



# Adolescent Social Influences and Smoking: A new framework through the lens of social media

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## Introduction

**Smoking** is a public health concern for **adolescents** and **young adults** and associated with increased risks of addiction, future problem behaviors, and many chronic illnesses.

**Social influence** has been recognized as a significant factor in the adolescent's decision-making process. Many behavioral research theories incorporate social influence constructs to guide health promotion interventions.

The recent **increase in social media outlets**, however, have transformed traditional communication patterns, as well as the dimensions of social influence.

Mobile phones and Internet social network sites **accelerate the transmission of information and adoption of new ideas or behaviors**.

Since adolescents are one of the **major consumers** of these new technologies, the use of social media may be an effective way to reach this age group for smoking prevention/cessation interventions.

Many new studies have shown **moderate success** in using social media as an intervention tool. However, **few are based on a sound theoretical foundation** and even **fewer address the specific mechanisms** that explain how and why they were effective.

## Study Aims

1. Provide a **theoretical overview** of potential mechanisms by which social media influences may occur.
2. Review the **existing empirical studies** in smoking prevention or cessation delivered through social media channels.
3. Propose a **new theoretical framework** to guide future social media interventions for adolescent health promotion.

## Inclusion Criteria for Empirical Studies

- Incorporated social or interactive features of the **mobile phone** (i.e. text message) and the **Internet** (i.e. chat, blogs, email, quizzes, networking) for smoking prevention and cessation.
- Addressed **adolescents** and **young adults** as the intended audience group.
- Used either randomized control or quasi-experimental study designs.
- Published in English, in a peer-reviewed journal, regardless of specific geographical location and/or publication date.

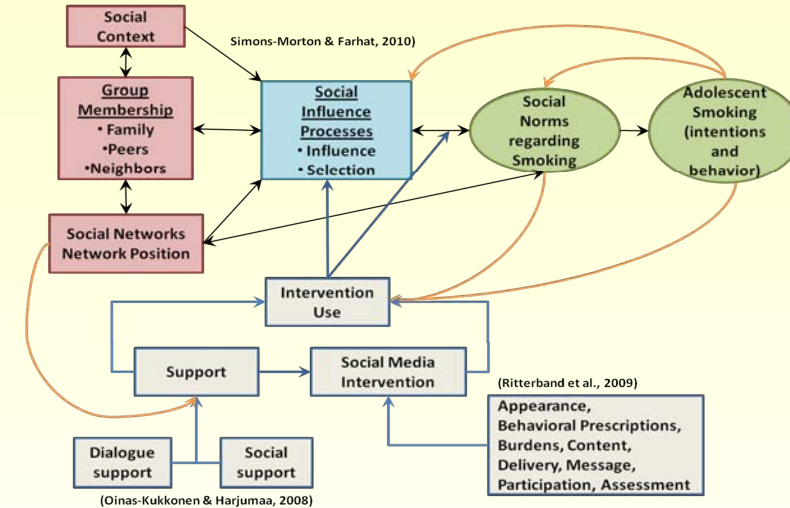
## 1. Selected Social (Media) Influence Theories

	Theory/Model	Constructs/Mechanisms
Social Influences	Social Cognitive Theory (Bandura, 1977)	Observational learning
	Theory of Reasoned Action (Fishbein & Ajzen, 1975)	Perceived norms
	Diffusion of Innovations (Rogers, 2003; Valente, 1996)	Homophily, Network exposure, Network thresholds, Influence, Selection, Network position (opinion leaders), Network structure
	Social Network Theory (Wasserman & Faust, 1994)	Network exposure
	Social Contagion Theory (Burt, 1987)	Network exposure
	Two-Step-Flow of Communication (Katz & Lazarsfeld, 1955)	Opinion leaders
Social Media Influences	Fogg Behavior Model (Fogg, 2010)	Motivation, Ability, Triggers
	Model of Internet Interventions (Ritterband, 2009)	Website use, Support, Website characteristics
	The Persuasive Systems Design Model (Oinas-Kukkonen & Harjuma, 2008)	Primary task, Dialogue support, Credibility, Social support (social learning, comparison, normative influence, social facilitation, cooperation, competition, recognition)

## 2. Empirical Studies

	Reference & Description	Design	Partipnt	Theory	Sig-Effect
Mobile-phone based	Obermayer et al. (2004). Smoking cessation using cell phone text messaging and Internet.	1 grp pre/post	46 college smokers	TTM	Yes
	Riley et al. (2008). Internet and mobile phone text messaging.	1 grp pre/post	31 college smokers	TTM	Yes
	Rodgers et al. (2005). Smoking cessation using mobile phone text messaging; <i>quit buddy</i> feature.	2 grp RCT	617 smokers (16-19 yo)	Not explicit	Yes
	Whittaker et al. (2011). Video messaging mobile phone for smoking cessation; <i>STUB IT</i> .	2 grp RCT	226 yg adult smokers	SCT	Yes
	Abroms et al. (2008). Formative evaluation of the <i>X-Pack Program</i> .	2 grp RCT	83 college smokers	SCT	Yes
	An et al. (2008). The <i>RealU</i> online cessation intervention with tailored/interactive features.	2 grp RCT	517 college smokers	SCT; Prob beh	Yes
Internet based	Buller et al. (2008). Randomized trials on <i>Consider This</i> tailored smoking prevention program.	Pair-matched	2,077 & 1,234 adol.	SCT; MI	Mixed
	Chen et al. (2006). Smoking cessation program with an Internet-assisted instruction.	2 grp pre/post	77 high sch smokers	Not explicit	Yes
	Escoffery et al. (2004). Process evaluation of a cessation program: <i>Kick It!</i>	2 grp pre/post	70 college smokers	TTM; Design th.	Yes
	Mermelstein and Turner. (2006). <i>NOTPlus</i> adjunct to group-based cessation program.	2 grp RCT	351 adol. smokers	Cognitive beh	Yes
	Norman et al. (2008). Classroom-based smoking prevention and cessation in schools.	2 grp RCT	1402 adolescents	Likelihood action	Yes
	Patten et al. (2006) (2007). <i>Stomp Out Smokers</i> vs. brief office intervention for smoking cessation.	2 grp RCT	139 adol. smokers	SCT	Yes
	Shogog et al. (2005). Pilot test of <i>Headbutt</i> program to affect smoking intentions.	1 grp pre/post	2227 6 <sup>th</sup> graders	Not explicit	Yes
	Woodruff et al. (2007). Virtual world chat room ( <i>Breathing Room</i> ) for smoking cessation.	2 grp RCT	136 high sch smokers	SCT; TTM; MI	Yes

## 3. Integrating Social Influence and Social-media Influence Mechanisms



## Discussion

- Social influence is an established construct for effective adolescent smoking interventions.
- The 14 studies varied in design, delivery, time frame, sample size, and specific intervention components.
- Most interventions emphasized cessation (vs. prevention) and included brief mentions of theory. Few addressed process measures.
- The proposed model integrates system design features that explain social media influence mechanisms and highlight the interactivity with traditional cognitive behavioral processes.

## Implications

- Social influence based interventions that use social media and social networks are promising, but lack sound theoretical support.
- Future studies should explore the full use of Web 2.0 features for real-time influence and feedback between existing network members.
- More emphasis on process evaluation is necessary to identify effective intervention components and to increase long term cost efficiency.
- Social media features facilitate socialization patterns that can be harnessed for innovative, interactive, and tailored interventions for adolescent smoking prevention and cessation.

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