



Right technology right time: how the PEARs app is improving pregnancy outcomes

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ACADEMIC



ECONOMIC



HEALTH



SOCIAL



TECHNO-
LOGICAL

SUMMARY

Pregnancy is a critical window for impacting the health of mother and child. To take advantage of this, Professor Fionnuala McAuliffe led an app-based programme to improve the diets and activity levels of women at risk of developing diabetes in pregnancy.

This research combined mobile technology with lifestyle behaviour change, producing new knowledge on the viability of apps to improve the health of mothers and their babies.

The National Maternity Hospital has developed an app based on Professor McAuliffe's findings, making it freely available to all pregnant women in Ireland and worldwide. The app will improve health outcomes and reduce the burden on the health system.

“I love the app,
I think it's brilliant.
It's so easy to use.”

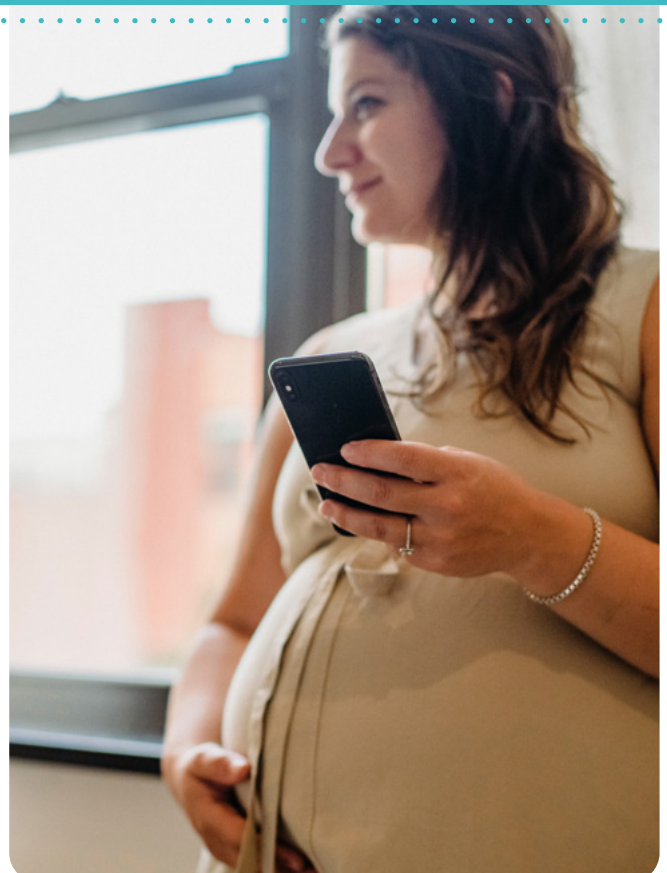
Pregnant woman using the healthy
lifestyle app

RESEARCH DESCRIPTION

Poor diet and lack of exercise during pregnancy can result in negative health outcomes for mother and child in both the short and long term. This includes an increased risk of maternal and childhood obesity, and therefore diseases like diabetes. In Ireland, many women gain too much weight during pregnancy, which can lead to high weight after birth. Reducing this weight gain is an important public health goal.

During pregnancy, there is sustained engagement between pregnant women and health care professionals. This is a unique 'teachable moment', providing an opportunity to improve health behaviours to benefit mothers and their infants.

The “pregnancy exercise and nutrition research study with smartphone app support” (PEARS) is a randomized controlled trial conducted by the UCD Perinatal Research Centre. It demonstrates the exciting potential for mHealth (public health supported by mobile devices) during pregnancy to improve maternal and child health.



From 2013 to 2016, pregnant women with BMI > 25 were recruited to the study. These women were randomly grouped so that some received routine care while others (in the ‘intervention group’) received a package of care with recipes for healthy meals and individualised exercise prescription, supported by a specifically designed smartphone app.

Women who used the app showed less weight gain, higher rates of exercise, and lower rates of overweight infants. Additionally, the intervention proved cost effective. These clinically relevant results demonstrate the potential for mobile health technology to combine with routine care during pregnancy to offer a simple, safe, and effective way to improve maternal lifestyle behaviours.

This smartphone app, called Holleastic, launched on 1 February 2021 and is now available to all pregnant women attending the National Maternity Hospital.



RESEARCH TEAM, COLLABORATORS AND FUNDING

Research team

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UCD School of Medicine; Director, UCD Perinatal
Research Centre

Dr Sharleen O’Reilly
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Funding

National Maternity Hospital Medical Fund

RESEARCH IMPACT

Health and social impact

The global burden of disease is increasing worldwide, characterised by rising obesity rates. In Ireland, two thirds of people have overweight or obesity, with an estimated one third of women having obesity. Obesity is a risk factor for negative health outcomes during pregnancy, and improving health behaviours (around diet and lifestyle) can benefit mother and child.

In the PEARS study, women who used the smartphone app had clinically relevant reduced weight gain and improved diet. These benefits hold potential to improve health for both mother and baby in the longer term. By making this smartphone app available to all pregnant women at National Maternity Hospital and potentially to family practice centres in Dublin, Professor McAuliffe and her collaborators are directly translating their research findings into clinical practice.

The app is expected to reach all those attending National Maternity Hospital (8000 mothers annually). When rolled out more widely, the app could improve the health of tens of thousands of mothers and their children across Ireland and beyond.

Health and economic impact

Cost is an essential consideration when translating research into clinical practice, and so a cost-effectiveness evaluation of PEARS was published in 2019. This evaluation looked at a measure of disease burden known as the “quality-adjusted life year” (QALY), which assesses the quality and quantity of life lived after an intervention.

It found that mothers and babies who used the app gained more QALYs than those who received routine care. What’s more, the cost of maternal care and delivery did not significantly differ between the two groups. The app will therefore reduce the burden on the health system and save resources.

Technological impact

A freely available smartphone app (Holleastic) has been developed based on robust scientific findings from the PEARS study. This app was designed by a multidisciplinary team including dietitians, nutrition scientists and medical professionals. It provides recipes for healthy meals to pregnant women, along with exercise advice and a pregnancy tracker. Considering more than 90% of women of reproductive age use smartphones, this presents a fair and wide-reaching route through which to deliver healthy lifestyle advice.

Academic impact

PEARS research outputs have directly shaped the research agenda within the UCD Perinatal Research Centre, and have contributed to the design of current studies including the “LatchOn Study” and “Bump2Baby and Me”.

The “Latch On Study” is a randomised controlled trial of breastfeeding support among women with a BMI > 25, with the primary aim of increasing breastfeeding rates at 3 months.

The “Bump2Baby and Me” study is an EU-funded international randomised controlled trial aiming to contribute to the early prevention of maternal and child non-communicable diseases, including diabetes and overweight and obesity. The “Bump2Baby and Me” study will use a smartphone app that has been informed by findings from the PEARs study to support women during pregnancy and in their babies’ early years.

REFERENCES

Hollestic app

App Store: [click here](#)

Google Play: [click here](#)

Instagram: [click here](#)

Academic references

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