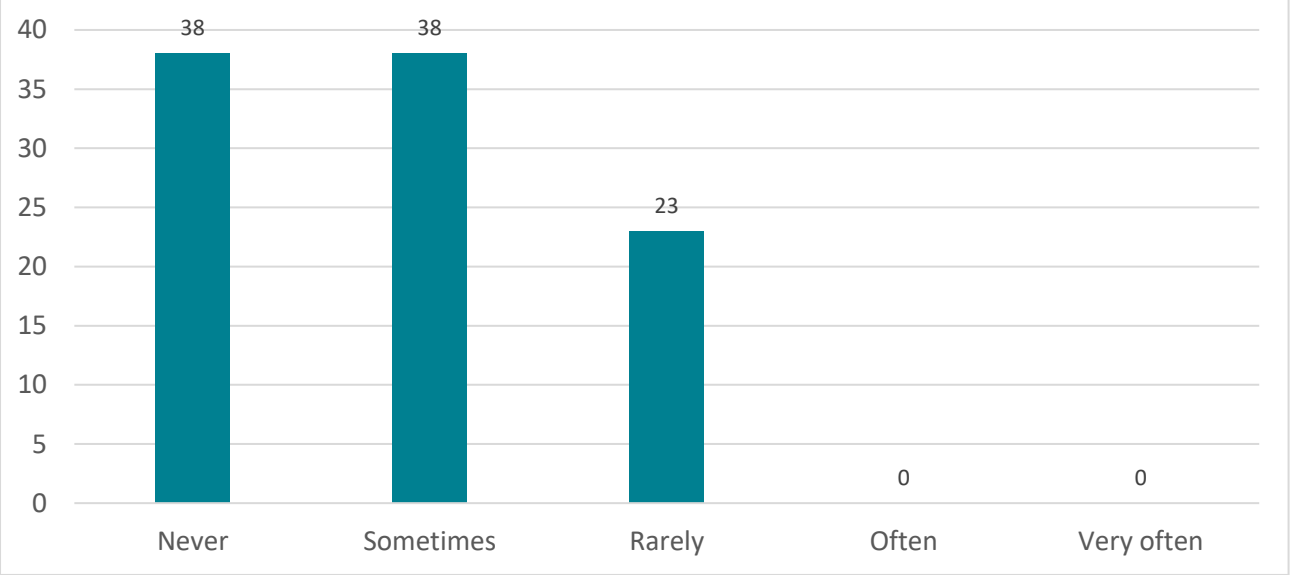


Figure 15: Did you experience any problems with using the technology? n=13 (%)

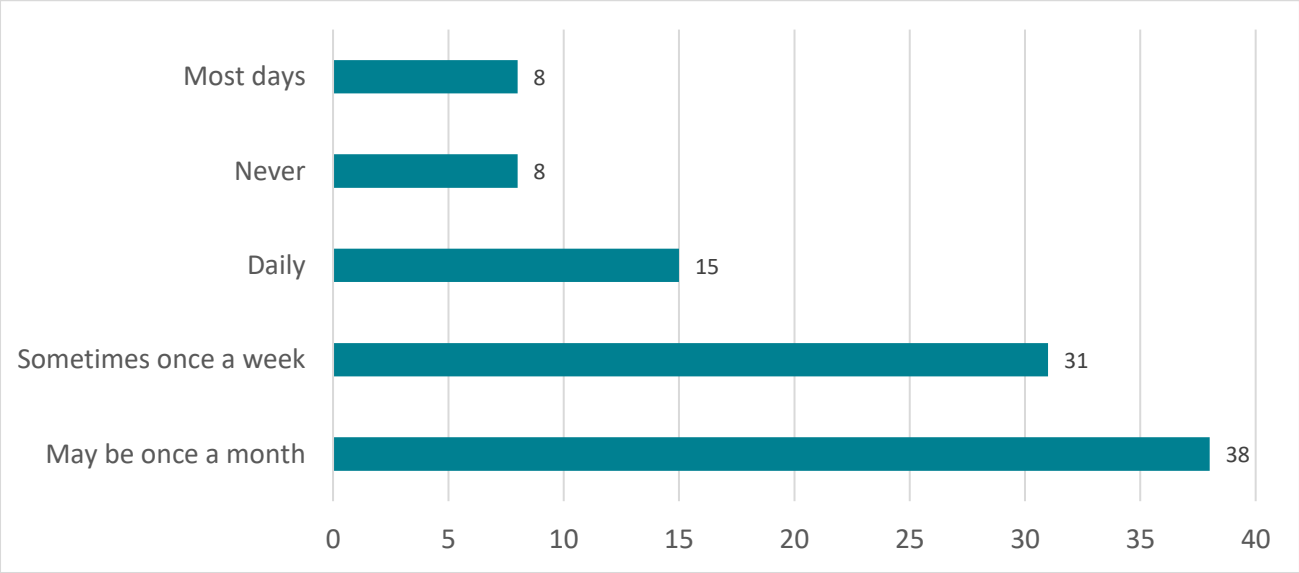


Additional semi-structure feedback included:

- Once I talked things through with my mentor there were no problems
- Simple to use. Helpful to have the phone call support to be able to fully utilise the system
- Understanding how it worked initially - had to have it explained twice
- Too many categories
- Sometimes wouldn't accept my password

Responses to a question about continued use show that 92% (n=12) of participants intend to continue their use of KiActiv®.

Figure 16: How likely are you to continue to use your activity bracelet and dashboard on the screen? n=13 (%)



When asked if they would recommend KiActiv® to other people with lung disease 85% (n=12) of respondents said they would recommend KiActiv® to others.

Additional comments you would like to make (n=8):
This was really helpful for me. I have two lung issues - sarcoidosis and lung cancer requiring a lobectomy. I had previously been fit (did triathlons) and so the limitations that my condition caused me were hard-hitting and life changing. The support from KiActiv was excellent. My mentor was understanding and helpful, making useful suggestions and helping me to make the most of the KiActiv system. It was especially useful to help me pace activities rather than 'boom and bust'. Having the facility to tag entries with details of how I was feeling and then monitor the impact of the activities over the next few days was helpful: it meant if I had a rough day with no energy, I could look back at my log & see if something I had done was too much. Having the visual charts re: activities and times is encouraging and acts as a goal to stimulate further improvement. I have found KiActiv a fantastic support and am really grateful for having had the opportunity to participate. It's made a significant difference to my ongoing recovery and rehabilitation. I will keep on using the platform in the future, as it is so useful. Thank you to everyone for allowing me this opportunity!
This makes you think how much you're [*sic]* moving and every move counts and is worth it. I now swing my arms when walking instead of keeping them in my pocket and try to make my daily chores *(sic)* take a bit longer, although getting out and about is difficult at the moment with Covid-19.
If I wasn't so bad breathing, I would have been able to continue, but using oxygen 24/7 and struggling with my breath you start panicking and worrying.
It was extremely helpful to know that all movement even housework uses calories, and it is not always exercise *(sic)* that helps in fitness.
A waste of money and should not be supported.
On a personal level the most beneficial part was actually the one-to-one chats that I had with my mentor. Mostly of a mental release due to being stuck virtually on my own for the majority of the pandemic. I would like to thank her for just listening to my ramblings.
This has increased my awareness and prompted me to be more pro-active about my breathing problems.

My mentor was very encouraging and gave me incentive.

In addition to the standard data collection, a further testimonial was sent to the KiActiv® team, from one of the participants on the programme, who is also a clinician this can be found in Appendix 4.

Clinician feedback:

Respiratory Clinical Lead: "In summary, it was a great opportunity to be involved in a project which has exciting opportunities for a different way of working. I have seen the amazing benefits to patients who have undertaken traditional pulmonary rehab, but this was suspended with Covid-19, and we had no idea when this was going to be available. I was also aware that some patients did not engage in traditional face-to-face rehab for a variety of reasons and thought it would be interesting to see how using a digital programme could help increase activity levels for those who are shielding or are staying local. It would have been beneficial if, as clinicians, we could have logged in and seen the engagement levels.

In the future we will need to look at alternative ways of assisting patients to increase their activity levels, as there is going to be a long waiting list for those wanting face-to-face rehab and the need is even more for those patients who have been shielding, as many are deconditioned having not left their homes for many months."

Clinical Specialist Respiratory Physiotherapist: "Being part of 'Keeping Active During Covid-19' gave me great hope that some patients in Wiltshire with chronic lung disease could access personalised patient care at a time when managing long term disease at home in the community became paramount. The patient recruitment process could have been improved upon, as accessing eligible patients was not easy. Despite this, it became a self-fulfilling process as the targeted patients showed willingness to be part of the pilot study. Apps for health management have been available for some time yet providing the activity tracker along with personalised coaching felt a positive step in the right direction for delivering up to date health management. I found great enthusiasm for the project with pleasantly surprising outcomes and patient feedback. This experience has shown me that users of health services who have technology and adequate computer literacy appear ready to use technology for the purpose of health monitoring and self-management, eliciting positive end outcomes."

7. Limitations

This short report provides feedback on a rapid evaluation of the use of KiActiv® Health for vulnerable respiratory patients during the Covid-19 pandemic, as a mechanism to keep active during pandemic restrictions. There are a number of limitations that are acknowledged with data reported.

There was difficulty identifying suitable participants for referral into the project, despite networking across the primary care networks (PCN)s involved and a distribution of flyers to all GP practices.

Findings are reported on a small dataset, pre and post measures are not matched and therefore should be interpreted with caution due to small numbers.

This report is not a formal evaluation of the impact of KiActiv® Health on physical activity behaviours, and a cost-based analysis was not performed as part of this evaluation. It reports on the feasibility of KiActiv® Health as a rapidly implemented solution to support patients during Covid-19 pandemic, and as such, reports only on the feasibility of the use of KiActiv® Health, rather than a patient outcome or impact study.

Due to Covid-19 the participants included all respiratory participants, including those who would normally be referred for face-to-face PR. Therefore, we were unable to ascertain the true impact of Covid-19 on the implementation of the programme or whether this resulted in additional positive or negative general behaviour change unrelated to KiActiv®.

8. Discussion

It was hypothesised that KiActiv® Health could offer support and encouragement to some vulnerable respiratory patients, to enable them to keep active during a global pandemic and the introduction of national restrictions. Inactivity is detrimental to patients with a respiratory diagnosis and PR has been shown to increase activity levels, reduce breathlessness and fatigue and improve quality of life, in turn reducing secondary care management costs. It was thought that KiActiv® had the ability to provide benefits to vulnerable respiratory patients whilst keeping them safe in their home environment and avoiding deterioration and a potential hospital admission.

KiActiv® have identified that understanding that physical activity is more than just exercise and sport, and that every move matters, is vital for empowering effective self-management. To support the positive behaviour change required for self-care at home, the KiActiv® system is grounded in Self-Determination Theory, a motivational theory which has strong empirical support in the context of health (Fortier *et al.,* 2009; Williams, 2002), including the context of physical activity (Wilson, Mack and Grattan, 2008; Fortier and Kowal, 2007; Biddle and Nigg, 2000). Together, the components of the KiActiv® Health service enable people to internalise the value of the behaviour, understand how to change, and support them to have authentic self-choice in doing so.

Research has shown that when individuals experience autonomy and competence in their treatment, they experience volitional engagement and demonstrate greater maintenance of desirable health behaviours (Ryan *et al*., 2008).

Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure (Caspersen, Powell and Christenson, 1985), and it is important to account for all of the movement in patients' lifestyles, and not just exercise. The KiActiv® approach measures physical activity across multiple dimensions that are independently important to health because, much like the multiple aspects of diet known to be important, physical activity is a complex, heterogeneous behaviour.

Previous research has demonstrated that personalised multi-dimensional physical activity profiles are crucial to providing an accurate and comprehensive understanding of an individual's physical activity (Thompson *et al.* 2015; Thompson and Batterham, 2013).

These multi-dimensional profiles are displayed in the KiActiv® Dashboard using visualisations that were created with patients and healthcare professionals, and are proven to be easily understood, enhance knowledge of physical activity and inspire confidence to change and self-manage (Western *et al.,* 2015).

This pilot study aimed to implement the use of KiActiv® for patients impacted during Covid-19 who would benefit from remaining physically active while shielding at home. This discussion section reports on how the aims and objectives of this rapid evaluation can be demonstrated.

Objective #1: Is the KiActiv® Health technology accepted and used in a pilot by clinically vulnerable respiratory patients during the Covid-19 pandemic, when physical restrictions were in place?

The Covid-19 pandemic has had a strong negative impact on economic and social life worldwide. It has also negatively influenced people's general health and quality of life, with studies reporting it has had a negative impact on the population's physical activity levels, sedentary behaviours and mood state (Pucinell *et al*., 2021; Stockwell *et al.*, 2021).

At a time of reduced NHS services, 95% of WHC survey respondents identified it was important to be able to receive at-home care for their condition **during** the Covid-19 pandemic (n=13), with 85% of respondents reporting this would remain important for them **post**-pandemic (n=13).

Throughout the project, participants have demonstrated high levels of engagement in the KiActiv® Health programme, including uploading their physical activity data more than every other day and interacting with their data on the KiActiv® platform once every four days (24%). KiActiv® Health has identified that physical activity is more than just exercise - and that sport and understanding that every move matters is vital for empowering effective self-management.

It is recognised that people's use and engagement with the KiActiv® Health is contingent on having access to the required technology, in order to upload their data and view their personal online dashboard.

Whilst this means that a small percentage of the population are not able to use the service, the majority can, and they demonstrate varying levels of digital literacy and confidence.

This also highlights the role that the KiActiv® Mentor plays in supporting peoples' ability to self-manage at home using digital technology. Future evaluations of remote patient groups (i.e., those not engaged with a clinical service) should attempt to identify why using KiActiv® Health works, and for which groups. As an example, identification of expectations (in the context of this project) is not a usual component of the KiActiv® Health interventions and therefore this report does not identify how this has contributed to the success outcomes in using the technology.

Understanding these mechanisms better will help with targeting appropriate patients for whom this technology is more likely to be successful; a patient who is not technologically empowered or confident may be unlikely to demonstrate higher levels of engagement and it is important to understand how this may affect outcomes, if at all.

As a balance to this, it is important that clinical services do not exclude patients due to assumptions that some patient cohorts cannot adopt technology innovations. KiActiv Health® report that being technologically empowered or confident is a dynamic status which can change over time with the KiActiv® Mentor support.

Despite various Government enforced restrictions, a heatwave in summer 2020 and intermittent illness or injury, our participants demonstrated enhanced understanding of physical activity and resilience in the face of adversity. Almost two thirds of survey respondents expressed feeling better because of their participation in KiActiv® Health, with reported benefits being both physical and mental.

Encouraging feedback was provided directly to the clinical team, highlighting benefits participants derived from engaging with KiActiv® Health. Participants reported:

"It increased my motivation to be active and get up and get going" and "it assisted with self-pacing, showing where I was going wrong, doing too much on some days and therefore I was unable to do so much the following day. Now I am able to regulate my activity effectively".

Participants in the project have received person-centred care along with tailored individual support on managing their daily activity whilst living with a respiratory diagnosis. KiActiv® therefore meets components of the NHS Long Term Plan, pertaining to participants receiving care in their home, utilising digital innovation and using a patient centred approach. Using KiActiv® in this population also has the potential to address health inequalities with regards to transport to attend face-to-face programmes as South Wiltshire is largely rural with an ageing population.

Clinicians have reported that it would have been beneficial to have sight of patient data from KiActiv® during the programme to help monitor their progress. It was also noted that clinicians felt there may have been benefit from having increased dialogue between the clinical team and KiActiv® Mentors as part of a wider partnership approach to be able to triangulate information, as would have been the case with NHS run PR programmes.

There are positive indications in the data, which suggest KiActiv® can help patients to successfully change their behaviour and develop healthy habits that they intend to continue.

Objective #2: What were the barriers and enablers to participants' implementation of physical activity behaviour change?

Enablers:

Care at home

A high number of participants identified the importance of receiving at home care for their condition. This importance could be attributed to the fact that prior to the Covid-19 outbreak, one of the most commonly reported barriers to PR uptake was the distance from home, time and cost of travel and parking (up to a 90-minute round trip) for participants when attending the hospital for face-to-face PR. The remote nature of the KiActiv® Health overcomes these barriers, ensuring patients are supported from the safety of their own homes.

In this sense, it offers an alternative to face-to-face PR for those who would have previously received no activity-based interventions when faced with national restrictions. Furthermore, the majority of participants reported that they felt supported and 92% of respondents to the WHC questionnaire reporting they were likely to continue using the KiActiv® technology, highlighting the appeal of using technology to support their self-management, and suggesting the use of the mentors is a key enabler of this approach. Whilst the mentor element does not extend beyond the 12-week programme, it does help patients to help develop confidence and skills to utilise digital health technology beyond the end of an initial programme and in the context of wider digital transformation.

Participants expressed a range of benefits, notably a significant difference was found in participants who reported feelings of confidence in their ability to be physically active.

Motivation

Motivation is identified as a key enabler to both behaviour change and self-management. The enrolment process requires people to demonstrate a certain level of motivation as they must proactively contact KiActiv® to enrol following referral. Almost one third of participants were categorised as 'unsure' about their expectations upon starting KiActiv® Health, with some enrolling out of curiosity or because of the recommendation from a nurse. This outcome suggests this group may be motivated to enrol but do so without a clear understanding of the programme aims or delivery mechanism.

Participants also highlighted that KiActiv® Health had provided a source of further motivation, by showing them what was possible and by helping them to feel the benefits of physical activity. Future evaluation should seek to identify the level of motivation needed for successful outcomes in this group to ensure the right people are being targeted with the right intervention.

The importance of recognising that physical activity is an umbrella term, incorporating all movement within an individual's lifestyle, not just exercise, has been discussed above. This was also identified as an enabler for peoples' implementation of behaviour change.

Emphasising daily movement makes it accessible to all, including throughout the Covid-19 restrictions. It also increases the opportunities people have to change by providing greater choice of how to add activity into their lives and expanding the window they have to do this in to all ~112 waking hours per week. This may have also contributed to the significant difference found in participants reported feelings of confidence in their ability to be physically active.

Mentors

Self Determination Theory highlights the fulfilment of people's need for autonomy, competence and relatedness, as drivers for initiating and maintaining changes in behaviour (Ryan *et al.,* 2008). Within KiActiv® Health these needs are shown to be supported in a number of ways. It supports their competence by enhancing people's understanding of their own physical activity and their confidence to be physically activity. The KiActiv® Mentor interactions help people to feel related to, as well as facilitating support with technical aspects of the service. It facilitates autonomy by putting the individual in control of how to optimise their physical activity in a way that works for them, without compulsion, prescription or rewards.

Participants in this project also reported the mental wellbeing benefits of feeling more in control of their health, which reinforced their feelings of empowerment. KiActiv® Mentors (and their role) in this project provide a bespoke opportunity to provide person-centred care which is tailored to the individual, and therefore more likely to increase their success outcomes. However, our report is unable to establish the impact of the behaviour change approaches used by KiActiv® Mentors, and thus understand better the mechanism they use to create 'success' and whether or how they enabled participants to overcome some of the barriers reported. Future evaluation should seek to collect additional patient reported outcome measures relating to the mechanisms of change identified by Self Determination Theory.

During this project just over a third of participants reported sometimes experiencing problems with the technology to KiActiv®, with some commenting that their issues were resolved following interactions with their KiActiv® Mentor. There is an opportunity to better understand the role and impact of behaviour change models on future rollout of the KiActiv® and how Mentors (and the bespoke support they provide) are mechanisms in the delivery for this.

Expectation setting

Expectations identified included improvement in breathing, fitness, knowledge, health and weight loss. Discussions with KiActiv® Mentors at the end of the 12-week period highlighted that the programme had predominantly helped participants to increase their physical activity levels and general fitness, whilst also developing a greater knowledge and understanding of the multidimensional nature of physical activity. Although this number was small (n=13), it demonstrates the early feasibility of KiActiv® as a suitable intervention to establish behaviour change with vulnerable respiratory conditions to support remote PR.

Our participants identified range of expectations at the start of the 12-weeks and over three quarters of participants, reporting that KiActiv® Health had met their expectations, which included improved breathing, improved fitness, improved knowledge of physical activity, improved health and weight loss. Future evaluation should seek to measure and understand the importance of the expectation setting process and its links to successful outcomes.

Where expectations were not met, it was identified this was due largely to a mismatch in expectation, with the participant anticipating direction to specific exercise classes to undertake, whilst the other simply stated they had no prior expectations. This highlights the importance of working closely with the 'unsure' category of patient to improve the communication materials, which articulate the intervention, its benefits and what is involved, and thereby support programme adoption.

Barriers:

Whilst undertaking KiActiv® Health, many patients faced a variety of barriers to change which were largely dictated by external factors, such as the weather or illness. However, the Covid-19 pandemic did present further barriers for many patients, with many being largely confined to their own houses due to their vulnerable status, and consequential fear of contracting the virus.

As a result, many limited the time spent outside partaking in everyday activities, such as shopping, walking or utilising exercise facilities.

This ultimately impeded on their ability to undertake the activities they felt were most accessible and enjoyable - but encouraged the valuable trait of adaptation. The social isolation of lockdowns also affected some patients' mental health, resulting in a lack of energy and motivation to modify their activity for periods of time. This novel situation will have undoubtedly impacted the study findings.

Issues related to digital exclusion may be a barrier for some participants being able to use KiActiv®, such as access to the internet, devices or digital literacy. The Office for National Statistics have previously reported that 10% of the adult UK population are internet non-users. It is difficult to quantify the impact that this had on eligible participant numbers as IT access is not routinely recorded in clinical notes.

Some of the patients seen by the WHC clinical team in South Wiltshire reported not having access to the internet or being apprehensive about the KiActiv® programme being online, and therefore were not offered the programme.

9. Conclusions

KiActiv® Health cannot be seen as a direct alternative to PR, which includes respiratory educational content and the opportunity for the clinicians running the PR sessions to review and assess wider limitations to physical activity. However, throughout this study, participants anecdotally noted a variety of benefits they experienced.

These included the importance of the awareness of all movement (not just exercise); a consciousness of daily activity; a shift away from a focus on sport to daily activity - which helped to support motivation and create a positive mind-set, establish a routine and deliver perceived health benefits. It suggests that lifestyle shifts can seem overwhelming for many people and more 'de-mystification' is needed about what this really involves.

All of these benefits form part of the wider package provided by KiActiv® which help to empower individuals to make the right choices for their health and to create new habits relating to their physical activity that benefit them now and in the future. Our data has highlighted a cyclical relationship between patients recognising positive change in themselves and further engaging with a programme - when participants noticed the benefits, they felt more empowered to continue making these beneficial changes.

Lastly, it should be noted that this was a Covid-19 response project and not an impact evaluation of KiActiv® Health on physical activity behaviours. The study did not perform a cost-based analysis, but this should be considered going forward. Future work should seek to establish what the best referral process will be for all patients, and who should attend which type of programme once the pandemic is over and PR restarts in face-to-face settings. It may be that those patients attending PR are unlikely to be referred for the KiActiv® programme and therefore, in the long term, the KiActiv® cohort may be slightly biased towards the less mobile or motivated.

10. Potential for future and next steps

This pilot has demonstrated that KiActiv® provides an alternative management solution and meets components of national guidelines for PR, for some patients with a respiratory condition who experience difficulty in accessing existing PR services. This encouraging data suggests that KiActiv® may benefit participants with a respiratory diagnosis, to enable self-management following a single assessment and recommendation by a health professional. With the addition of an educational component and in combination with standard clinical follow up and review, it has the potential to be used as a direct alternative to PR for some patients.

Throughout the duration of the project, it has been identified that there would be benefit in further exploring and evaluating the following:

- Analysis across the data from this project and the AHSN Moving to Better Health Future Challenges project, which also featured the use of KiActiv Health within the COPD pathway, to see whether there are any further conclusions that can be drawn.
- Providing a structured communication channel between clinicians and the KiActiv® Mentor / dashboard to further monitor patient engagement and progress and improve outcomes.
- A cost benefit analysis of the KiActiv® when compared to current PR services.
- Delivery of a blended approach including elements of face-to-face assessments, initial PR and KiActiv® Health over a longer intervention period. Assessing behaviour change and analysing cost benefit in a rural area with very limited access to health facilities for traditional PR.
- Developing or providing educational content, possibly in a digital workbook format, to complement the KiActiv® programme, including exploring the option of alternative education innovations that could complement the KiActiv® offer.
- Evaluate a wider rollout of KiActiv® Health, including further measurement of health benefits and cost utility to provide evidence for national adoption.

The findings and learnings from this project will be disseminated across the West of England AHSN's local footprint to raise awareness of the project and its outcomes. The business development team at the West of England AHSN will support KiActiv® Health's ongoing development and potential data analysis.

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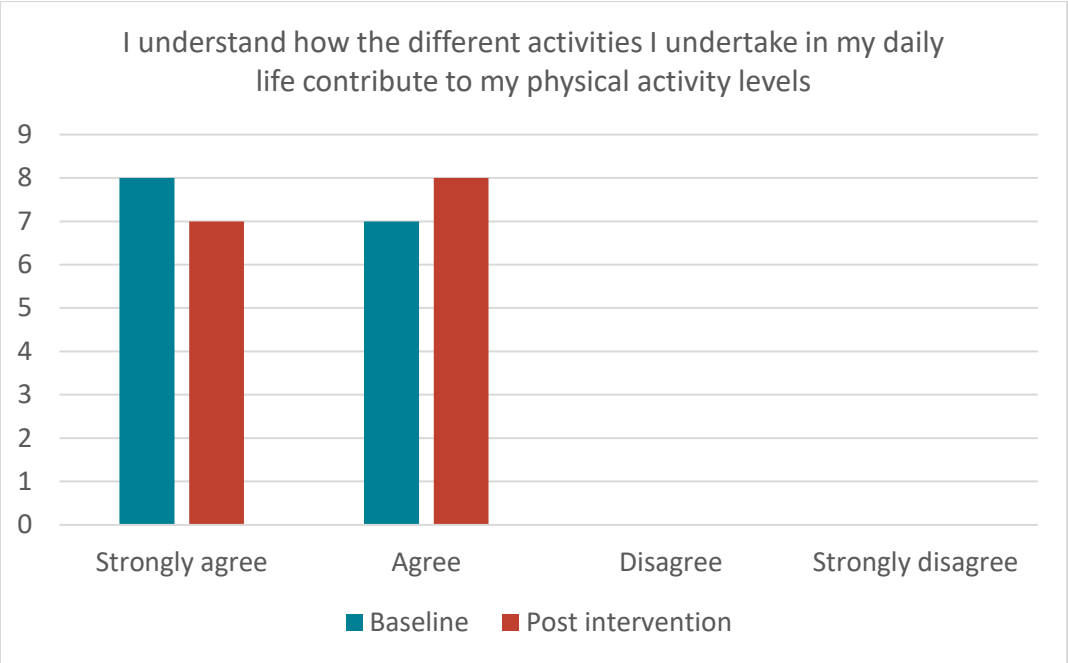
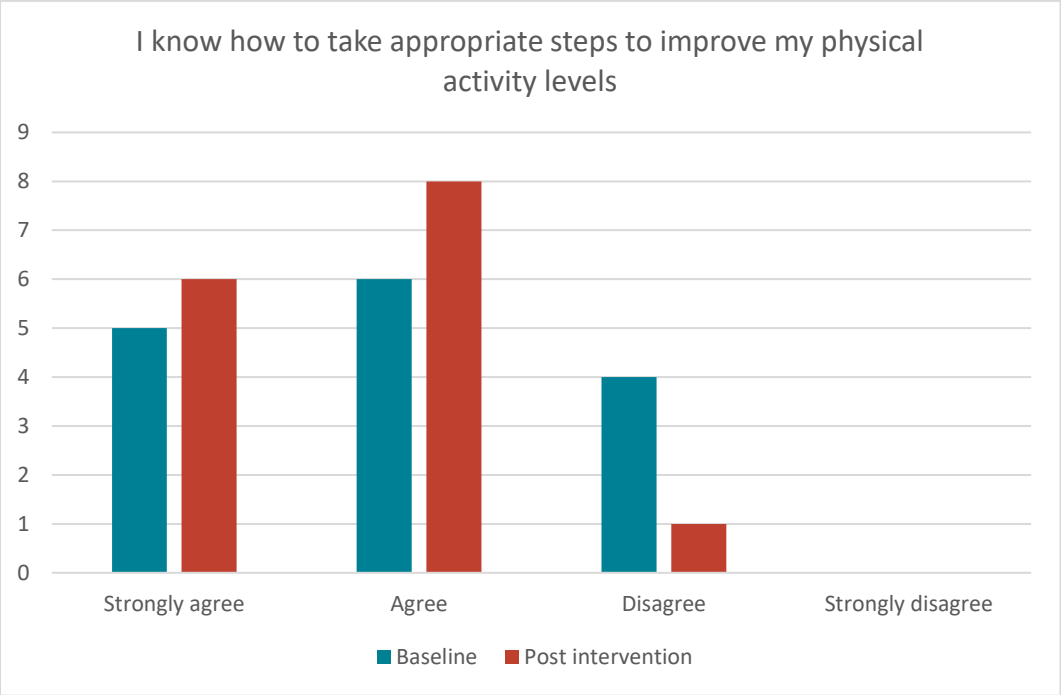
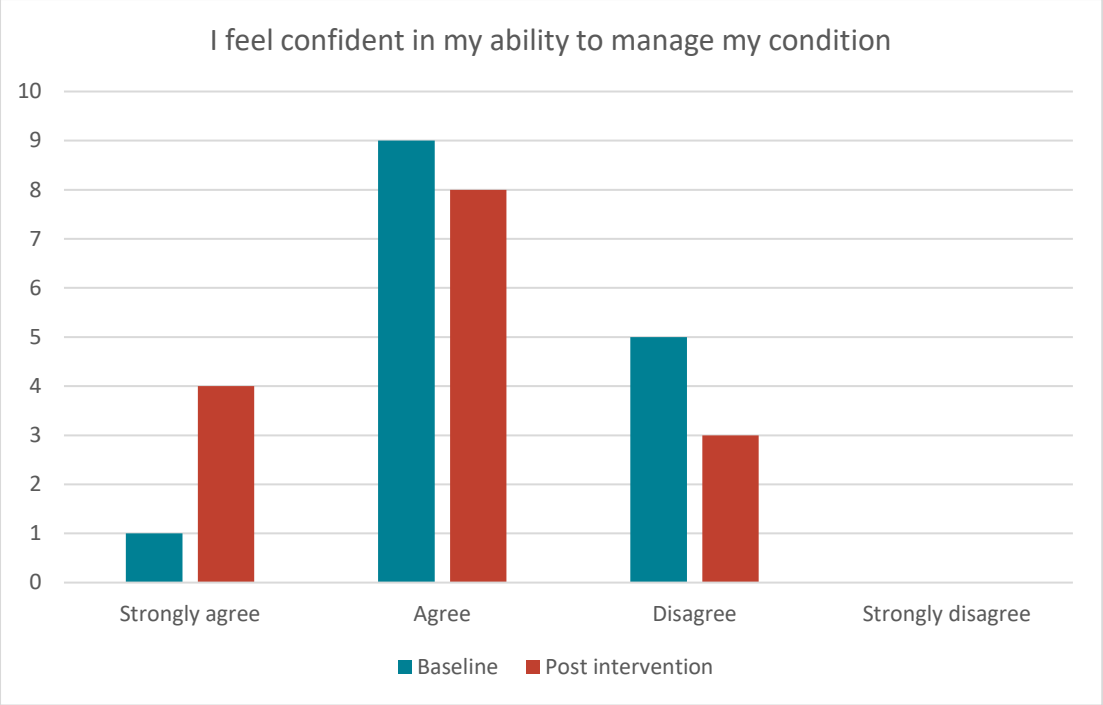
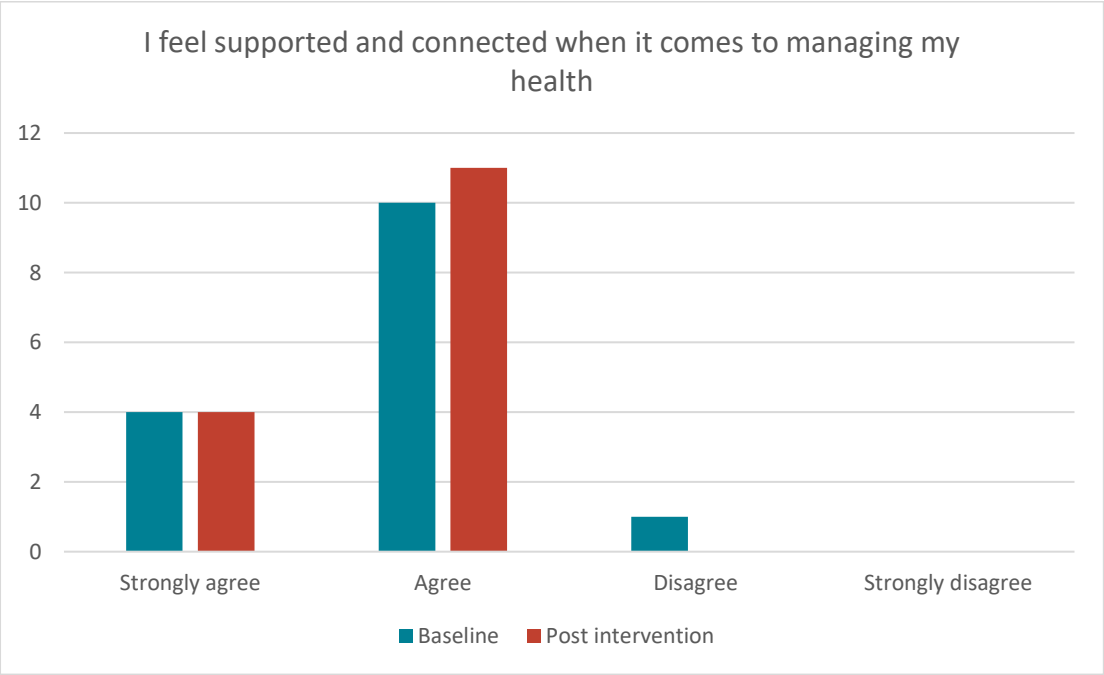
Appendices

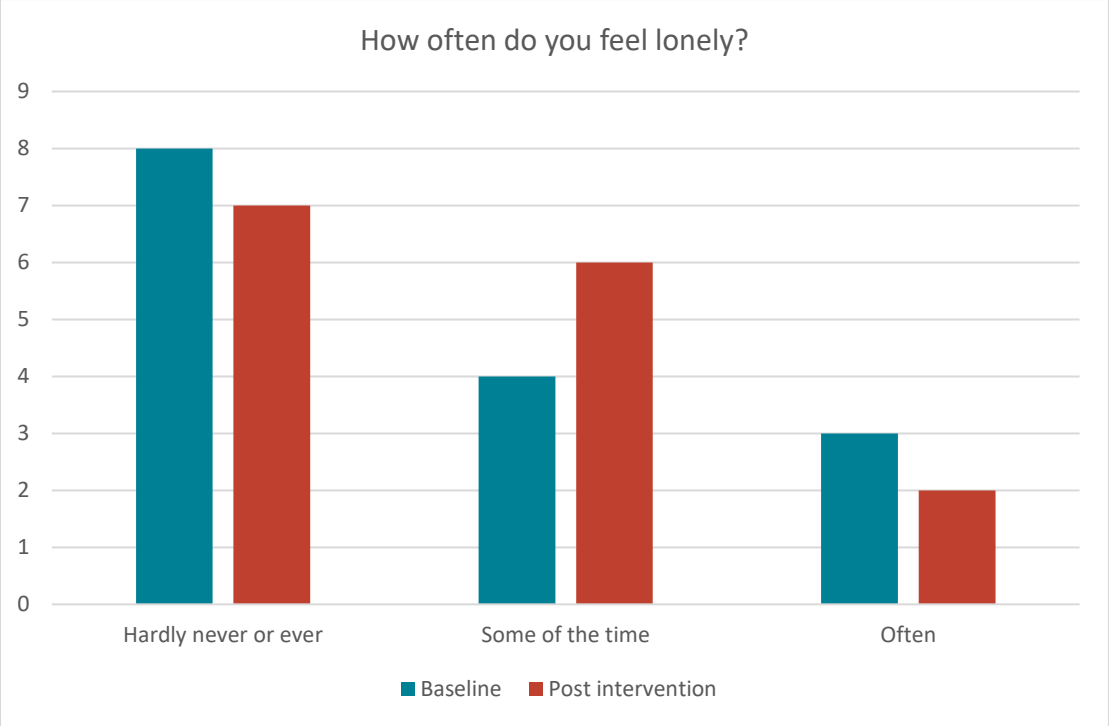
Appendix 1: Responses to the single-item questions at baseline and post-intervention






I feel confident in my ability to manage my condition
10
9
8
7
6
5
4
3
2
1
0
Strongly agree
Agree
Disagree
Strongly disagree
Baseline
Post intervention

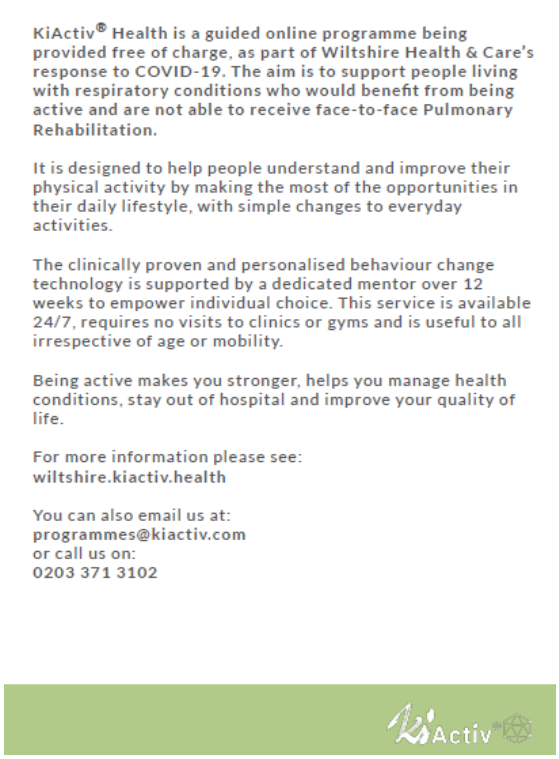

I feel supported and connected when it comes to managing my health
12
10
8
6
4
2
0
Strongly agree
Agree
Disagree
Strongly disagree
Baseline
Post intervention



Appendix 2: List of Injuries.

a. Ongoing injury in shoulder
b. Badly burnt hand, required medical attention
c. Ongoing back problem from 2015 operation
d. Cut on leg was weeping badly due to damaged nerves from 30 years of cellulitis
e. Growth on side of foot that impacts gait, placing additional strain on hip
f. Historic back problem
g. Leg ulcer

Appendix 3: KiActiv® Health Patient Information Leaflet



<u>Appendix 4:</u> Testimonial from participant who is also a practising clinician.

My lung condition and state of health was different to many people using KiActiv® Health, but I thought it may be useful to share my experiences in the hope that they may help others. I developed widespread sarcoidosis eighteen months ago. Last year I was then diagnosed with lung cancer. I had never smoked and kept fit and active (including participating in triathlons). As a result of the cancer, I had to have a large proportion of one lung removed. The sarcoid also became much more active and aggressive. In the space of a few months, I went from easily running many miles, swimming and cycling to becoming short of breath walking up a few stairs. The impact of this on my lifestyle and mental wellbeing was significant. As well as facing uncertainties regarding my cancer prognosis, and being unable to work, I struggled with the sudden limitations that breathlessness brings. My hospital team referred me to KiActiv® to see if it would help me. I did not really know what to expect but was open to anything that might help me.

The programme is excellent. I was given clear instructions on how to join the programme, sent the wrist band device and given a phone appointment for the initial set-up. I was allocated a Mentor to guide me through the programme. My mentor clearly explained the aims of the programme, talked me through how to record details and interpret the results. I learnt that all activity is important, and not just dedicated exercise.

Simply moving around more during day-to-day activities all adds up to improving general fitness - e.g., pottering around the kitchen (rather than sitting down) whilst waiting for the kettle to boil!

I also learnt that increasing intensity of certain activities did not necessarily give more benefit than becoming generally more active overall. After I had understood this, it made me realise that progress was achievable even whilst being breathless.

My mentor arranged follow-up appointments and was flexible regarding the timings of these. I was sent reminder emails the day before each appointment, and the phone was always answered immediately when I called in for the appointment. On the rare occasions when my mentor was running a few minutes late with other clients, a colleague answered the phone and she called me back as soon as she was free. My mentor was professional, understanding and made helpful suggestions (and challenges) to help me make the most of the KiActiv® Health platform. One of the most helpful aspects was using the programme to help me pace activities. My previous involvement in triathlons meant I wanted to push myself hard, and when I felt my body could do more, I wanted to stretch my limits. Whilst this had been helpful previously, in my new state of health it was not. I recall feeling disappointed when I had been making good progress, only then to find that I dipped the following week and my health seemed to deteriorate. Following a phone session looking at the KiActiv® Health platform, we discussed how my activity had increased by 300% in the week leading up to the dip, and that essentially, I had done too much. Since then, I have used KiActiv® Health to help me pace - if I have done more one day, then I will ensure I do a little less the next day.

The ability to look at daily activities or weekly activities in graphical form makes seeing patterns easy. The platform is clear, and I like the visual impact that the charts give. The ability to tag activities is also very helpful, especially when looking back at how certain activities can influence how you are feeling at the time. It is also possible to add further details (i.e., description of how you're feeling during / after activities) whilst tagging.

By using KiActiv® Health, it has helped me come to terms with the limitations I now have, whilst also giving me a structured way to increase my physical abilities on a daily basis. This has helped my mental wellbeing and made me feel more in control of my health. Looking back through the notes I had made, I can see that how I felt about my health has risen from 20/100 at the start of the course to 75/100 at the final session. This is a real testament to the positive impact KiActiv® Health has had on my life. It is great to know that I can continue to use the programme, and still have the phone support available if I have any questions in the future.

I would strongly recommend this course to anyone who feels that their lung condition has 'taken over' their health and life, and who genuinely wants to gain some control over it. The course does require you to engage with it, but I would encourage others to do so; the effort put into participating is well rewarded.

I would like to say a big thank you to all the team at KiActiv® Health - keep up your valuable work!

The Future Challenges

Keeping Healthy at Home:

Keeping Active During Covid-19

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