

# Implementation of a digital intervention (Lumi Nova) to support children aged 7-12 years with anxiety in Greater Manchester

<b>Submission date</b> 09/09/2022	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered
<b>Registration date</b> 08/11/2022	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 09/09/2024	<b>Condition category</b> Mental and Behavioural Disorders	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Half of all mental disorders start by the age of 14 years, yet up to 70% of children and young people don't get access to timely, appropriate support. The demand for support has increased by 50% in the last 10 years leaving services under tremendous pressure. Anxiety, and other mood disorders, are the most common problem affecting children.

In the UK, there were 4.3 million children living in poverty in 2019/20; children living in households in the lowest 20% income bracket are 2-3 times more likely to experience mental illness compared to those in the highest income bracket. Yet they also face the biggest barriers to accessing treatment.

Lumi Nova is a therapeutic mobile game that delivers timely access to elements of Cognitive Behavioural Therapy (graded exposures), in a child-led, non-stigmatising way. The game supports dialogue with parents, whilst providing professionals with recognised outcome scales to monitor progress remotely. Lumi Nova was initially built to appeal to the broadest range of children with anxiety; now, there is an opportunity to tailor Lumi Nova to meet the needs of disadvantaged children - specifically those living in poverty.

This implementation study intends to understand the barriers to take-up and usage for the most economically disadvantaged children in Greater Manchester, and use the findings to optimise Lumi Nova, and how its deployed, so that it can better serve these patients.

### Who can participate?

Children aged 7-12 years of age who experience difficulties with anxiety can take part in the study. They must have English proficiency sufficient to be able to understand and participate in the study, and they must live within a postcode area indicating the lowest two deciles on the multiple deprivation index.

### What does the study involve?

Participants use the Lumi Nova digital intervention (mobile gaming app) for 8 weeks. They may also be asked to speak with a researcher in an interview to talk about any difficulties experienced when using Lumi Nova; the interview is voluntary and they do not need to participate in an interview to use the game; the interview will take no longer than 60 minutes.

Participants may also be asked to participate in a co-design workshop to help refine Lumi Nova based on their experiences of using it.

What are the possible benefits and risks of participating?

There is a risk that children and young people might feel upset talking about their anxiety. There is also a risk that parents/guardians might feel upset talking about their children's anxiety. While the researchers expect this risk to be small, they will provide information about external support that families can approach from mental health organisations. They will not provide any clinical support directly from within the project team and will make sure this is clear in the participant information sheets. They will also remind children and their parents/guardians that they are free to withdraw from the study at any time without needing to provide a reason. Children may experience an improvement in their anxiety as a result of using Lumi Nova.

Where is the study run from?

University of Manchester (UK)

When is the study starting and how long is it expected to run for?

March 2022 to December 2023

Who is funding the study?

NHS England (UK)

Who is the main contact?

Charlotte Stockton-Powdrell, [charlotte.stockton-powdrell@manchester.ac.uk](mailto:charlotte.stockton-powdrell@manchester.ac.uk)

## Contact information

### Type(s)

Principal investigator

### Contact name

Dr Pauline Whelan

### ORCID ID

<https://orcid.org/0000-0001-8689-3919>

### Contact details

Vaughan House

Portsmouth Street

Manchester

United Kingdom

M13 9GB

+44 (0)7554 227474

[Pauline.whelan@manchester.ac.uk](mailto:Pauline.whelan@manchester.ac.uk)

## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

## **Integrated Research Application System (IRAS)**

313721

### **Protocol serial number**

CPMS 52996, IRAS 313721

## **Study information**

### **Scientific Title**

Lumi Nova - a digital intervention supporting 7-12 year olds who experience symptoms of anxiety. An implementation study in Greater Manchester to optimise for economically disadvantaged children.

### **Study objectives**

This implementation study intends to understand the barriers to take-up and usage for the most economically disadvantaged children in Greater Manchester, and use the findings to optimise Lumi Nova, and how its deployed, so that it can better serve these patients.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Approved 15/08/2022, West Midlands – Black Country Research Ethics Committee (The Old Chapel, Royal Standard Place, Nottingham, NG1 6FS, UK; +44 (0)207 104 8010, +44 (0)207 104 8141; blackcountry.rec@hra.nhs.uk)m ref: 22/WM/0121

### **Study design**

Non-randomized; Interventional; Design type: Treatment, Education or Self-Management, Device, Psychological & Behavioural

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Anxiety

### **Interventions**

The researchers have split the project into four work packages.

Work package 1 (WP1): during the first 2 months (M1-2), the researchers will complete the ethics application and prepare for the deployment of the intervention. This will include readying clinical operational and management teams in the two participating sites (Wigan and Bolton), setting up study sites that have been identified, onboarding the Mental Health Schools Teams (MHSTs), establishing software licences and preparing training materials.

WP2: M3-7 will be the feasibility study which involves conducting a non-randomised study to test the feasibility of implementing Lumi Nova with 120 children and young people (CYP) in the two

economically disadvantaged areas of Wigan and Bolton. This WP will also involve qualitative interviews with 10 individual stakeholders from three groups: CYP who participated in the intervention, parents/guardians of CYP participants, and service delivery managers. The interviews will be conducted 1-1 by the research associate.

1. Participants will use the Lumi Nova intervention for 8 weeks.
2. 10 x individual interviews with parents of CYP who have been recruited to the study to explore usability/acceptability, barriers/enablers to uptake and to determine the most suitable primary outcome for a future trial.
3. 10 x individual interviews with CYP, recruited to explore usability, acceptability, barriers/enablers to uptake and most suitable primary outcome for a future trial.
4. 10 x individual interviews with service-delivery managers to understand implementation barriers/enablers and unintended consequences.

WP3: M7-9 will involve refining the software (Lumi Nova) to optimise its use with children from economically disadvantaged areas. The researchers will conduct 2 x co-design workshops with volunteer CYP who were part of the implementation study and use the insights generated to author an intervention refinement plan for the technical changes to the intervention, building on the quantitative/qualitative data analysis in WP2.

A rapid product development sprint will be conducted, using Agile software methodologies to deliver against the refinement plan. Beta-testing of the new version of the software will be conducted with five volunteers to ensure the software is fully functional and defect-free.

WP4: M8-9 is when the analyses, write-up and dissemination will take place. The researchers will prepare a report for submission to an academic peer-reviewed journal (e.g. Journal of Medical and Internet Research; JMIR), will share the findings through social media and digital mental health networks, and will host an event to share findings with CYP, parents/carers, schools, and children and adolescent mental health services (CAMHS) teams.

## **Intervention Type**

Device

## **Phase**

Not Applicable

## **Drug/device/biological/vaccine name(s)**

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## **Primary outcome(s)**

1. The barriers and enablers to the usage and engagement of Lumi Nova within an economically-disadvantaged group of children and young people, assessed using interviews on completion of the intervention
2. Stakeholders' views on a primary outcome for a future trial, assessed using interviews throughout the study

## **Key secondary outcome(s)**

1. The proportion of service users who:
  - 1.1. Complete more than three challenges within the game Lumi Nova
  - 1.2. Show a reduction in anxious expectations over treatment duration as measured pre- and post-exposure using in-game worry scale scores
  - 1.3. Show improvement in Goal Based Outcome rating (parent-reported)Measured at the end of the intervention period

2. Service users able to access Lumi Nova on a mobile device, assessed using feedback obtained during qualitative interviews and refinements to Lumi Nova to increase accessibility
3. Proportion of parents/guardians who are able to shortlist goals at the start, measured using app usage data at the start of using the intervention
4. Proportion of parents/guardians who are able to support CYP with at least two out-of-game exposures, measured using app usage data at the end of the intervention period
5. Parents/guardians are able to complete the Child Outcome Rating Scale (CORS) at the start and end of CYP's study engagement, measured using app usage data at the start and end of the intervention period

**Completion date**

31/12/2023

## Eligibility

**Key inclusion criteria**

1. Postcode indicating the lowest two deciles on the multiple deprivation index and further screening criteria to confirm household income
2. Children aged 7-12 years
3. Parent/guardian able to be involved as a point of contact with the practitioner
4. Experiencing difficulties with anxiety
5. English proficiency is sufficient to be able to understand and participate in the study

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Child

**Lower age limit**

7 years

**Upper age limit**

12 years

**Sex**

All

**Total final enrolment**

113

**Key exclusion criteria**

1. Not meeting the above inclusion criteria
2. CYP deemed to be in crisis (as assessed)

**Date of first enrolment**

12/10/2022

**Date of final enrolment**

31/08/2023

**Locations****Countries of recruitment**

United Kingdom

England

**Study participating centre****Wigan CAMHS Mental Health Support Team**

155 Manchester Road

Higher Ince

Wigan

United Kingdom

WN2 2JA

**Study participating centre****Wigan CAMHS School Link Team**

155 Manchester Road

Higher Ince

Wigan

United Kingdom

WN2 2JA

**Study participating centre****Bolton CAMHS Team Around The School**

Royal Bolton Hospital

Minerva Road

Farnworth

Bolton

United Kingdom

BL4 0JR

**Sponsor information****Organisation**

University of Manchester

ROR

https://ror.org/027m9bs27

## Funder(s)

### Funder type

Government

### Funder Name

NHS England; Grant Codes: SBRIH19P3025

## Results and Publications

### Individual participant data (IPD) sharing plan

The data-sharing plans for the current study are unknown and will be made available at a later date

### IPD sharing plan summary

Data sharing statement to be made available at a later date

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">HRA research summary</a>			28/06/2023	No	No
<a href="#">Preprint results</a>		16/05/2024	09/09/2024	No	No