

Pesky gNATs: Using Technology to Support Mental Health in Young People

Dr Gary O'Reilly UCD School of Psychology

Dr David Coyle UCD School of Computer Science



TRAINING



TECHNOLOGICAL



HEALTH

SUMMARY

Pesky gNATs uses technology to deliver Cognitive Behaviour Therapy (CBT) to children and adolescents with clinically significant anxiety or depression. *Pesky gNATs* is unique internationally as it is the only mental health intervention that combines these three components:

- online video based training for therapists
- a computer game that therapists play with young people during therapy sessions
- a smartphone app that supports a young person as they transfer what they learn in therapy to their home, school and community life.

Pesky gNATs is commercially available through "Handaxe" a legally registered not-for-profit Community Interest Company.

In a survey conducted by UCD of 1,142 mental health professionals, 93.7% rated *gNATs* Island CBT-based computer games as above average or excellent.

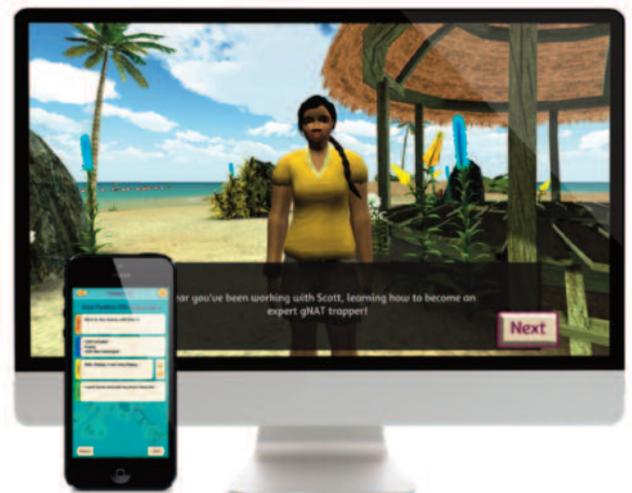
BACKGROUND

Depression and anxiety are common psychological problems in childhood and adolescence, with around one in ten children experiencing clinically significant symptoms (Costello, Erkanli, & Angold, 2006; Ford, Goodman, & Meltzer, 2003).

CBT is the psychological intervention of choice for adults. However, CBT for children is difficult because it requires them to think in quite abstract ways about their experience of anxiety or low mood.

We had a number of aims in designing *Pesky gNATs*, which were to:

- use our understanding of developmental psychology, clinical psychology and computer science to make CBT more developmentally appropriate for children
- provide children with a positive de-stigmatising experience of managing a mental health difficulty in a way that they find fun, positive and engaging
- make the technology accessible for all, via a not-for-profit model





RESEARCH DESCRIPTION

As we design new elements within our interventions we evaluate them through our programme of empirical research. For example in the current version of *Pesky gNATs* we added the opportunity for young people to learn mindfulness and self-regulation skills in conjunction with the CBT skills in the game.

The design-research process for this was as follows:

- Systematic review of the research literature on mindfulness, establishing the current evidence base for the impact of mindfulness on psychological functioning for adults, adolescents and children (Tunney, O' Reilly, & Twomey, 2014). We used this information to choose the mindfulness skills for inclusion in *Pesky gNATs*.
- Delivery of the chosen mindfulness skills to children aged between 10 and 12 years of age, using a traditional delivery method of face-to-face training and evaluation.
- Designed and built technology versions of the mindfulness skills which were then delivered to other similar children also aged between 10 and 12.

From this we were able to generate an empirical model of children's experience when learning face-to-face and technology assisted mindfulness skills. It also allowed us to establish the suitability of using technology to support children in acquiring these skills, and to identify some advantages associated with technology assisted mindfulness skill training (Tunney, Cooney, Coyle, & O' Reilly, 2016).

We have a number of on-going studies empirically evaluating the interventions we design.

We hope the impact of our work will continue to provide young people with self-knowledge and skills to help them manage serious mental health problems and to enjoy good mental health delivered through de-stigmatizing and familiar technology.

DETAILS OF THE IMPACT

Phase 1:

The prototype for *Pesky gNATs* was a CBT workbook written in 2005 and a computer game called *gNATs Island* which was built in 2009. We have given away free copies of the workbook to more than 10,000 mental health professionals worldwide and it is available in English, Arabic, Slovakian, and Spanish.

The original computer game also delivered a Cognitive Behaviour Therapy intervention for children with clinically significant anxiety or depression. Twelve hundred mental health professionals in Ireland, the UK and the USA were trained to use the game, and were given free access to it to use in their clinical settings. Therefore the original game has been used in youth mental health settings in three countries, to support the recovery of young people.

In a survey conducted by UCD of 1,142 mental health professionals, 93.7% rated *gNATs Island* CBT-based computer games as above average or excellent.

We used feedback from the therapists we trained and pilot research to evaluate the original programme and plan a revised version of the game.

Phase 2:

In 2013 based on phase one of our work, we were awarded STG£540,000 from the Small Business Research Initiative (SBRI) to continue the development of our work. Over the last two years we used this funding to:

- Build a revised version of our computer game called *Pesky gNATs*. It is played during therapy sessions by a young person with anxiety or depression alongside a mental health professional. *Pesky gNATs* is a 7 level 3D computer game for Mac or PC that provides a psychometric assessment of a young person's symptoms, delivers a CBT intervention, and coaches mindfulness and self-regulation skills. *Pesky gNATs* is commercially available since November 2015 on a not-for profit basis through our website www.PeskyGnats.com
- Build the *Pesky gNATs* smart-phone app for iOS and Android. The app supports young people as they transfer the CBT skills they learn from playing the game with a therapist to their everyday life at home, at school or in their community. The *Pesky gNATs* app is currently available free of charge to young people from the iTunes Store or the Google Play Store.

- Build the www.PeskyGnats.com website, which allows us to make the *Pesky gNATs* training and computer game available to mental health professionals internationally.
- Found a legally registered, not-for-profit, community-interest company, which protects the intellectual property of *Pesky gNATs* and ensures it is available for the good of the community on a not-for-profit basis.

Phase 3:

Pesky gNATs is the first game, training or app that we have officially released. However, there are currently four games in our range at different stages of development.

The other three games have a similar structure (website/training/game/app).

1. **Mindful Gnats** provides mindfulness skills training for young people.
2. **Pesky Gnats Trauma Recovery Island** targets young people with Post Traumatic Stress Disorder (PTSD), or who are recovering from serious experiences of abuse.
3. **The Feel Good Island** is for adults with an intellectual disability who also have anxiety or depression. We continue to develop these games based on our clinical experience and programme of empirical research.

We hope the impact of our work will continue to provide young people with self-knowledge and skills to help them manage serious mental health problems and to enjoy good mental health delivered through de-stigmatizing and familiar technology. We are committed to combining the highest quality technology with evidence-based psychological interventions on a sustainable not-for-profit basis.

RESEARCH REFERENCES

- (Costello, Erkanli, & Angold, 2006; Ford, Goodman, & Meltzer, 2003).
- Tunney, C., Cooney, P., Coyle, D., & O' Reilly, G. (Paper Accepted January 2016). Mindful Gnats: Comparing young people's experience of technology-delivered versus face-to-face mindfulness and relaxation. *British Journal of Psychiatry*.
- Tunney, C., O' Reilly, G., Twomey, C. (2014) A systematic review and meta-analysis of RCTs of mindfulness for adult and youth populations with mood disorders. *European Association of Behavioural and Cognitive Therapy Annual Conference, The Hague, Netherlands*.

Grants/Awards

STG£540,000 small Business Research Initiative (SBRI is an NHS fund to develop technology that advances youth mental health).

Website

www.peskygnats.com

.....

We are committed to combining the highest quality technology with evidence-based psychological interventions on a sustainable not-for-profit basis.

.....

