Predictors of e-cigarette use in secondary school children: employing the theory of planned behaviour.

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What are electronic-cigarettes?

- Electronic nicotine delivery systems (ENDS)
- Deliver nicotine by heating a liquid into a vapour for inhalation.

- Devices vary:
  - a mouthpiece,
  - cartridge for the liquid,
  - heating system and battery (Scungio et al., 2018)
- The liquid normally includes:
  - glycerol,
  - propylene glycerol,
  - flavours (Hartmann-Boyce et al., 2018)
  - nicotine strength and quality (Grana et al., 2014)
- The European Union Products Directive (2016)

Prevalence of use

- EC use is growing globally
- 10 million users worldwide (Schoenborn & Grindi, 2015)
- 2.8 million users in the UK (ASH, 2015).
- Decline in traditional smoking
- An increase in the number of people attempting to quit (Brown et al., 2014)
- Potential to improve the health and well-being of the UK population (Tombor et al., 2015)

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EC use in young people aged 11-16 years

Research to date:

- Patterns of use are not so well understood
- Paucity of research looking at this
- Need for research that will try to account for the underlying mechanisms surrounding use - theoretical framework

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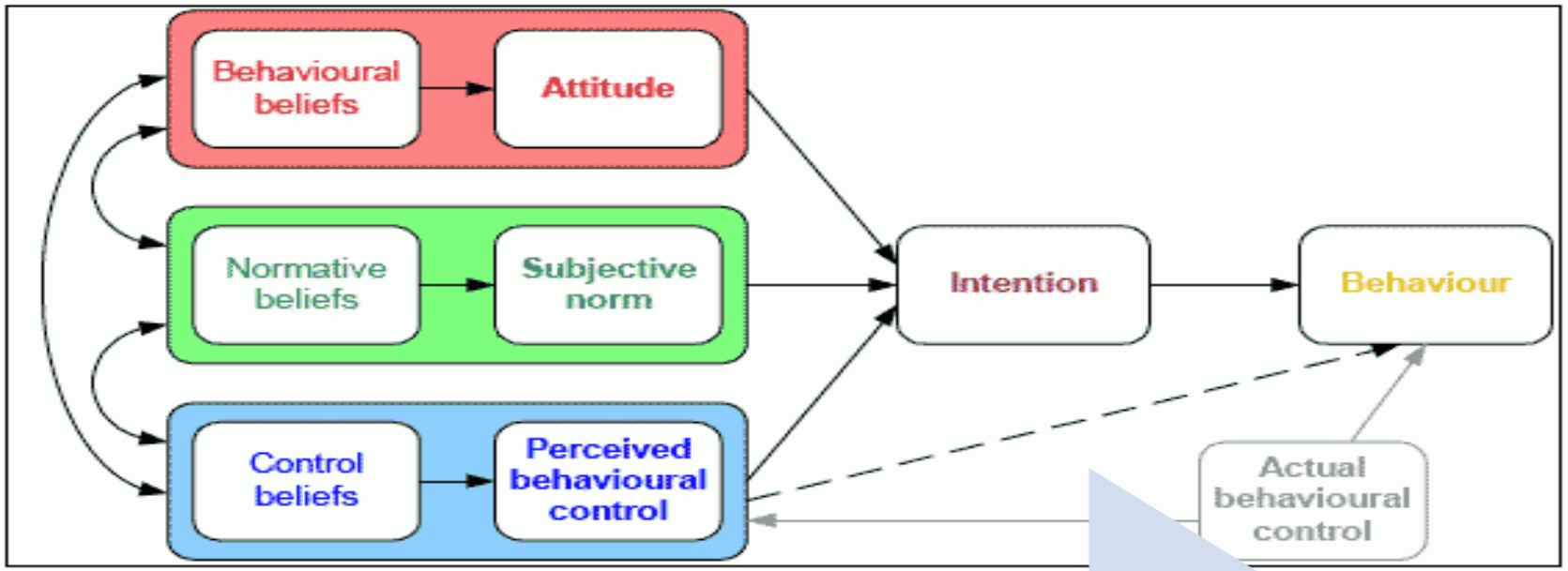
Theoretical framework: Theory of Planned Behaviour



Stage one:
Elicitation of beliefs
Focus groups

Questionnaire design:
TACT principles

Stage two:
Survey of attitudes

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Aims and Objectives

Aim: Using the TPB to determine the knowledge and attitudes to e-cigarettes in young people (11-16yrs) in NI.

Objectives:

1. To gain a better understanding of the knowledge and prevalence of EC use
2. To explore the factors that influence intentions to use EC and in particular how attitudes towards EC, the roles of one's significant others and the ease or difficulty engaging in the behaviour can predict its use.
3. To explore how such factors, including intentions, influence current EC use

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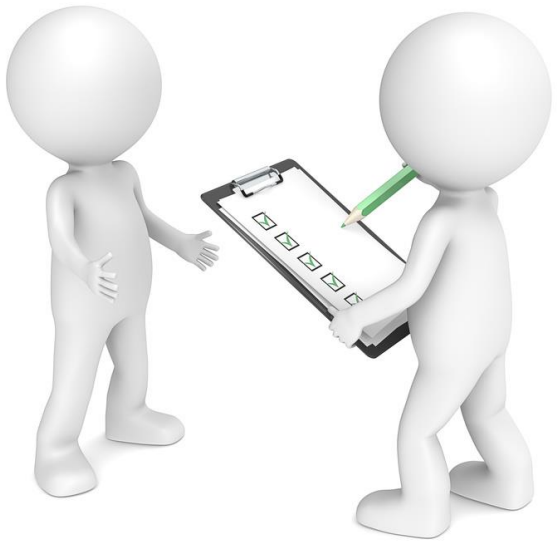
Methods: Design & Participants

Exploratory sequential design: Stage two

21 Secondary Schools:

- N = 1511, 11-16 year olds
- Mean age 13.5 years
- 59% female
- 59% Grammar schools
- 4% current EC users
- 22% had tried EC
- 4% smoked cigarettes
- 2% dual use



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Procedure

- Information packs were sent out to designated classes in schools that agreed to take part
- Parental consent/Student assent
- Surveys were given to students in classroom setting
- Scanned into FORMIC

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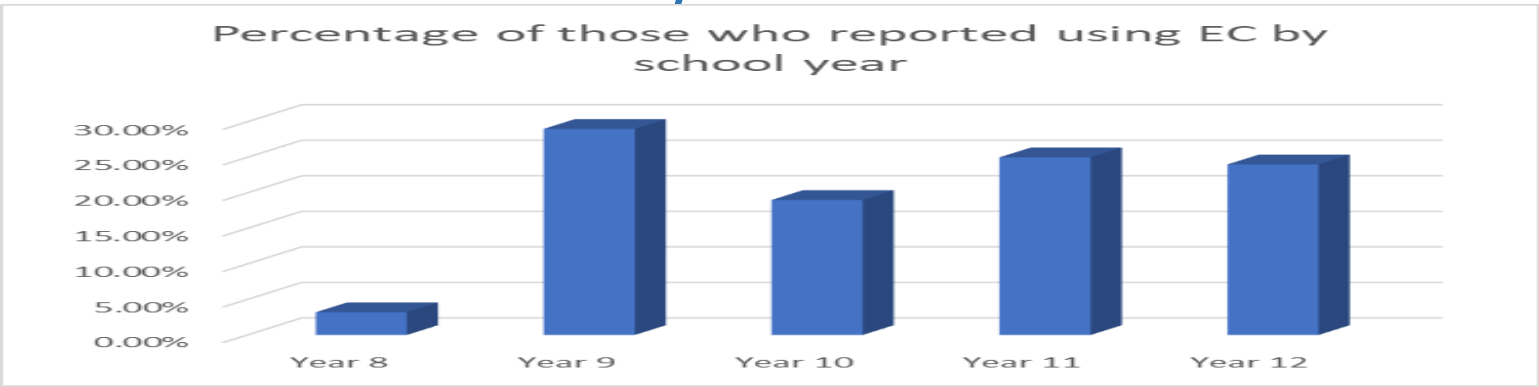
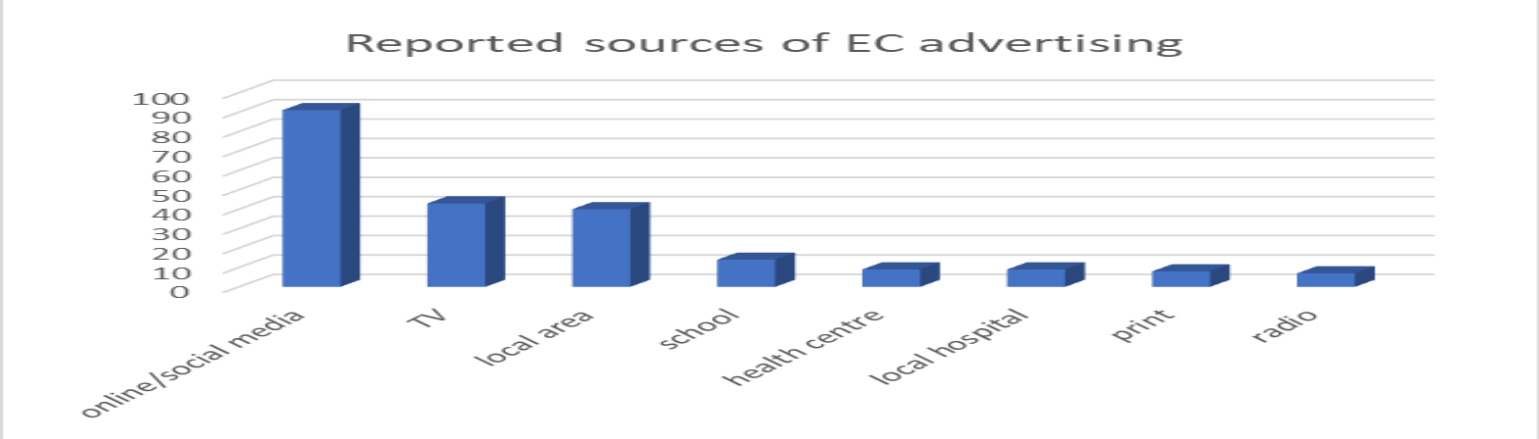
Results: some information about EC

- Experimentation with EC began as early as year 8 (11-12 year olds) - graph
- Use increased between years 8-9



- Around 80% were not taught about EC
- Main marketing is from TV, online sources and locally



Results: predictors of current EC use

Hierarchical Logistic Regression Analysis:

Step one: Sociodemographic and school type – 2%
Step two: Parent/guardian EC use – 3%
Step three: Knowledge of EC – 3%
Step four: Direct TPB measures and intentions – 16%
Step five: Indirect TPB measures – 16%

TPB, sociodemographic variables & knowledge:
16% of variance in EC use was explained by variables

Main predictors in the final step of the model:
Intentions to use EC in the next month ($\beta = 1.61$, $P < 0.001$)
Self efficacy ($\beta = 0.91$, $P = 0.016$)

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Results: Predictors of intentions

Hierarchical Linear Regression Analysis:

- **Step one: sociodemographic and school type – 7%**
- **Step two: parent/guardian EC use – 9%**
- **Step three: current EC use – 30%**
- Step four: Knowledge of EC – 30%
- **Step five: Direct TPB measures – 57%**
- **Step six: Indirect TPB measures – 65%**

TPB, sociodemographic variables & knowledge:

- 65% of the variance in intentions to use EC

Main predictors in final step of model:

- Attitudes - healthier, fun, cheap(β = 0.215, P < 0.001: spc2 = 0.041)
- SN – friends, parents (β = 0.147, P < 0.001: spc2 = 0.012),
- PBC - legislation, accessibility
- self-efficacy ((β = 0.094, P < 0.001: spc2 = 0.016)
- control beliefs ((β = 0.040, P < 0.001: spc2 = 0.142).

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Discussion & Conclusion

- TPB variables predicted use & intentions in use EC
- Increased our understanding of the personal and social factors that influence EC use in 11-16 yr olds
- Prevalence of use similar to other UK studies
- Experimentation (22%) exceeds smoking (12%) - DOH

Implications:

- Normalisation of smoking type behaviours
- Gateway to smoking tobacco
- May lead to nicotine addiction
- Long term implications on health have yet to be established
- May not be effective as smoking cessation tool

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Research advisory group

Thank you for listening & any questions?

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