

# Mobile phone-based interventions for smoking cessation

*Dr. Pablo Perel*

*Associate Director Centre for Global Non Communicable Diseases*

*London School of Hygiene & Tropical Medicine*

*United Kingdom*

# Outline

Rationale for phone based interventions

Cochrane systematic review

txt2stop Trial



## **Mobile phones for smoking cessation**

Mobile phone ownership is high

24 hour support

Confidential

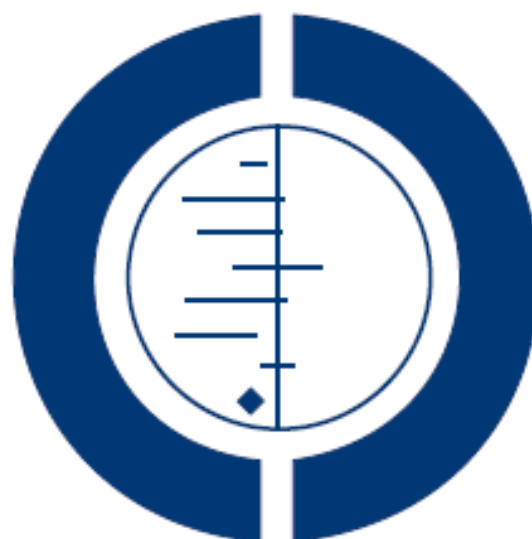
Convenient

Interactive

Personalised

# Mobile phone-based interventions for smoking cessation (Review)

Whittaker R, McRobbie H, Bullen C, Borland R, Rodgers A, Gu Y



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COLLABORATION®**

# Methods Cochrane Review

**Objective:** To determine whether mobile phone-based interventions are effective at helping people who smoke, to quit.

## **Inclusion criteria**

Population: Smokers of any age who wanted to quit.

Intervention: Any type of mobile phone-based intervention.

Primary outcome: Smoking abstinence at six months or longer.

Studies: Randomised or quasi-randomised

# Methods Cochrane Review

**Search methods:** Authors searched the Specialised Register of the Cochrane Tobacco Addiction Review Group in May 2012 using the terms 'mobile phone', 'cell phone', 'txt', 'pxt',

**Assessment risk of bias :** sequence generation, allocation concealment, blinding, incomplete outcome data

**Missing data:** trial participants who dropped out of the trials or were lost to follow-up were considered as continuing to smoke

**Data synthesis:** Meta-analysis of the included studies was undertaken using the Mantel-Haenszel fixed-effect method

# Results Cochrane Review

## 5 included studies

**Rodgers 2005** Do u smoke after txt? Results of a randomised trial of smoking cessation using mobile Phone text messaging. Tobacco Control 2005;14:255–261

**Free 2009** Txt2stop: a pilot randomised controlled trial of mobile phone-based smoking cessation support. Tobacco Control 2009;18:88–91.

**Free 2011** Smoking cessation support delivered via mobile phone text messaging (txt2stop): a single-blind, randomised trial. Lancet 2011;378:49–55.

**Whittaker 2011** A theory-based video messaging mobile phone intervention for smoking cessation: randomised controlled trial. Journal of Medical Internet Research 2011;13(1):e10.

**Borland 2012** Population level effects of automated smoking cessation help programs: a randomized controlled trial. Addiction in press.

**7 ongoing studies** (including one in Switzerland by Haug et al.)



# Results Cochrane Review

## **Rodgers 2005 New Zealand/Free 2009 UK /Free 2011 UK**

Participants received an automated personalised programme of regular text messages. The control group received one text message every two weeks that provided information about the study.

## **Whittaker 2011 New Zealand**

Participants received text messages containing a URL web address which would lead to small video clip. The control group received a general health video message sent to their phone every 2 weeks

## **Borland 2012 Australia**

Participants randomised to one of five interventions (i) minimal intervention control; (ii) personalized tailored internet-delivered advice program; (iii) an interactive automated text-messaging program; (iv) an integration of both; or (v) a choice of either alone or the combined program. The control group received brief information on web- and phone-based assistance

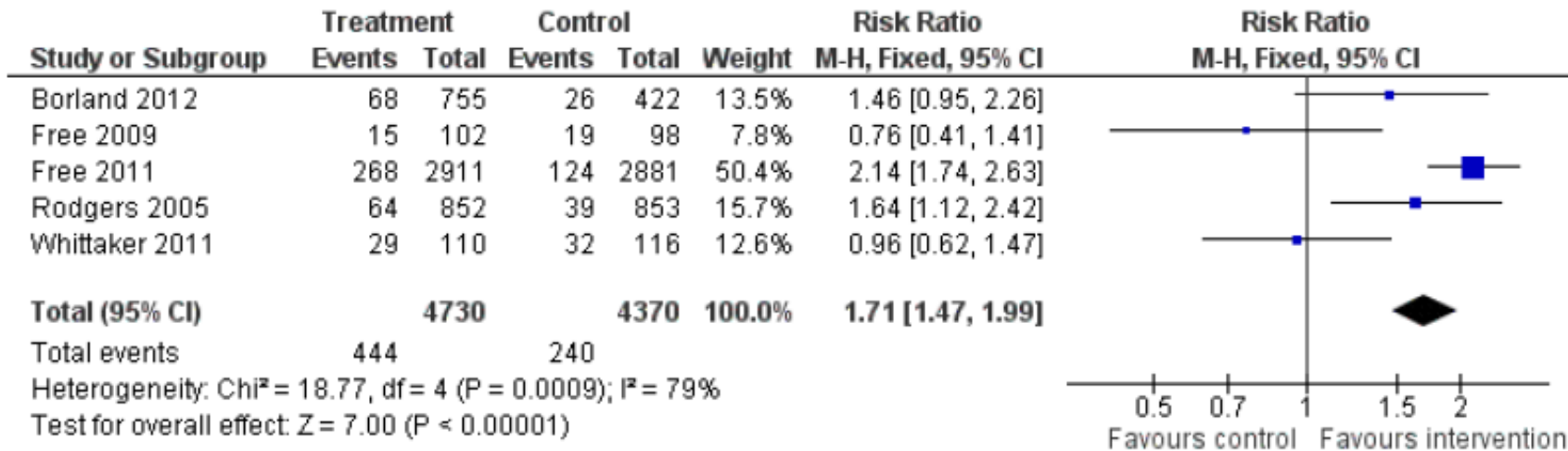
# Results Cochrane Review

## Risk of bias summary

	Whittaker 2011	Rodgers 2005	Free 2011	Free 2009	Borland 2012	
	+	+	+	+	+	Random sequence generation (selection bias)
	+	+	+	+	+	Allocation concealment (selection bias)
	+	+	+	+	+	Blinding (performance bias and detection bias)
	+	-	+	+	+	Incomplete outcome data (attrition bias)
		-				Other bias

# Results Cochrane Review

## Mobile phone intervention versus control 26 weeks



## Conclusion Cochrane Review

*“The current evidence shows a benefit of mobile phone-based smoking cessation interventions on long-term outcomes, though results were heterogenous with findings from three of five included studies crossing the line of no effect.”*

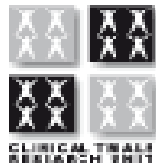
*“[Free 2011] may be the most definitive trial of text messaging for smoking cessation and is by far the largest included in this review.”*

# A randomised controlled trial of mobile phone (cell phone) based smoking cessation support: six month results

Free C, Knight R, Robertson S, Whittaker R, Edwards P, Zhou W, Rodgers A, Cairns J,  
Kenward M, Roberts I.

LSHTM, CTRU Auckland, QUIT, George Institute

Lancet 2011;378;49-55



## **Intervention**

participants were asked to set a 'quit date'

intensive support: 5 personalised text messages were sent to mobile phones on a daily basis for 5 weeks

text message frequency then reduced to 3 per week for six months

## **Control**

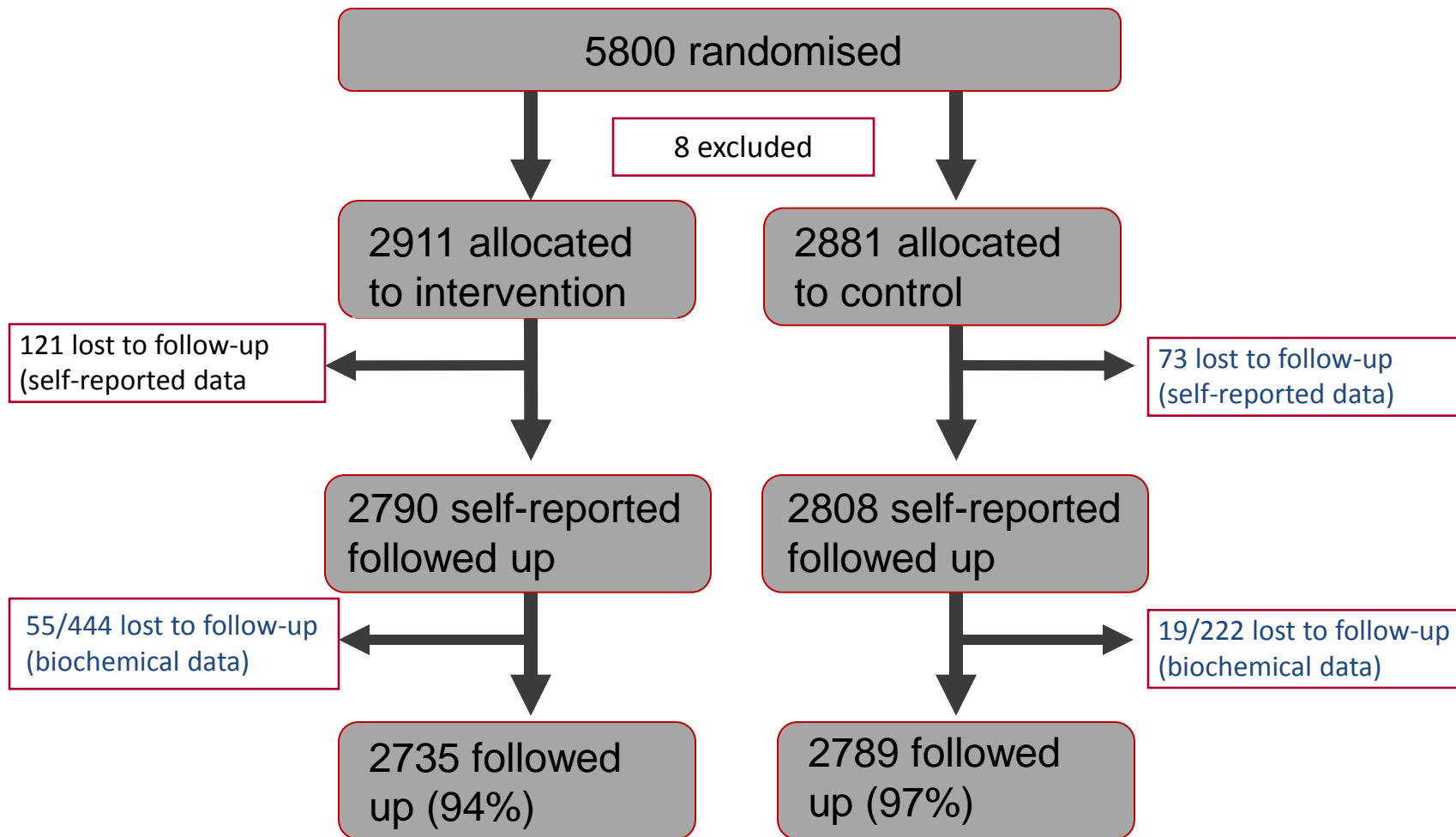
received fortnightly text messages unrelated to quitting

## **Methods**

### **Primary outcome measure**

biochemically verified self-reported smoking abstinence at six months (no more than 5 cigarettes from the start of the abstinence period)

## Results Trial profile





## Results Baseline characteristics

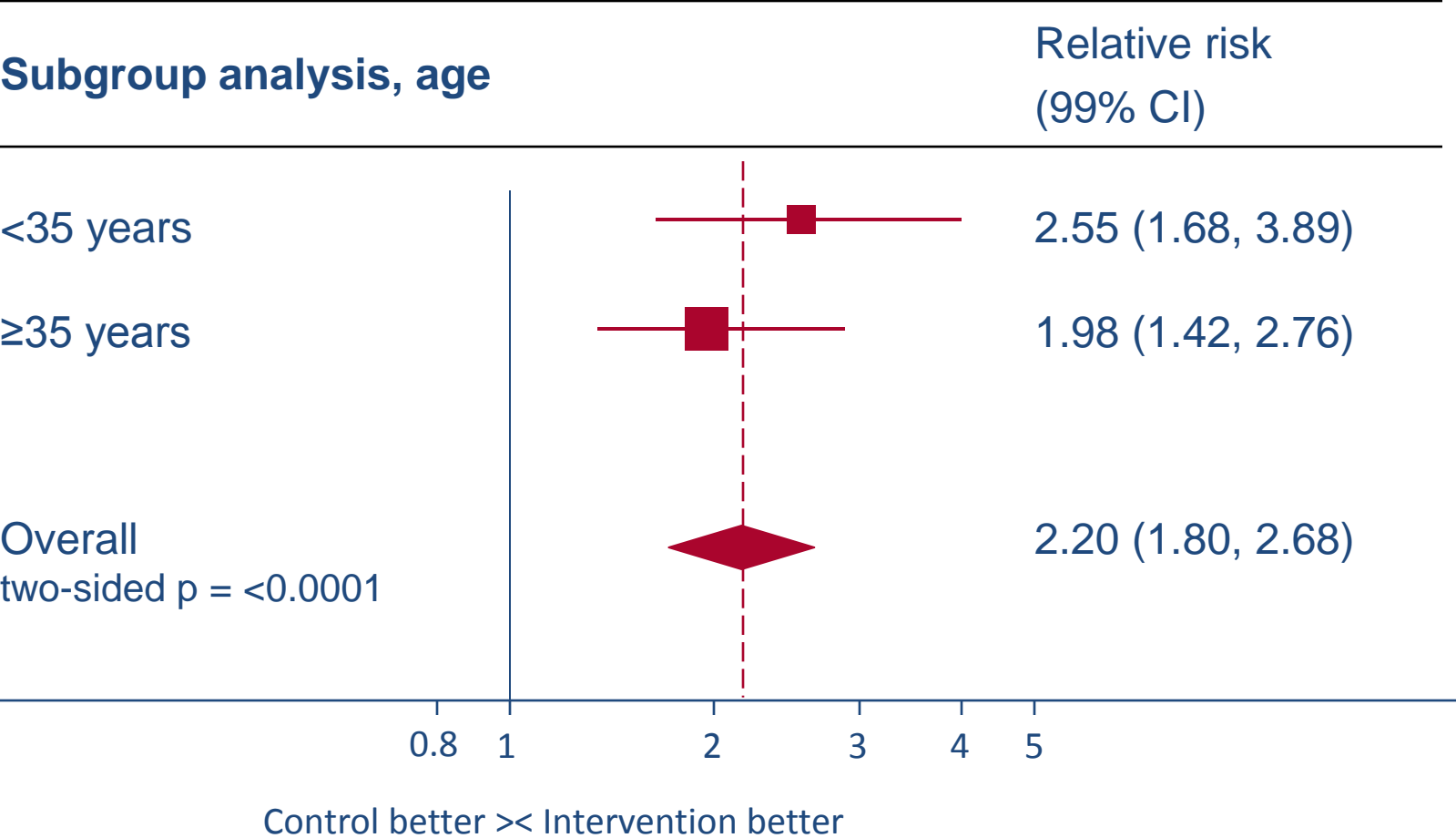
Characteristic		Intervention group (n = 2911)	Control group (n = 2881)
Sex	male	1608 55%	1585 55%
	female	1303 45%	1296 45%
Age	16–18	95 3%	100 4%
	19–34	1198 41%	1199 42%
	>34	1618 56%	1582 55%
Education level	age 16 or less	1274 44%	1260 44%
	age over 16	1637 56%	1621 56%
Fagerström score	≤5	1747 60%	1734 60%
	>5	1164 40%	1147 40%

## Results

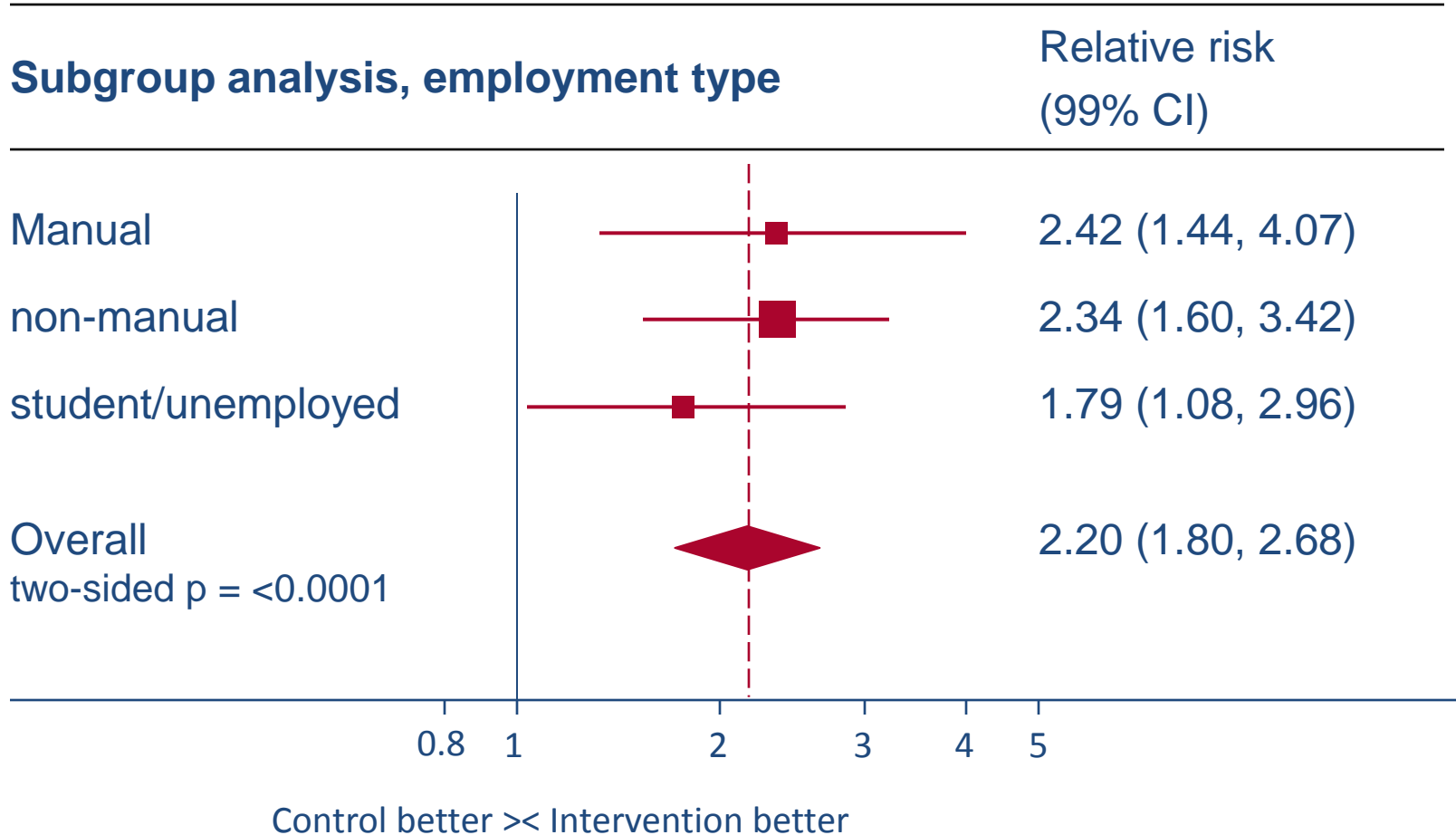
### Primary outcome: biochemically verified quitting at six months

	Intervention group % (n)	Control group % (n)	Relative risk (95%CI)	P-value
Primary analysis (MICE)	10.7%	4.9%	2.20 (1.80, 2.68)	<0.0001
Missing data treated as smokers	9.2% 268	4.3% 124	2.14 (1.74, 2.63)	<0.0001
Missing data excluded	9.8% 268	4.4% 124	2.20 (1.79, 2.71)	<0.0001

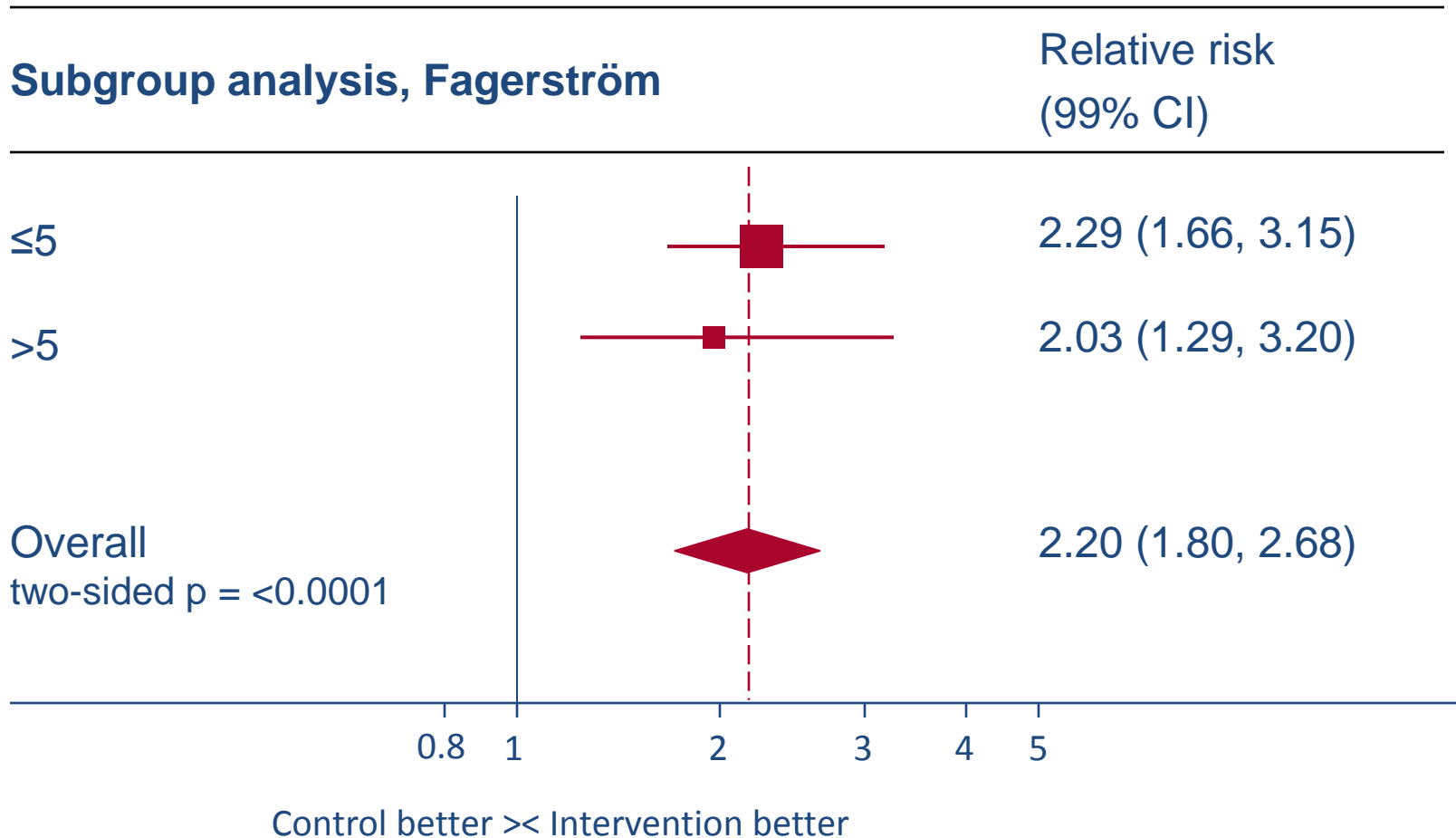
# Results



# Results



# Results



## Results

### Secondary outcomes: self reported adverse events

	Intervention group	Control group	Relative Risk (95%CI)	P-value
Involvement in vehicle crashes	4.5%	3.8%	1.16 (0.89, 1.51)	0.269
Pain in thumb while texting	4.5%	4.5%	1.00 (0.78, 1.28)	0.985

## Conclusion

Mobile phone based intervention could be a useful addition to smoking cessation treatments alongside medication/ other support, or on its own

## Implementation

New service launched Jan 2012.

Free national service (funded by DOH England)

Join by sending the text message details on NHS smoke free website <http://smokefree.nhs.uk/ways-to-quit/support-on-your-mobile/>

Over 48,000 smokers joined in 2012



Some txt examples

## **Type or timing of message**

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## **Message**

In lead-up to  
quit date

To make things easier for yourself, try having some distractions ready for cravings and think up some personal strategies to help in stressful situations

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Message  
relating to  
specific issues

Think you'll put on weight when you quit? We're here to help – we'll TXT weight control and exercise tips, recipes and motivation tips

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## Type or timing of message

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## Message

On quit date

This is it! – QUIT DAY, throw away all your fags. TODAY is the start of being QUIT forever, you can do it!

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After quit day  
(24 hours after  
quit time)

Quick result! Carbon monoxide has now left your body! Check out your health at [www.txt2stop.org](http://www.txt2stop.org)

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## **Type or timing of message**

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## **Message**

In response to  
txt CRAVE  
request

Cravings last less than 5 minutes on average. To help distract yourself, try sipping a drink slowly until the craving is over

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In response to  
txt RELAPSE  
request

Don't feel bad or guilty if you've slipped. You've achieved a lot by stopping for a while. Slip-ups can be a normal part of the quitting process. Keep going, you can do it!

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