



AMPERSAND 

Techforce 19 Feasibility Study Report

Nader Alaghband | Oliver Miles | Rachel Moran

**TECH
FORCE19**

TechForce19 - Feasibility Study Report

Overview of Main Findings	3
Background	5
Deployment	10
Usage	12
Impact	18
Learning from the project	32
Next steps	33
Appendix A: Data	36
Appendix B: Content	38
Appendix C: Demographics	40
Appendix D: Costs	42

Overview of Main Findings

- Anxiety levels of participants decreased (non-significantly) from the 'Moderate level' to 'Mild level' as defined by GAD-7.
- IBD-Control increased significantly - participants reported higher control over their disease.
- Self-reported physical activity and social connection increased overall.
- Self-reported well being increased by an average of 17%.
- The overall sentiment from interviews was friendly, positive and encouraging. The courses and wellbeing content is being received well by those in both flare and remission.

Background

Background to the project

This project was inspired by the NHSX call to innovators who could support the elderly, vulnerable and self-isolating during COVID-19 - albeit the courses we developed during this project were a natural continuation of the work we already undertake at Ampersand Health.

The platform - which is free for Trusts - supports better remote monitoring and patient self-care across conditions in gastroenterology, rheumatology, dermatology, haematology and oncology, with more in development.

[Ampersand Health](#) is a social purpose company, co-founded by [Bu' Hayee](#), [Gareth Parkes](#) and [Nader Alaghband](#) with support from Innovate UK, Crohn's & Colitis UK and the National Rheumatoid Arthritis Society.

Disease-specific, for multiple specialist LTCs

Ampersand Health's apps help people with specialist long term conditions (IMIDs, rare cancers, blood disorders) live happier and healthier lives. We passionately believe that condition-specific self-management support is crucial in optimising outcomes for patients and delivering truly personalised support.

For example, unlike many other LTCs, inflammatory diseases are characterised by unpredictable cycles of relapse and remission, which lead to low quality of life and poor outcomes in part because the traditional model of routine face to face follow up fails to acknowledge the unique cadence of the disease. A specialist approach allows us to tailor our approach to patients, allowing for better outcomes and more cost-efficient care as described below.

We believe that the same applies to remote monitoring - unlike a static patient held record, remote monitoring requires a timely exchange of specialist data, escalation and triage. Such rule-based and/or automated management of patients requires specificity that benefits from our disease-specific approach.

Our Platform

Our platform - which is CE marked, regulated by the MHRA, and has been assessed by NICE and Orcha - combines apps for patients and a cloud-based clinician portal with a robust and extensible API driven back end.

For patients, it offers:

- condition-specific behavioural science courses, ranging from 1 to 28 days in length, focused on the behavioural levers of wellness for that patient's condition

- clinically-validated disease measures delivered on a patient-personalised basis to maximise clinical insight and minimise survey fatigue
- a library of kitemarked self-management content from the national charities and the NHS, with nudges to relevant content based on symptoms and other factors
- Asynchronous messaging with clinical teams at hospitals using the clinician platform

Our [courses and programmes](#) focus on the functional levers of wellness - sleep improvement, stress management, staying active, food choices, healthy relationships and sticking to medication - tailored to the lived experience of patients with each condition.

The app utilises a freemium pricing strategy. The entire app's functionality is free bar premium IBD specific courses, of which the courses were based. Access to these courses cost either £9.99 monthly or £36.99 for an annual subscription. Users who participated in this trial had this cost subsidised with a £10 Amazon voucher (if subscribed monthly) or a £20 Amazon voucher (if subscribed annually).

For clinicians it brings together:

- Real-time patient monitoring using validated PROMs, blood test results, behavioural data
- Rules-based triage and escalation and automation of aspects of routine clinical practice such as requesting PROMs, blood tests, stool samples etc
- Two way, asynchronous messaging with patients focused around symptom reports
- Full integration with hospital EHR or standalone SAAS model for faster implementation

[See short 'Onboarding video' that demonstrates UI and features of the app](#)

A surveillance study was conducted at King's College Hospital in 2018. The results showed that 85% of patients in the study were happy to use the app as part of their ongoing care. Unplanned A&E visits reduced by 50%; follow-up appointments were reduced by 47%; clinicians reduced their work up times by 30%. Savings estimated for the Trust were in the region of £135-£435 per patient per annum.

In summary, our platform can be used by the NHS to manage capacity and flow, moving towards patient-initiated follow up and improving remote monitoring of patients who are being seen less frequently.

We have three multi-centre trials underway or about to get underway, evaluating a range of endpoints relating to health resource utilisation, patient activation, quality of life and outcomes, including mental health outcomes.

IBD, mental wellbeing and COVID-19

People with inflammatory bowel disease (IBD) are a particularly high-risk group during the current COVID-19 pandemic due to the use of immunosuppressants to help treat and manage symptoms. As such, many of our patient community are currently shielding.

This isolation and increased risk of infection have posed concerns for the mental wellbeing of the IBD community; hence, for this project, we have developed situationally relevant behavioural science based courses - on maintaining healthy relationships and staying active - to help reduce this impact and encourage disease self-management.

A recent report by [D'Amico, Rahier, Leone, Peyrin-Biroulet & Danese \(2020\)](#) looking into the impact of the COVID-19 on Crohn's and Colitis patients found that:

- The European Federation of Crohn's and Ulcerative Colitis Associations (EFCCA) ran an anonymised web survey between March 30 and April 16, 2020, to investigate the concerns, fears, and behaviours of patients with IBD during the early phase of the COVID-19 pandemic.
- Responses from 3815 participants from 51 countries worldwide
- Most respondents feared contracting COVID-19 (85%)
- Worryingly—only a small proportion of people (218 [11%]) found relief from their fears and concerns about COVID-19 after a medical consultation.
- The results of this survey highlight that a gap between doctors and patients still exists.

We conducted research with 50 users of our app, indicating that the group has a mean score of 6.64 on the [GAD-7](#) scale, which falls within the 'Moderate' category for general anxiety.

An approximate 60.8% reported feeling nervous, anxious or on edge in the past 2 weeks. 72.5% indicated they have been feeling easily annoyed and irritable and more 50% feel as though something awful could happen.

Notably, 70.6% of our sample felt moderately or highly anxious about the current situation specifically. Respondents emphasised:

- 'I do not feel supported at all'
- 'I've been feeling deflated, anxious and a bit lost'
- 'I feel mostly ok but I worry about future appointments and tests being delayed or cancelled and the fact that Covid 19 may lead to a reduced service from the nhs for a very long time.'
- 'The uncertainty and lack of control I have is really hard to cope with.'
- 'Stressful, feeling isolated and alone but also bored and demotivated.'
- 'Not good, struggle for motivation, worrying all the time about finances and catching covid when out because people don't stick to the 2m rule'

84% indicated that they would like or would be open to trying out support for their wellbeing through a digital means during the current situation and 62.7% indicated that this support might be 'Very Useful' or 'Useful'.

Please see Appendix A for a full breakdown of the results from our sample.

Aims and objectives

The main aim of this project was to increase the mental wellbeing of the participants in the trial. The following objectives guided our intervention development:

- To understand the current impact of the COVID-19 pandemic on our patient community.
- To create a programme to help increase mental wellbeing for our participants.
- To foster a sense of control over their IBD and mental wellbeing for participants.
- To reduce behavioural barriers preventing the enactment of these behaviours and outcomes.

We would expect to show improvements in mental health (measured by the GAD-7 questionnaire) and disease control (measured by the IBD-Control questionnaire) within a week of patients starting to use our interventions.

It's worth noting that the mental health impact of a lifelong immune-mediated disease can never be cured, but our ongoing development of wellbeing courses give people a crutch to lean on in an environment where they are especially at risk.

The new short courses

We identified the maintenance of healthy relationships and staying active as two areas where self-management could be especially impactful, given the isolating nature of lockdown for this vulnerable group.

These courses are found in a new category in our app called '**Life in Lockdown**'. They follow a video-based delivery with activities based around behavioural techniques such as goal setting, reflection on outcomes of behaviour and action planning. Detailed information about the courses is available in Appendix B.

This framework has been successfully employed on previous courses and has been developed through the application of the Behaviour Change Wheel approach by our Behavioural Science team, investigation through exploratory workshops and interviews with people living with IBD and through collaboration with experts. (Expert involvement such as Consultant Gastroenterologist - Dr Gareth Parkes, Sleep expert - Dr Sophie Bostock and Psychiatrist for IBD specific groups - Dr Peter Byrne).

Courses



Sleep
Improve how you sleep through our courses led by Dr Sophie Bostock.



Medication
Understand your medication better and improve your habits with Gareth and Bu, our IBD clinicians.



Wellbeing
Learn how about your wellbeing how to improve it with Farzard.



Life in Lockdown
Improve your wellbeing with courses led by Sarah and Kay. Sponsored by TechForce19.

COURSES SINGLES MY ACTIVITIES DASHBOARD MORE

← Life in Lockdown



Welcome to our expert-led courses about your lifestyle and wellbeing - designed for those living with Crohn's and Colitis during the current challenges of COVID-19. Follow courses led by physical activity expert Sarah Russell, and IBD nurse Kay Graveson. Developed with funding from TechForce19.

Exercise and Wellbeing

Boost wellbeing during the current lockdown by staying active!

5 DAYS



Relationships and Wellbeing

Boost wellbeing during the current lockdown by staying social and having healthier...

4 DAYS



Deployment

Deployment process - What was the method of deployment?

The courses we created for this project were delivered through My IBD Care, our app for people with Crohn's or Colitis.

Most of the impact questionnaires and measures were deployed via the app, with one final qualitative feedback questionnaire sent by email using Google Forms.

Milestone reporting - An account of progress against the agreed deliverables, milestones and outputs included in the application form.

All agreed deliverables and outputs were completed as included in the application form.

Where was it deployed? i.e. geographic footprint vs patient/population groups

The courses were made available to anyone in the UK willing to take part. For a specific breakdown of the demographic data of our sample, please see the Usage section.

How did the deployment go - How did the deployment work given the challenges of social isolation and shielding? Was it deployed quickly and to plan?

Deployment was relatively straightforward. We had already developed content with our experts remotely, so the process was not new to us. The courses were developed on time and to plan and went live on the app as expected.

Partners – Partners used and roles, including those used to recruit the users

[Sarah Russell](#) - Clinical exercise specialist. Co-created the Physical Activity course and led the content creation

Sarah has a particular interest in working with people who have long term health conditions, especially those with bowel disease and after bowel surgery. Sarah's had five bowel surgeries and now lives with a permanent stoma. Since her stoma surgery, she's gone on to run 32 marathons and is determined not to let her stoma stop her from living an active and adventurous life.

'My experience has given me a unique level of empathy and understanding. It's made me a better trainer and coach and taken me on a new journey into the world of rehabilitation, cancer recovery and clinical exercise. I wouldn't be here doing this work if it wasn't for my experience.'



Sarah Russell
Clinical Exercise
Specialist

[Kay Greveson/Instagram](#) - A nurse at the Royal Free hospital specialising in IBD. Co-created the Relationships course and led the content creation.

Kay Greveson, a nurse at the Royal Free hospital specialising in IBD. Kay has a passion for helping those with IBD, as a patient herself with Crohn's disease, she knows exactly what life is like with IBD. Kay is also the founder of IBD passport, a charity to help people find the right information for travelling with Crohn's or Colitis.

Kay is currently working as part of the IBD clinic service and also provides the community with sound advice and support regarding Coronavirus for those who are travelling (via her IBD passport charity) and for those who are feeling anxious or confused with advice (via her Instagram channel).

Outside of the course content created with Kay, we also collaborate on Instagram to support the community. In reaction to the current situation, we conducted a joint Live Q&A on to answer people's specific questions regarding IBD, COVID-19 and managing wellbeing during this time. A blog summary of this can be found [here](#).



Usage

Sample/Cohort of users

For the purpose of this feasibility study, we opted for a smaller cohort of 15, an appropriate number for a qualitative study. We sought to obtain in-depth feedback and insight from our users in order to assess the effectiveness of our courses and support future product and content development. Our next steps involve reviewing the insights obtained in this feasibility study, iterating our content and then testing our interventions effectiveness, impact and mechanisms of action on a larger sample.

Our sample of 15 individuals living with IBD was aged between 18 and 55+, with the majority being in the 25-34 category and were opportunity sampled for participation. 40% of the sample had been diagnosed with IBD for over 10 years and 20% had only been diagnosed for less than a year. The state of disease for individuals on our sample was varied, with 56.3% in remission and 46.7% in a flare.

The majority of the sample (60%) were not previously regular users of My IBD Care and previous to, none of the sample had engaged with the My IBD Care lifestyle and wellbeing content.

For a more detailed breakdown of our participants, please see Appendix C.

Recruitment

The recruitment period lasted less than a week in order to start the trial on the 6th of May.

We invited 20 people from our current community emailing list (people who have already taken part in workshops or who we have had more contact with in the past) and also posted a one-off Instagram announcement post to invite more people to join the trial. We received a further 41 individuals expressing interest in taking part as a result of the Instagram post and sent information by email to this group.

23 consented to take part but due to the time constraints, only 15 were in a position to begin the trial when they were required to start.

Rationale

We aimed to recruit those that represent a genuine interest in our product and app to help test proof of product and sustainability for us longer term. It was important that the majority of our sample did not have prior experience using the app so we could determine a clearer sense of the impact the courses might have for the general population of people living with IBD/new users.

Retention

Out of the 15, we had a retention rate of 100% for the duration of the trial and 100% indicate that they would like to continue to use the feature post-trial.

Engagement

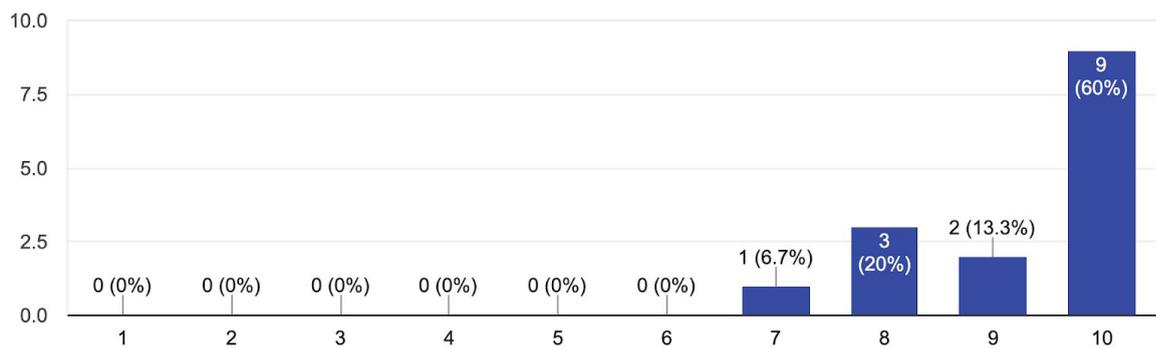
All participants completed each day on the course and the activities required. These users were more engaged than users who use the basic version of the app with our sample engaging on average 15 minutes per day compared to 2 minutes a free user spends each day.

Usage feedback

Net promoter score

How likely are you to recommend this app to somebody else with IBD?

15 responses



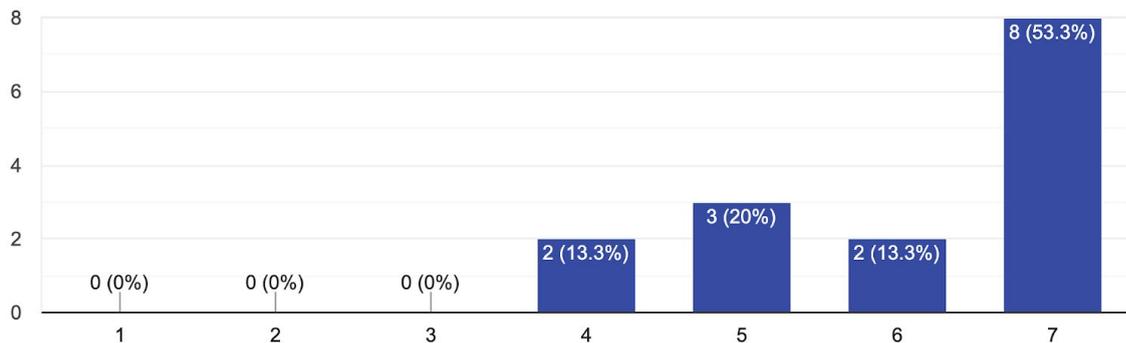
10 = Highly likely, 0 = Not at all

The net promoter score, based on this sample, is 100.

Overall experience

How would you describe your overall experience on the short course?

15 responses



7 = Very positive, 0 = Very negative

Highlights

What were your highlights from the experience? 15 responses

1. I really enjoyed the short videos, as they were easy to understand and it was nice to see someone in a similar position talking about the problems.
2. Being asked how supported I felt - I hadn't given it much thought until then.
3. Focusing on this subject made me see the importance of being connected and being more open- it also made me realise that I'm not so open when I thought I was relatively open.
4. Doing workouts & having a positive mental state through those days
5. Pilates
6. the activities were all do able but interesting and varied.
7. Seeing my relationship and wellbeing score improve
8. I enjoyed the videos, as well as checking in every day with the wellbeing tracker which is a great element. Being able to note down your responses to questions in the video enable you to keep a record and ensure you do the activities
9. Being able to complete all three workouts as I have been unable to complete a proper workout for over a year due to being in a flare
10. Learning more and getting some tips for improving my wellbeing during this time.
11. The initial video about exercise and health benefits
12. Learning different techniques to improve core strength. Making time to exercise every day has improved my mood and stress levels.
13. Learning some basic Pilates and breathing techniques to supplement my own exercise regime
14. Empowered me to do something for myself.
15. Getting moving

Frustrations

5 participants had 'no frustrations' when asked on the survey and a further 5 detailed frustrations below:

1. I wish I could do more (just because of my flare at the moment, I am more limited than normal), being active helps me feel good and I am a bit limited by fatigue at the moment.
2. The interface - somehow wanted the design to be more user friendly. Just signing in etc is not the simplest I've come across.
3. I've severe Hip OA & have to do exercise focused on this mostly so had to find time to do an extra core strength workout
4. Be great if there was a reminder or notification from the app to remind you that the day's activities are waiting
5. The exercise was far too easy. But I understand this is for beginners

Interview Data

- 1) Relevance and need in the current COVID-19 situation

Participant 1

'It's even more important to stay active right now for people with IBD as moderate exercise boosts your immune system. Also, mental health wise - exercise will have a very powerful effect during the current situation.'

Participant 2

'I live quite a way from my hospital so the courses help me feel supported even away from my IBD nurse'

Participant 3

'In light of the lockdown, it nudged me to do something that is usually part of my routine - when working - but with the current situation, you can't gym or commute to get exercise.'

Participant 4

'I think people need to be doing stuff to help them cope with the fact that they're trapped in their houses a lot of the time, particularly people who if they have had surgery whatever will

be at a high-risk level and probably are shielding themselves. Having access to a human is really important to help people keep connected and feel supported.'

Participant 5

'Course is massively supportive - don't usually get this kind of care. Especially in this situation - I've gone from 40 hours a week to nothing to do each day and I've found it really hard to cope with. These reminders to do something and think about something else is really positive. Great time to reflect on how I'm feeling with my condition and how I understand my condition.'

2) Wider usability and User experience

Participant 5

'I really liked the little questionnaires each day, with the ratings. I like being able to fill them in and swipe to submit and then seeing that you have completed them afterwards.

It is very easy to use, especially with the walkthrough at the beginning. I enjoy the interface and animations of the daily tracker. I use the medication reminders 4 times a day to help keep on top of taking my tablets, which I have found has really helped keep me on track.

Participant 6

'It would be great if there was a reminder or notification from the app to remind you that the day's activities are waiting'

Participant 7

'Easy app to use, well laid out and good use of colour - not too bright, looks professional and caring in a fun way.

Would be great to interact with other users - especially to see how they are coping - particularly when out of lockdown. Especially people who have been very poorly with the Crohn's or Colitis and have just had surgery. A place for a community.'

Participant 8

'I think the tracking of wellness is useful. Having it on your phone, obviously, a lot of us are on our phone all the time, It's easier than on paper just to quickly pop on update. I don't

think I need to keep a handwritten sort of symptoms diary or food diary or anything like that now because I feel like this is what I was searching for in a way.'

Impact

Impact on general anxiety levels (GAD-7)

Measuring levels of anxiety pre and post helped us to understand if participation with the courses had an impact on general anxiety levels in our sample. Individuals completed this via the app before starting their course and at the end of the final day on the course.

On non-parametric statistical analysis (Wilcoxon Signed Rank Test) of the GAD-7 measure, it was found that there was no statistically significant change in Anxiety levels as a result of the short courses.

However, the median level of anxiety (measured by GAD-7) was 3 post-trial compared to 5 pre-trial. *This shows that on average, anxiety in the sample reduced from the 'Moderate level' to 'Mild level' as defined by GAD-7.*

Arguably a one week period is not a sufficient amount of time to see notable changes in anxiety.

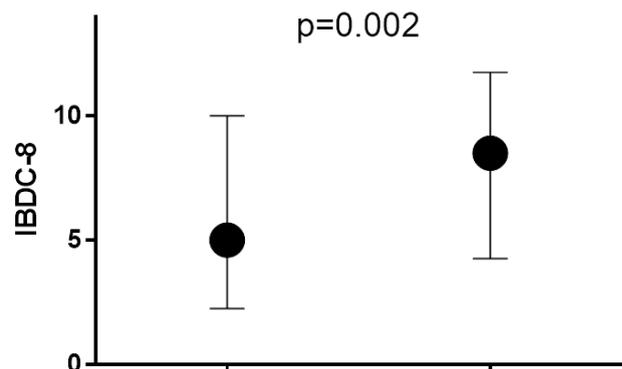
Impact on control over condition (IBD-Control)

We used the IBD-Control to determine the control our participants had over their IBD prior to the course and on completion. The IBD-Control is a rapid, reliable, valid and sensitive instrument for measuring overall disease control from the patient's perspective. Unlike existing patient-reported outcome measures, its simplicity, ease-of-use and generic applicability make it a candidate for supporting routine care.

A higher score on this measure indicates that individuals are experiencing more control over their IBD symptoms.

On non-parametric statistical analysis (Wilcoxon Signed Rank Test), it was found that there was a statistically significant change in IBD control for participants in the short courses ($P=0.002$).

Users who used our interventions reported significantly higher control over their condition after using the courses than before the trial.



Impact on physical activity and social connectivity barriers

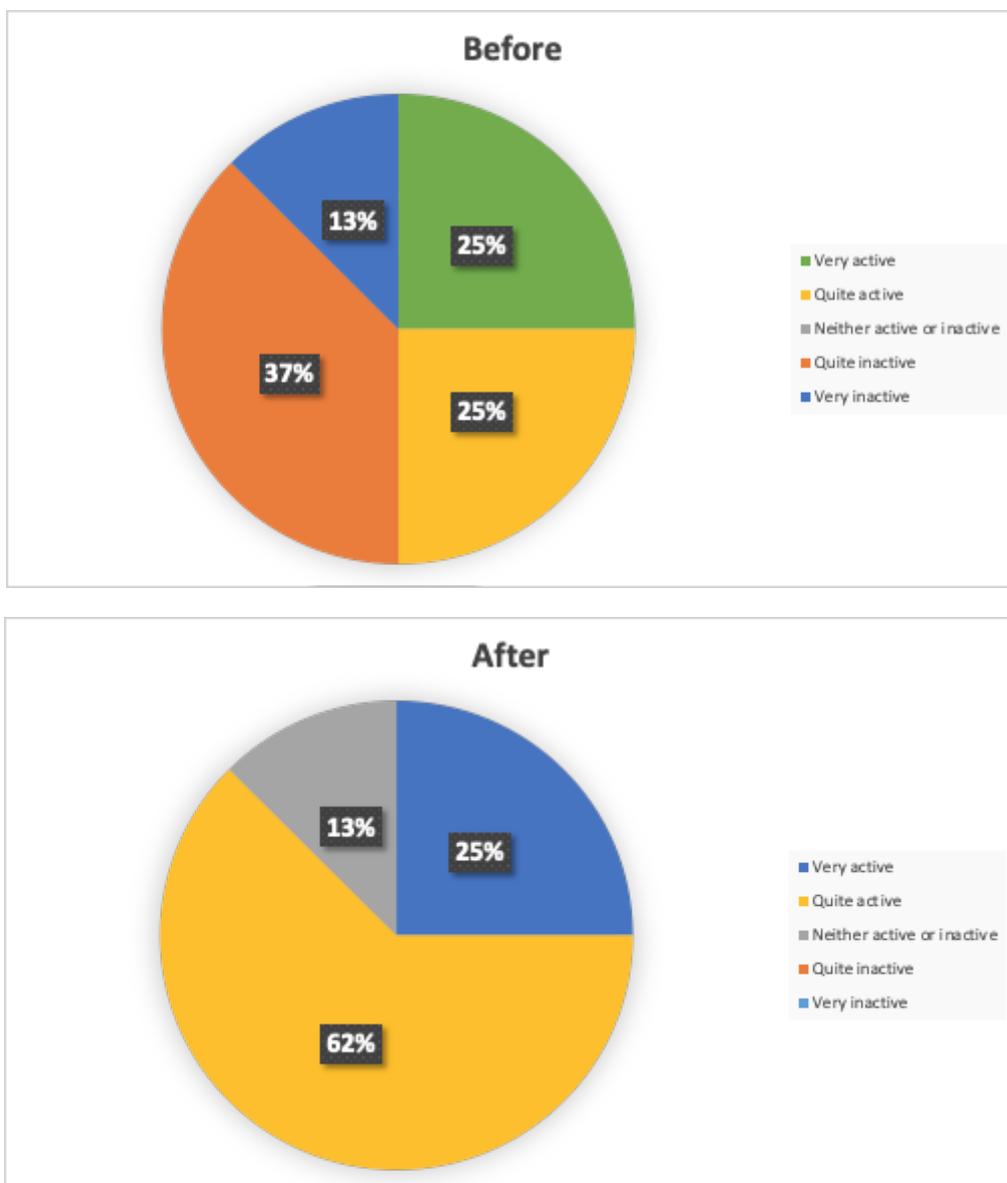
As one of the key focus areas of our behavioural interventions is to address the barriers preventing people from enacting healthy lifestyle behaviours we will utilise a proxy measure of assessing behavioural barriers based on the [COM-B model](#). This was done due to time constraints, usually, we would conduct in-depth semi-structured interviews to explore these barriers. However, this was undertaken to help us get an idea of whether the content we have created can help facilitate better self-management behaviours in the physical activity and healthy relationship domains.

From the analysis of our barriers proxy measure, we can deduce that not many barriers impact physical activity or social connectivity were addressed in these short term courses. However, some participants notably benefitted from the educational content we provided - this can be seen in our user interviews. This lack of findings is most likely due to the short duration of the courses and the lack of qualitative exploration of our users.

Participants on the courses saw an increase in physical activity and social connection. As can be seen below.

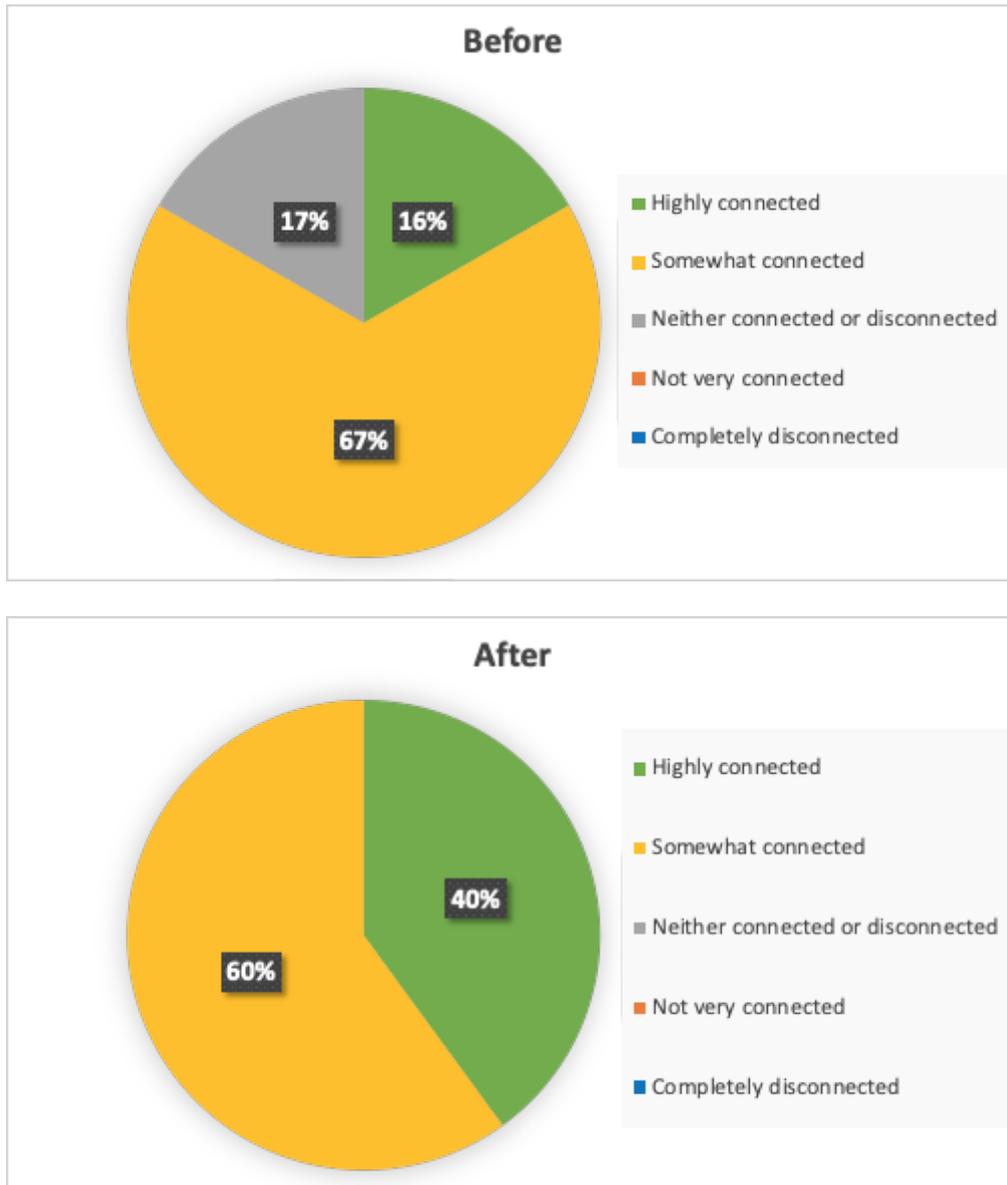
Impact on physical activity

After using the 'Exercise and wellbeing' course, more individuals are reporting that they are now 'Quite Active' whereas the percentage of those reporting 'Very Active' remains the same. *There appears to be an increase in self-reported activity levels with no one reporting that they are 'Inactive' post-trial.*



Impact on social connectivity

It seems as though after using the 'Relationships and Wellbeing' course, *more individuals are feeling 'Highly Connected' compared to those at pre-trial*. This suggests that self-reported social connectivity may have been positively influenced by the short course.



Impact on general wellbeing

Throughout the courses, we asked participants to check in daily with their perspective of their wellbeing. This is also an activity that is normally part of the courses as self-monitoring of such outcomes is known to benefit individuals in their journey towards greater wellbeing.

We used a 10 point scale to measure subjective well being, as advised by Psychiatrist Peter Bryne, a friend of Ampersand Health and specialist in working with those who struggle with their mental health alongside having IBD. A lower score indicating a really bad day, with a high score indicating a

really good day.

On average, user self-reported well being increased by 17% from the start to the end of the course.

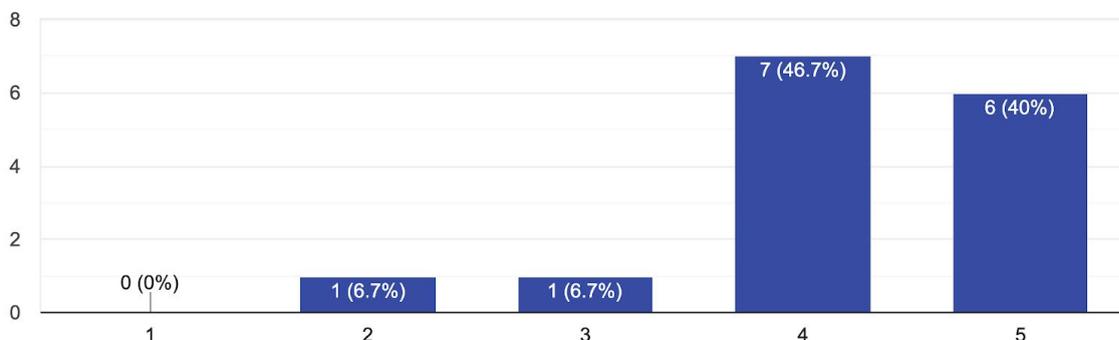
Post-trial survey results

We also used a post-trial feedback survey to capture the perceived impact of the courses on users' wellbeing and mental health.

Relevance in the current situation

In light of the situation (lockdown, COVID-19 and isolation), how helpful/supportive have you found these courses?

15 responses

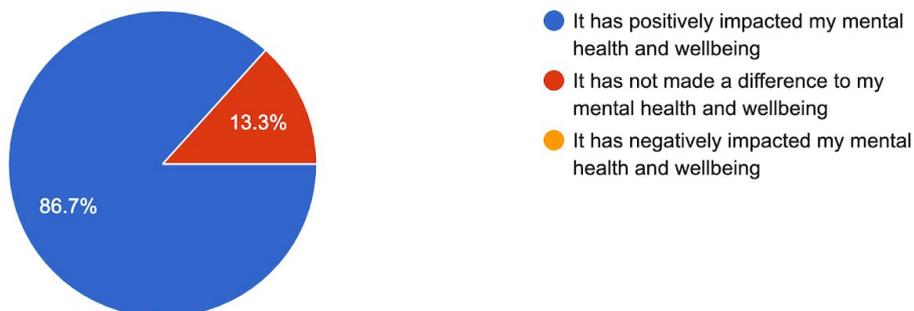


(5= Very helpful/supportive, 1 = not at all helpful/supportive)

Impact on mental health and wellbeing

How has this course impacted your mental health and wellbeing during the current situation (COVID-19, lockdown)?

15 responses



It is important to note here, that the 2 participants who indicated that it has 'not made a difference to mental health and wellbeing' are in 2 unique situations.

1) Participant 1

'Overall, the course is brilliant. Sarah is brilliant in the way that she talks and the scientific justifications for everything were really good. But from a person who is already very active, it is too easy. May be different for a person who doesn't want to exercise. It's really good for beginners, which is how you have sold it. I also think it's really good for someone with active IBD or who is recovering from surgery at home. Sarah did a really good job. It's even more important to stay active right now for people with IBD as moderate exercise boosts your immune system. Also, mental health wise - exercise will have a very powerful effect during the current situation.'

2) Participant 2

'I liked that it referenced the current situation but feel that that means you won't be able to use it once lockdown is over. I think I would like to do this course again once my mental health is back on a more even keel following the lockdown and when COVID 19 isn't having such an impact. I said it hadn't made a difference as currently, the thing most affecting it is the lockdown.'

This participant goes on to rate the courses as highly helpful/supportive for her long term health and happiness, is highly likely to recommend to someone else with IBD and quotes she is:

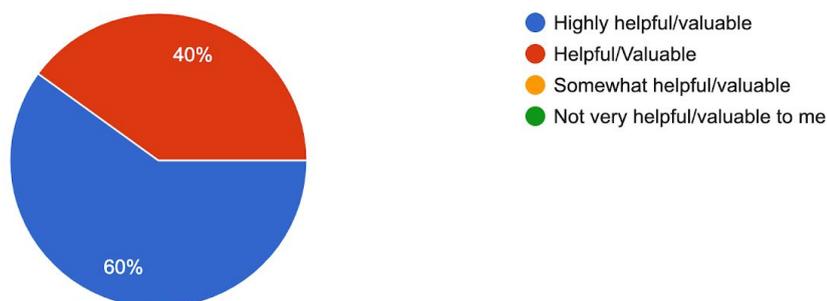
'Very happy with how the courses are delivered and the content and look forward to many more' and that 'I think this is a great idea for people with IBD. Not many people look into their general wellbeing and this app helps people do that'.

Ampersand Health can confirm that this course will be able to be used after lockdown and although it is geared to address needs during lockdown currently, the majority of this can be reused and extended as an area of need after lockdown.

Perceived impact on health and happiness long-term

How helpful do you think the My IBD Care courses could be to boost your health and happiness in the long term?

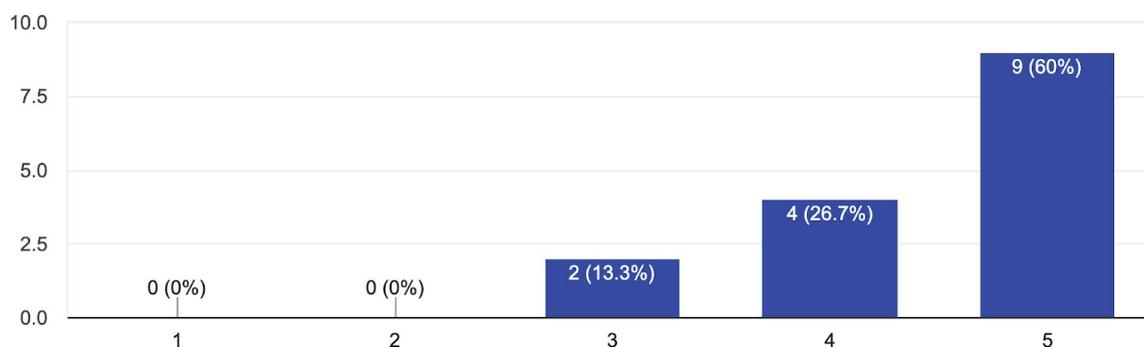
15 responses



Use of courses post-lockdown - (5 = highly likely, 1 = Not at all likely)

How likely are you to use other courses post-lockdown?

15 responses



5 = Very likely, 0 = Not likely

Interview data

Behavioural scientists and the Design and UX lead at Ampersand Health conducted 12 interviews with those who took part in the trial. In-interview notes were made as well as guiding transcripts produced by [otter.ai](#). 1 participant was severely flaring at the time of interview and 2 others could not commit to either of the days scheduled for the interview due to work commitments.

Interviews lasted around 30 minutes per participant and the interview schedule outline can be found below. All of our interviews follow a semi-structured approach in order to follow the line of thought directed by the participant.

Interview schedule

- Tell us about how you think the course has impacted your mental health or wellbeing? If at all?
 - (mood, anxiety, mental health, energy levels, etc)
- How helpful do you think the My IBD Care courses could be to boost your health and happiness in the long term e.g. a month using more courses, activities?
- What is it about the app that you found most useful or helpful?
- What do you like most?
- What do you like the least?
 - What was your main frustration using the courses?
- Why would or wouldn't you recommend the app and these courses to someone you know with IBD?
- In light of the situation (lockdown, COVID-19 and isolation), how helpful/supportive have you found these courses?
- What else would help you during the current situation (COVID-19, Lockdown)?
- How did you find My IBD Care / were your expectations met?

Further questions were used as prompts where appropriate to explore further into the following topics:

- User experience
- Acceptability
- Content
- Engagement
- Fidelity of receipt and use
- Mechanisms of action (how they believe the course has contributed to and will continue to contribute to any changes in wellbeing they've experienced).

Interview responses

The overall sentiment from interviews was friendly, positive and encouraging. It is encouraging to hear that the courses and wellbeing content is being received well by those in both flare and remission. This is something that we aim to learn more about - whether it is useful for the content offering for somebody during a flare to be different to when in remission.

Furthermore, it was insightful to hear from people who range in experience regarding well being and IBD self-management. For those who are new to the disease and self-management, we were encouraged to hear that this content is addressing their needs. From those who have had the disease for 10+ years, it was also useful to hear their positive reactions to the content. A handful of participants praised the inclusion of CBT based techniques, CBT for Insomnia techniques, meditation and relaxation methods in the wider content/course offering. They emphasised that these techniques have helped them in their self-management of IBD and have even led them into remission with no medication in some circumstances.

Below we have clustered some quotes into 6 overarching semantic themes.

Themes

- Feedback on the Exercise and Wellbeing course
- Feedback on the Relationships and Wellbeing course
- Impact on wellbeing and mental health
- Relevance and need in the current COVID-19 situation (Captured above in Usage Feedback)
- Value beyond the current situation
- Wider usability and User experience (Captured above in Usage Feedback)

1) Feedback on the Exercise and Wellbeing course

Participant 4

'If you had no experience with physical activity - it's a godsend - you wouldn't know where to start - it's so important to help people do stuff that helps them keep active and their wellbeing high - having access to a human is really important to help people keep connected and feel supported during this time.

Even as someone who engages in physical activity regularly there was much to gain from the course. Learning some basic pilates and breathing techniques to supplement my own exercise regime which certainly adds to my mental health and wellbeing. I'm going to go back and use the meditation stuff. I have used a bit of meditation to help make myself better, to go into remission.

It was also really good to have a presenter that is relatable. It was a much more powerful person to have to present it.'

Participant 5

'A lot of exercise or wellbeing classes don't take chronic illness into account. It was great that this course has been designed especially for us!

The content was also delivered in a way that it didn't feel too much of an effort to take part. It was something I looked forward to!'

Participant 2

'The course was really helpful. I had a whole year of not being able to do any exercise, it was really good to introduce exercise into my life again. My highlight was being able to complete

all three workouts - as I have been unable to complete a proper workout for over a year due to being in flare. I struggle with bouncing and running and it makes my stomach painful - these low impact exercises really suit me. I've wanted to do the exercises and look forward to what the course had in store each day.

Sarah understands me, she can tailor the exercises to me and the way she was presenting it, it seemed personal and like she was talking to me. The delivery of the course was brilliant in my opinion. The fact that it was someone who understands some of the limitations people face reassured me that the workouts would be achievable for me.'

Participant 10

'Helps to give more routine, increase movement, improving connectivity by feeling like you are doing it alongside others. It improved my mood. The person leading the activities was engaging, relatable and presented them well'.

Participant 8

'Making time to exercise every day has improved my mood and stress levels. Doing exercise daily has helped me feel good about myself and motivated me to continue prioritising exercise every day for my wellness.

It showed me that you haven't got to be regimented in your day. I must go for a run on Tuesday and I must do yoga on Wednesday. And you can maybe tweak and change your exercises to suit how your body is on the day.

It was a good length to help me feel like I've achieved what I set out to. I'm in a flare at the moment and it's much more manageable to fit in and complete.

I can't remember what day it was - but I had a really bad day and I was on the toilet, all morning, and I just felt rubbish and I just wanted to curl up in a ball and not do anything but because of the course, I didn't feel like doing any exercise, but it was just 10 minutes of gentle movement. And I felt better after doing it for 'doing something', even if it was just a little something. And I think it was on the day for the pilates on the floor, I actually fell asleep after it because it was so relaxing.'

Participant 3

'It was great to be encouraged to do more activity and keep moving when I am fatigued due to my flare and that lead me to generally feel better. The app encourages you to reflect on how you feel which is good motivation to carry on.

It felt nice to do something that A) has a tutor - not a direct instruction - rather than doing it by myself and B) knowing that other people like me are doing the course. This makes it less isolating.'

2) Feedback on the Relationships and Wellbeing course

Participant 11

'I really relate to what Kay was talking about. For me, it was like having an additional team away from my team, but for emotional support. Since using the course, I'm more inclined to try and talk about things that I was not comfortable to talk about before. I'm now deciding I'm being more honest and I've made the effort to open up to people.

Participant 12

'It has given me some useful tips and made me feel a little more positive. There would be more impact from doing the longer courses as 4 days is very short. The activities for the day don't take too much time so you can build them into your day and they are informative. I have already started the 28-day wellbeing course so will be continuing with that one.'

Participant 5

'It was very interesting to find out more about relationships in this uncertain time and how they impact IBD and how IBD impacts relationships. I think it is very important to help keep yourself social in such uncertain times. I really enjoyed the short videos, as they were easy to understand and it was nice to see someone in a similar position talking about the problems.

The course has encouraged me to stop and think about how I communicate about my illness. It has also made me stop and think about how social I am being and with whom I am interacting. It is also easy to forget that you could be comparing yourself to someone who is

not currently unwell, are in a different life stage, have different things available to them. Realising this has really made me feel better mentally that I'm not just wasting my time at home or that I'm not doing as much as others.

I have since reached out to friends and family more and have been making an effort to keep up with people.'

Participant 7

'The short course was helpful to remind me that the situation was okay. Good to consider and understand the mental health aspect of Crohn's. Just Kay talking about it helped and reminded me that I could reach out to people and be fine about it.'

Participant 13

'Focusing on this subject made me see the importance of being connected and being more open- it also made me realise that I'm not so open when I thought I was relatively open. This particular course was very pertinent for me as I left my job (about 10 years ago now) because of Colitis and felt that my employer wouldn't be able to understand and that I wouldn't be able to juggle the two.'

Participant 14

'I'm currently shielding and live alone, so I am isolated. Talking to your family - and suggestions on how to make that easier - that has been really positive and helpful. This is important for people. A lot of people have a shame element about IBD and it can be really, really difficult.'

3) Impact on wellbeing and mental health

Participant 14

'It's empowering to do a course that's overall aim is to improve your own health and well being. It's helpful for people to feel empowered, to feel like they've done something to

improve their symptoms - this is the reason why I would recommend this to any peer or friend with IBD'

Participant 4

'It's more than met my expectations, I didn't necessarily think I would find things so in line with my perspective on the importance of wellbeing for IBD.

My mood, happiness and general wellbeing were all good, but using the app and spending a bit of time positively focusing on aspects of my physical and mental health only improved them further. I enjoyed the stillness, reflection and self focus the course encouraged. Achieving a consistent level of mental wellbeing takes time, effort, focus and support. The app provides people with the encouragement, guidance and motivation to keep working on positive proactive activities'

Participant 3

'It made me happier to be more active, more relaxed and less stressed out. It's really useful to be able to dip in and out of when needed and especially when you might need some focus or guidance on ways to improve your mental health, the singles are great for that and I'd definitely do a longer course if available.'

Participant 11

'Because it's so focused on wellbeing - the most important thing that has affected my ability to cope with Crohn's - that is my key reason to recommend to people.'

Participant 15

'Mood has been more stable and I've noticed emotional changes more clearly and been able to respond better to take care of myself.

I've asked about the correlation between stress and anxiety and IBD, and I have a very clear memory of being told, no it's not related. And I have a very clear memory of been told - it might be related.

For me, the biggest takeaway from the five days was, the 10/15 years ago that I asked that question, my intuition had hit on something. You know I could possibly have saved myself

some, some deterioration in my condition I could have perhaps managed it better. And so I feel quite - I have some emotion around that, some frustration, some bitterness. I think anything that moderates people's experience and expression of anxiety will help this condition.

Like you made the suggestion to daily exercise 10 minute gentle daily exercise. If that suggestion had been made to me, or to explore what relieves my anxiety, 20/25 years ago, unquestionably would have made a difference to me and how I have manifested in my illness'.

Participant 13

'It's a holistic approach - it's coming from experience, science, and everything else and I think. I think that's why I like this is because it's both scientific and has a nurturing approach.'

Participant 5

'I'm on the sleep one that's quite good I think as well because I suffer with insomnia quite a lot and I had already completed Cognitive Behavioural Therapy through the NHS already. And it's very similar to what I learned on that but I really like the questions that you ask in the app. I think they're quite helpful and having the app remind me daily to go on and do these tasks and think about, and watch the little videos and read the information - it's quite handy.'

4) Value beyond the current situation

Participant 5

'I think the courses could help me to build a better mindset for myself and also help to teach me more about my mind and body, both in relation to my IBD diagnosis with being newly diagnosed and also in general.'

Participant 11

'Being able to work on my wellbeing away from a health setting but feeling supported is very important.'

Participant 15

'It's practical, may be supportive, may educate, may help someone newly diagnosed to get good self-care habits from outset instead of like me having to figure things out as I lived with IBD - I wish I had this support & knowledge 30 years ago it would have made a big difference to me & possible expression of my IBD. I see these courses as highly valuable because a longer course, if followed daily, would build the habit of something into daily routine.'

Participant 4

'I have had real success in managing my own illness through a massive change in attitude and improvements in stress management and mental wellbeing - I think this app would help enable others to do that.'

Participant 6

'I think this is a great idea for people with IBD. Not many people look into their general wellbeing and this app helps people do that'

Participant 1

'It is a good idea to have everything in one place. It considers all aspects of general health for people with IBD'

Learning from the project

The key learning from the feasibility project and subsequent research is that there is significant need and demand for supported self-care in the period of the pandemic. We looked at patients with Crohn's or Colitis, but we believe with a degree of confidence that our findings would apply to most if not all vulnerable groups.

While we were pleased to see the undeniable improvement in anxiety, depression and overall mental health from just one week using our courses, we believe that developing longer courses will be essential to ensuring that their benefits are properly embedded in patients' lives.

We also obtained great value from our qualitative approach to acquiring insight - as earlier sections of the report indicate, we've been able to understand in quite some detail how our intervention impacts patients, what they would like more of and what didn't work. Nevertheless, we are also clear that a more quantitative approach is needed and we are already collecting and organising statistical data in anticipation of future activities and reporting.

Next steps

Proposal for the continuation of deployment of the services and kit used for the TechForce19 within the current contract - 1 month, 3months, 6months

Proposal for further development and/or scaling of the solution

i) Overall scaling strategy

Direct to Consumer

Given the decisions and investment already made in support of the IBD DTx development and the consumer launch, it makes sense to focus the remainder of 2020 to test the commercial viability of this as a sustainable revenue stream. This will require us to become skilled at marketing, engagement and data science in order to understand what drives adoption and lifetime value.

Furthermore, we intend to continue to develop these courses, as described above for IBD, but also for the other indications that we cover. We have developed plans with the National Rheumatoid Arthritis Society to extend our content and coverage to patients with Rheumatoid and other forms of Arthritis in Q3, and we are in discussions with the national charities for neuroendocrine tumours and haemochromatosis about extending our behavioural science-based approach to those conditions thereafter.

NHS

In the immediate term, we feel it makes sense to pursue the NHS as a marketplace given the readiness and need to adopt digital health solutions into primary and secondary care.

We decided to make our NHS offering free till January 2021, to help address an urgent need for better remote monitoring and also to improve our chance of being adopted and embedded into care pathways in the longer term. Half a dozen or so Trusts are going through an accelerated sign-up and onboarding process and we hope that support from NHSX and the AHSN network can help us build engagement.

vi) Markets & Customers - Proposals for scaling up into new geographical areas, different cohorts of individuals or customers

Condition specificity is a disadvantage in respect of the NHS, where non-clinical stakeholders have a preference for single deployments covering all long term conditions. The one size fits all approach tends to not to distinguish between a passive “patient portal” and an active monitoring and self-management proposition like Ampersand’s, as described in an earlier section.

Our view is that as outpatient care is virtualised, active self-management and frequent mini-episodes of remote care will be of great impact and importance for those living with a long term condition. By definition, these are clinical interactions that should be delivered through specialised software.

Having developed remote monitoring modules for use in dermatology, oncology, rheumatology, haematology and broader GI disorders, we are confident that we could expand our offering easily, however, we are mindful that this must not come at the expense of clinical effectiveness.

We believe that there is a long tail of underserved patients with “specialist LTCs” for whom we could adapt our existing IBD focused behavioural science framework; and develop novel, disease-specific self-care courses that will support improved outcomes and QoL. With appropriate support, we believe that we could scale our condition-specific approach sufficiently to meet both the “single deployment” and “disease-specific” use cases.

vii) Other requirements for scale, for example:

Evidence Generation

We currently have 3 large scale clinical studies underway, in rheumatology (300 patients at King’s College Hospital), oncology (2,500 patients across 12 sites) and gastroenterology (200 patients across two sites). We also have a service evaluation planned in the haematology department at Bart’s Health.

IG

The platform meets IG requirements and has passed IG at over a dozen trusts

App Library

The app is reviewed by Orcha and is included in their Covid Formulary.

Interoperability

The platform is interoperable - it is integrated with Cerner and PKB already and we are looking at integrations with labs, EHRs and registries in the future.

viii) Further impact? Projected impact or economic measuring

Our intervention will make virtualised outpatient care of a vulnerable group safer during the pandemic and in the longer term.

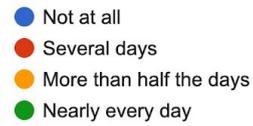
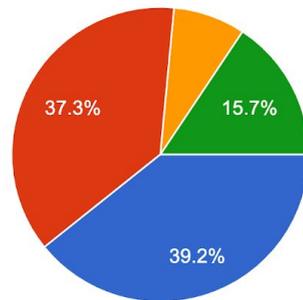
Post covid, we expect to be able to help the NHS manage capacity and flow by identifying patients with the most urgent need, so they can be seen more quickly; and by identifying those who are well, so they can be kept away from the hospital.

Patients using our app will improve their self-care and consequently their QoL and their outcomes; while at the same time giving them the peace of mind that they are being properly monitored.

Appendix A: Data

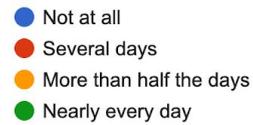
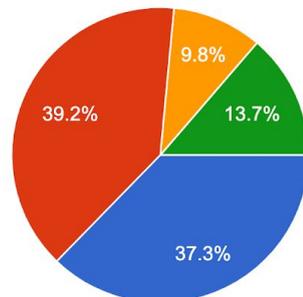
Feeling nervous, anxious or on edge?

51 responses



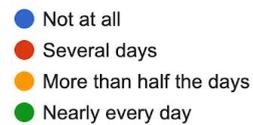
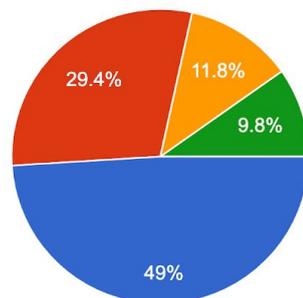
Worrying too much about different things?

51 responses



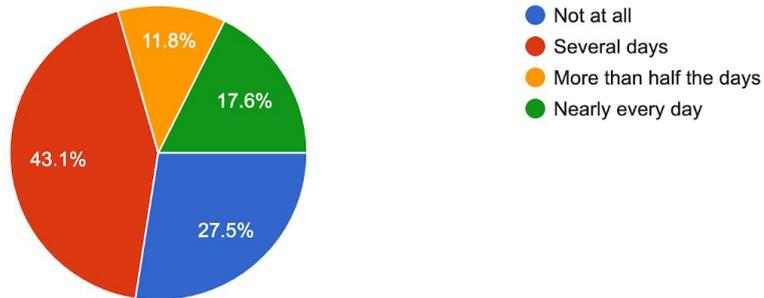
Feeling afraid as if something awful might happen?

51 responses



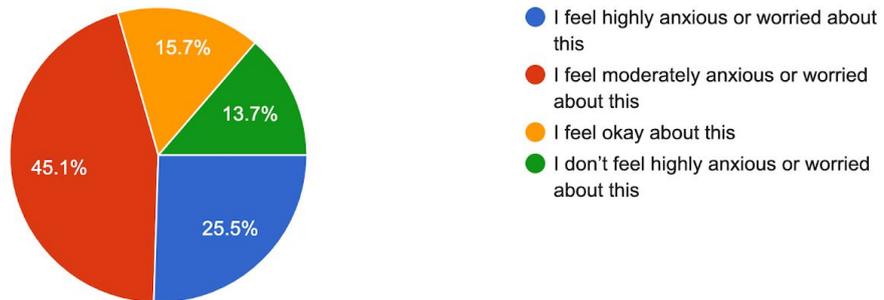
Becoming easily annoyed or irritable?

51 responses



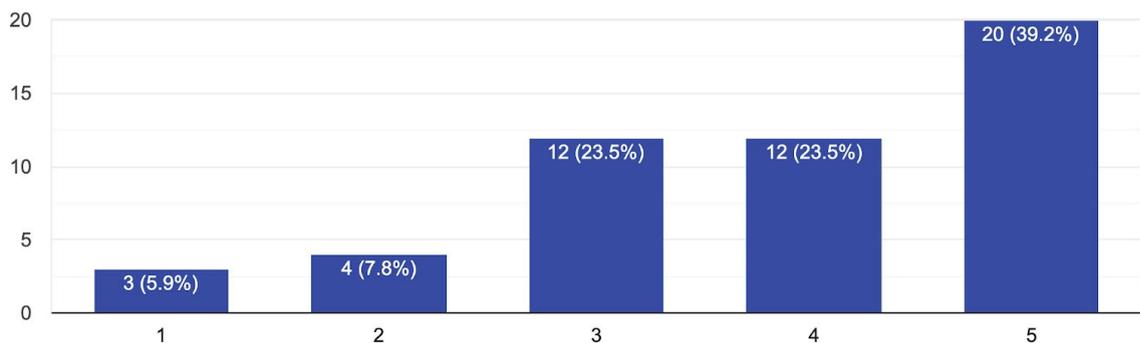
How does the current situation (lockdown, COVID 19) make you feel about your health and risk as an IBD patient?

51 responses



Please rate how useful you think digital-based wellbeing support would be during the current situation?

51 responses



5 = Very useful, 0 = Not useful at all

Appendix B: Content

1) Exercise and Wellbeing

Introductory information presented on the app:

How will this course work?

This is a short 5-day course to help you improve your wellbeing through exercise!

We will try 3 mini feel-good workouts that you can do at home. These are not designed to over-exert you, but to improve your mood, mobility, energy levels and happiness. There will also be some activities for you to complete below the daily video.

What will be covered?

- How to improve your wellbeing through exercise and moving your body
- Standing Pilates-based workout
- Strength-based resistance workout
- Mat-based pilates workout
- How to adapt the workouts in a way that suits your desired level of difficulty
- The links between IBD, mental wellbeing and exercise

Why was this course developed?

Your Crohn's or Colitis and mental wellbeing are very closely linked. Anything that impacts us physically, tends to impact us mentally. There are many different ways you can look after your mental wellbeing. On this course, Sarah will help you to experience the benefits of exercise for your mental wellbeing.

It's really important to stay active for your mental and physical health - especially during current times where we are at home more than usual! This course will help you find the ways you can increase your movement at home and feel good!

Supported by our experts...

This course has been developed by Sarah Russell, Clinical exercise specialist. Sarah has a particular interest in working with people who have long term health conditions, especially those with bowel disease and after bowel surgery. Sarah's had five bowel surgeries and now lives with a permanent stoma. Since her stoma surgery, she's gone on to run 32 marathons and is determined not to let her stoma stop her from living an active and adventurous life.

2) Relationships and Wellbeing

Introductory information presented on the app:

How will this programme work?

This is a short 4-day course to help you improve your wellbeing by strengthening your relationships and becoming more open!

Each day we will discuss a new topic about relationships and openness. There will be some activities for you to try below each video to help you along the way. Each day will take no longer than 10 minutes to complete, feel free to progress at your own pace.

What will be covered?

- Why it is important to maintain healthy relationships
- How you can stay socially connected whilst at home
- Being more open about your Crohn's or Colitis
- Dealing with the stigma of having Crohn's or Colitis
- Seeking support elsewhere to stay happy and socially connected

Why was this course developed?

There is a strong link between close personal relationships and your mental and physical health. It's really important to stay open and social for your wellbeing - especially during current times where we are at home more than usual!

This course was developed to give you a brief insight into how relationships and openness can improve your wellbeing.

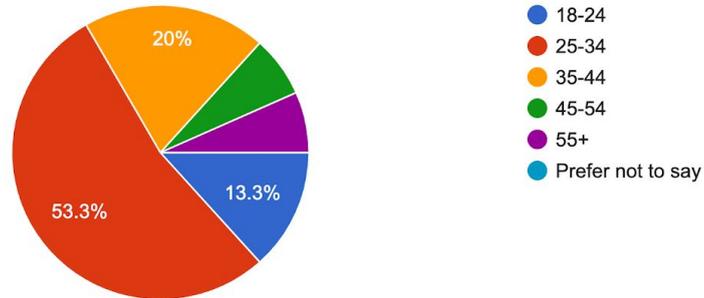
Supported by our experts

This course has been developed by Kay Graveson, a nurse at the Royal Free hospital specialising in IBD. Kay has a passion for helping those with IBD, as a patient herself with Crohn's disease, she knows exactly what life is like with IBD. Kay is also the founder of IBD passport, a charity to help people find the right information for travelling with Crohn's or Colitis.

Appendix C: Demographics

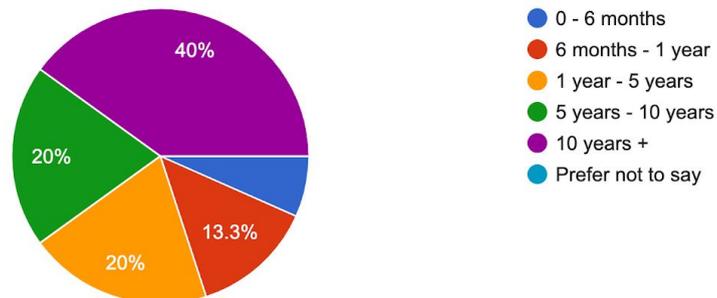
Age

15 responses



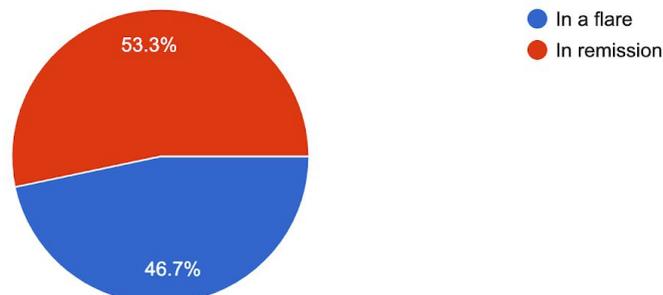
Time since diagnosis

15 responses

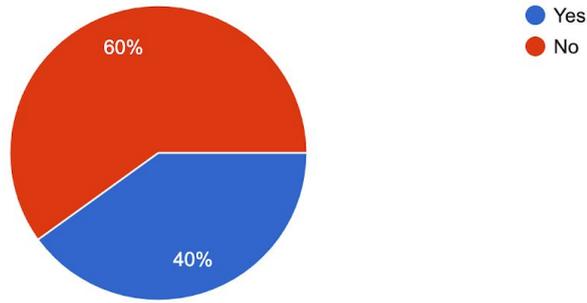


During this trial, what was your state of disease?

15 responses



Before this trial, were you a regular user of My IBD Care?
15 responses



Appendix D: Costs

A breakdown of all expenditure to date on the Feasibility Study.

Costs to date -

Staff Costs	£13,117
Overheads	£ 2,623
Contractors	£ 2,680
Sundry	<u>£ 230</u>
Total	£18,650

Any changes in staff, management structure or personnel administering the project.

None