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Segmentation in Social Marketing: Insights from the European Union's Multi-Country, Antismoking Campaign

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Abstract:

Purpose *– In 2005, the European Union launched a four-year antismoking television advertising campaign across its 25 Member States. This study aims to evaluate the second and third years (2006 and 2007) of the campaign based on telephone interviews with over 24,000 consumers (smokers, non-smokers, and ex-smokers).*

Design/methodology/approach *– The study focuses on smokers and examines the potential for using segmentation and targeting in informing the campaign. Three important factors are used to identify clusters: attitude toward the campaign; comprehension of the campaign; and inclination to think responsibly about their smoking behaviour.*

Findings *– Cluster analyses identify three distinct and significant target groups (message-involved, message-indifferent, and message-distanced) who respond differentially to the advertising. Furthermore, the percentage of respondents within each cluster varies across the EU Member States. Using Schwartz's cultural framework, the cultural dimension of "openness to change versus conservatism" is found to explain substantial cross-national variation in message-involved and messaged-distanced respondents.*

Research limitations/implications *– Cluster solutions are shown to be stable across the two data waves. Implications of these results are discussed.*

Originality/value *– This is the first study that seeks to better understand consumer reactions to social-marketing advertising across different segments of the overall target group.*

Keywords: European Union, Cigarettes, Advertising effectiveness, Cluster analysis, Cross cultural studies, Sales campaigns.

Introduction

Social marketers try to solve social problems by changing long-held, deep-seated beliefs and associated behaviours that have a detrimental effect on consumer wellbeing (Kotler and Andreasen, 1996). In the European Union, smoking is the largest single cause of preventable death and hence represents a major social and health issue (*ASPECT Report*, 2004). In response, the European Union (EU) has instituted a number of tobacco control directives in line with the recommendations proposed by the Framework Convention on Tobacco Control (FCTC)[1].

An important tobacco control initiative of the EU is the "Help – for a life without tobacco" campaign, which was launched in 2005. This is a four-year, large-scale antismoking advertising campaign across

the 25 EU Member States (Memo 05/68, 2005). (As of January 2007, the European Union comprises 27 states, with the addition of Bulgaria and Romania.) The HELP campaign's main component is a series of television advertisements utilizing identical visual content with equivalent voiceover messages in the native language of each Member State. HELP aims to highlight the harmful effects of both active and passive smoking, encourage smokers to think more responsibly about their habit (e.g. the harm it can do to non-smokers) and consider quitting. Antismoking campaigns can also cause non-smokers (e.g. the presence of children in home) to place pressure on smokers, especially in the case of environmental tobacco smoke (Netemeyer *et al*., 2005).

Although the campaign targets both smokers and non-smokers, the focus on smoking behaviour makes smokers its primary audience. Indeed, around 120 million (27 percent) of the EU's population of 450 million are smokers. However, as Pollay (2000) points out, a social marketing campaign, or indeed any marketing communication effort, is likely to fail if the advertiser mistakenly assumes a homogenous target population. Specifically, it can lead to message confusion and a missed opportunity to engage and convert the audience. Perhaps surprisingly then, social marketers often view their target audience (e.g. smokers, the obese, heavy drinkers) as a homogeneous group, and the concept of market segmentation is rarely discussed in the literature (Raval and Subramanian, 2004). A reason for this could be that agencies carrying out social marketing campaigns do not have enough financial resources to employ targeting techniques or indeed target campaigns at different groups of consumers. However, it is likely that segmentation and targeting can provide a way of managing the task of encouraging smokers to engage in smoking-related thinking and corrective behaviour. It can further help the advertiser to allocate their resources more effectively and communicate with greater resonance. Recent work has indeed reported a differential response to social-marketing campaigns from different groups (e.g. Albrecht and Bryant, 1996; Hassan *et al*., 2007). However, while previous studies examined the variation in messages (Meyerowitz and Chaiken, 1987; Pechmann *et al*., 2003), the present study focuses on the variation that exists in segments, given a constant message.

This study also addresses the usefulness of the EU social marketing campaign HELP, which is targeted not only at different

potential segments within each country, but also across all the EU countries as a whole. In fact, Joossens and Raw (2006) report that the tobacco policy environment varies considerably across the EU nations. However, other research (cf. Leeflang and van Raaij, 1995) has shown that there is more consumption behaviour convergence than divergence, although this earlier work is based on a small set of Western EU countries. Moreover, advertising effectiveness is known to be associated with culture and social influence (e.g. Alden and Martin, 1995; Andrews *et al.*, 1994; Polyorat and Alden, 2005). Within the area of antismoking advertising few cross-cultural studies have been undertaken (e.g. Reardon *et al.*, 2006; Wakefield *et al.*, 2003) to fully explore whether a cultural effect can occur.

Against this background, this study aims to make several contributions to the literature. First, we investigate the usefulness of three factors (attitude toward the campaign, message comprehension and smokers' elaboration) to identify distinct target group segments. To that end, we seek to better understand consumer reactions to social-marketing advertising across different segments of the overall target group. With the rise of social-marketing advertising over the last decade, there has been a continuous research interest in the effects of counter advertising (e.g. Andrews *et al.*, 2004). However, there is a dearth of knowledge concerning advertising-related consumer behaviour, particularly as it relates to global smoking cessation (e.g. Gelb and Pickett, 1983; Schar and Gutierrez, 2001). In addition, based on the review of the literature and the advertising-related variables chosen for this study, predictions about the composition of the clusters are made. Second, we attempt to explain country-level differences in advertising response by examining the variations in cluster membership using Schwartz's (1992, 1994) values dimensions as well as other explanatory variables such as national characteristics in tobacco consumption and policy implementation.

Finally, previous research utilizing cluster methods seldom examine properties of stability of the clustering solutions across time. Without validation of the clustering solution, the method can lead to unwarranted and misleading conclusions. In this study, we validate the results of our cluster analysis across two independent samples from the same population to offer some judgment on the reliability and stability of the findings.

The literature

Segmentation in social advertising

Tobacco industry documents released under the US Master Settlement Agreement (National Association of Attorneys-General, 1998) have been used as a basis for numerous academic publications which detail the conduct and marketing practices of tobacco companies. These documents have revealed that cigarette manufacturers have developed and modified cigarettes with the aim of developing female-oriented brands (Carpenter *et al*., 2005), brands for low income consumers (Hastings and MacFadyen, 2000), as well as brands targeting underage consumers (Cohen, 2000). Furthermore, Pollay (2000) reports that the tobacco industry developed marketing strategies to target two important groups:

> (1) those just starting to smoke; and

> (2) those concerned about the adverse effects of smoking.

Le Cook *et al*. (2003) also show that cigarette brands were developed to address consumers' psychological and psychosocial needs potentially hindering cessation attempts. The tobacco industry, therefore, clearly sees heterogeneity in the tobacco market, and has taken great pains to segment accordingly. By employing market segmentation techniques to social marketing, the undesirable side effects of social marketing campaigns can be avoided. For example, Pechmann *et al*. (2003) find that exposure to antismoking messages resulted in an increased intention to smoke among young adults who currently do not smoke. Wolburg (2006) also shows that defiance and other negative effects (e.g. anger and denial) can be associated with viewing anti-smoking advertisements. It seems likely, then, that different segments exist regarding responses to antismoking messages, and these will vary in terms of their message comprehension and elaboration, as well as their overall response to a particular campaign. By the same token, social marketers who successfully identify distinct target groups can benefit by producing customized and ultimately more effective communication strategies.

Consumer reactions to social advertising

Antismoking advertising has been shown to improve knowledge, attitudes and behaviour (e.g. Siegel and Biener, 2000). However, previous research has scarcely addressed a critical change agent, namely the nature and extent of the cognitive engagement of the consumer with the advertising message (Hassan *et al*., 2007). It can be posited that for advertising campaigns to impact behaviour, they must first engage the audience. Determination of the level of initial engagement can be undertaken via an assessment of awareness and comprehension of the message portrayed, as well as attitude toward the campaign.

Attitude toward advertising and promotional campaigns has been established to be an important factor in creating and influencing persuasion effects (Haley and Baldinger, 1991; Lutz, 1985). Without a positive attitude, the recipient of social advertising is not motivated to engage with the message and hence unlikely to be persuaded to amend their behaviour. This ties in with Vakratsas and Ambler's (1999) finding that affective (feeling) advertising elements are at least as important as cognitive information. Also, comprehension is well accepted in the literature as an essential first step in the persuasion process (Jacoby and Hoyer, 1989; Jaffe *et al*., 1992; Romaniuk *et al*., 2004). Without comprehension, a major opportunity to influence the consumer is lost. Similarly, several studies have highlighted the importance of message comprehension in terms of advertising effectiveness (e.g. Jaffe *et al*., 1992).

Furthermore, the intractability of the behaviours typically involved in social marketing means that a high level of elaboration – or continued engagement with persuasive and credible messages addressing the underlying beliefs – is also important. In the case of tobacco, many smokers have a desire to quit, but fail to either stop or to maintain smoking cessation for long (e.g. Ho, 1998; Lamkin *et al*., 1998). It is also recognized that many smokers have entrenched views and attitudes that are highly resistant to the persuasions of social pressures as well as media campaigns (e.g. Pechmann *et al*., 2003). Petty and Cacioppo's (1986) elaboration-likelihood model characterizes elaboration as thinking about the message and its meanings, as well as assessing the merits of the information and arguments presented. According to this model, a high level of elaboration on strong message

arguments is likely to result in positive changes in consumer beliefs about the behaviour's attributes and benefits, and in our case, an inclination to think more responsibly about their smoking. In the marketing literature, responsible behaviour is primarily discussed in relation to organizations and in the context of ethical behaviour (e.g. Lichtenstein *et al*., 2004; Sen and Bhattacharya, 2001). Hassan *et al*. (2007) shift the focus from firms to consumers and argue that consumers who are highly involved with the message are more likely to engage in responsible thinking. According to Schlenker *et al*. (1994), responsibility makes people accountable for their actions – either to themselves or to an audience. HELP addresses these same issues and aims to make clear the consequences of tobacco use on both smokers and non-smokers, and the actions that should be taken to mitigate these effects. Smokers and non-smokers are both important target audiences for the HELP campaign. However, these two groups are likely to be very different in terms of their views and attitudes about smoking. More importantly, the behavioural change to be achieved through the HELP campaign differ between these two groups. For the adult population, the likelihood of smoking espousal is low with the priority of such antismoking campaigns more focused on encouraging and supporting cessation amongst smokers. This study, therefore, narrows its focus by examining only smokers. Nevertheless, as smokers are likely to differ in their attitudes toward the campaign, level of message comprehension, and the extent of responsible thinking, these differences should affect their inclination to quit smoking.

Culture, values and advertising response

Culture has long been held to explain systematic differences in attitudes and behaviour across national boundaries (Markus and Kitayama, 1991; Zhang *et al*., 2008). National culture can be defined as patterns of thinking, feeling, and acting that are rooted in common values and societal conventions (Nakata and Sivakumar, 2001). Values are central to a culture and exert strong influence on the reception and perception of symbols and messages embedded in advertising (Watson *et al*., 2002). As such, cultural values can yield explanatory power in our understanding of variations in advertising response across nations. Schwartz (1992, 1994) proposes a national cultural framework that can provide insight into smokers' response to antismoking campaigns

in different countries. Schwartz's framework is anchored in terms of generic human values. According to Smith and Schwartz (1997), values:

- are subjective and emotional beliefs;

- refer to desirable goals and catalysts as modes of conduct that promote these goals;

- transcend specific actions and situations;

- serve as guidelines to evaluate behaviour; and

- differ in how they are prioritized as an ordered system.

Ten basic value types are identified in Schwartz's framework:

(1) power;

(2) achievement;

(3) hedonism;

(4) stimulation;

(5) self-direction;

(6) universalism;

(7) benevolence;

(8) tradition;

(9) conformity; and

(10) security.

In turn, the value types are classified into two higher order dimensions of self-enhancement versus self-transcendence and openness to change versus conservation. Table 1 gives the definitions of the value types.

Schwartz's value measures, given its strong theoretical foundations (Steenkamp, 2001), have been found to be useful in understanding cross-cultural differences in a number of studies. For example, Watson *et al*. (2002, p. 930) find "the Schwartz approach clearly has practical use" in their analysis of differences in people's meanings of important possessions between the USA and New

Zealand. Goodwin *et al*. (2007) also find Schwartz' values lend significant explanation of variations in reported sexual behaviours across five central and eastern European countries. Polegato and Bjerke (2006), in their study on cross-cultural advertising response, find a link between Schwartz's values and liking of Benetton and its adverts across three European countries. Although Schwartz's (1992, 1994) value dimensions are relevant, they have yet to be applied to how smokers might react to antismoking campaigns in different cultures.

Expected clusters

Given these observations, it would follow that meaningful segmentation for HELP should yield clusters reflecting different levels of engagement. Furthermore, we would expect those who have a strong desire to quit to be more aware and receptive of antismoking advertisements, to have a more positive attitude toward such campaigns and to think more responsibly on the antismoking messages transmitted. As a result, we posit that segmentation based on attitude toward and comprehension of the campaign, along with inclination to think responsibility about one's own smoking will yield opposing clusters. One such cluster will comprise smokers who are highly engaged in the advertising campaign and message, in terms of attitude, comprehension, and thinking. These smokers also are likely to have a strong intention to quit smoking. In addition, we expect a second cluster to emerge, which will contain smokers who are distant or not engaged in the advertising campaign and message, in terms of attitude, comprehension, and thinking. These smokers are likely to have little to no intention to quit smoking. Further, it is conceivable that a third cluster exists that is ambivalent toward antismoking messages and the intention to quit smoking.

In line with previous research that shows that advertising response differs across cultures (e.g. Guo *et al*., 2006), we further expect the occurrence of clusters to differ across cultures as consumers' values influence the degree to which they espouse new ideas (Steenkamp *et al*., 1999). Within the EU, Leeflang and van Raaij (1995) conclude that there is more convergence than divergence between EU nations. However, despite indications of consistency in the macro environment and in government policies, Joossens and Raw (2006) find marked differences in the tobacco control environment

across the EU Member States. Further, de Mooij (2003) shows that consumption and media behaviours diverge across Europe and that cultural variables can explain such country-level differences. Finally, Orth *et al*. (2007), in their study on cross-national differences in consumer response to advertising messages, find divergence in emotional, cognitive and attitudinal reactions across EU Member States. It is therefore likely that the HELP antismoking campaign will not resonate equally with EU citizens across national boundaries, thus resulting in differences in cluster membership across these EU member states.

Methodology

The HELP anti-smoking media campaign

The HELP "for a life without tobacco" campaign builds on previous EU media campaigns, but is the first to be targeted across all 25 Member States. Targeting a combined population of

- encourage a tobacco-free lifestyle;

- help existing smokers to stop smoking; and

- reduce passive smoking.

The principal component of the campaign is television advertising and three commercials were aired twice a year during January and September for both 2006 and 2007 on multiple National television channels and on three pan-European providers (MTV, Eurosport and Euronews). The advertisements were broadly targeted to reinforce the idea that tobacco is everybody's problem, not just that of certain sections of society. Three advertisements were produced to address the three themes, with a unifying slogan: "For a life without tobacco". The intention was to get across the idea of breadth and that tobacco is a problem that takes many forms, i.e. the dangers of people starting (typically the young), the difficulty but importance of existing smokers stopping (typically adults) and the damaging effects of environmental tobacco smoke (affecting non-smokers). The decision was taken to adopt a persuasive rather than fear arousal campaign; the metaphor or ironical device of a party whistle was used as a substitute for cigarettes in all three advertisements. This also reinforced the creative link between the advertisements.

Data collection and sample

To identify and profile the target audience of a social-marketing campaign, we re-analyzed two waves (2006 and 2007) of data surveyed for the EU where interviews were conducted in each wave with over 24,000 consumers in the 25 Member States of the EU. The target was 1,000 respondents per country. Probability sampling was utilized and the total sample size gained was 24,125 in wave 1 (2006) and 24,161 in wave 2 (2007). The survey was developed by the IPSOS research agency (France) employed to conduct the interviews and the survey instrument was sent to IPSOS' partners in each EU nation for translation. The telephone survey took under ten minutes to complete. Data was collected in February and March each year after the campaign was televised in January across all 25 EU nations.

Individual-level and country-level measures

In this study, individual-level and country-level measures were employed. The individual-level items were developed from previous studies conducted by the IPSOS research agency and were pre-tested through 38 focus groups. The items were developed to capture the essence of the themes of the campaign and to evaluate consumers' response to the style and creative elements used in the campaign as well as to ensure that key outcomes in terms of smoking behaviour were assessed. A small pilot of the survey was then undertaken by IPSOS in France to ensure the relevancy of the items to the target group. All individual-level items used in the study are given in Table 2. Respondents completed the survey if they were aware of at least one of the three campaign advertisements. Measures of gender, age, and some smoking-related questions were also included in the questionnaire.

Consumer attitude towards the campaign was measured via eight items based on a four-point "yes, definitely" to "no, not at all" response scale. Message comprehension was assessed using eight items anchored on a five-point scale (5 = "Strongly agree", 1 = "Strongly disagree"). The variable capturing the extent to which the campaign has led to consumers thinking about smoking was measured with four items on a four-point "yes, definitely" to "no, not at all" response scale.

Country-level measures were obtained from three sources. Data on value orientations across nations comes from the European Social Survey (ESS) where data has been collected from 23 of the 25 Member States (data is not available for Malta nor Lithuania). In the ESS, Schwartz's (1992, 1994) value framework is adopted to provide measures of value orientations across nations and serves as our data source for Schwartz's country-level value measures. The tobacco control score (Joossens and Raw, 2006) is used as a means of assessing the impact of the policy environment on cluster membership. Finally, smoking prevalence figures are used as a means of assessing the normative smoking environment. Prevalence rates are available from the World Health Organisation.

Results

Descriptive statistics

Wave 1

Of the 24,125 respondents sampled within the 25 EU Member States, 5,820 (24 percent) indicated that they were current smokers, 13,839 (57 percent) were non-smokers, and 4,451 (18 percent) former smokers. In this study, we focused only on smokers that had seen at least one of the three antismoking advertisements. Of the 5,820 smokers, 2,474 (43 percent) remembered having seen at least one of the three antismoking advertisements, with 1,085 (19 percent) reporting having seen one, 840 (14 percent) seen two, and 549 (9 percent) seen all three. Table 3 provides a description of the sample characteristics for wave 1 and wave 2.

Analyses of the relationships between the degree of awareness of the advertisements and demographic variables were conducted on the whole wave 1 sample of 24,125 based on the chi-square test or ANOVA. Results show that smokers are more aware of the advertisements than either non-smokers or former smokers. No significant relationship emerged between gender and awareness of the advertisements. Significant age differences are found across the number of advertisements respondents recall seeing, with younger respondents stating that they have seen more of the advertisements. No significant differences were found in terms of being aware of the advertisements across social class groups, where higher social class

comprises professional, managerial and clerical occupations and lower social class comprises manual skilled and semi skilled workers, unemployed and retired.

In terms of demographic differences across the Member States, significant differences are found in the proportion of male and female respondents, in social class, age and awareness of the advertisements. Against published national demographic information, it appears that, on average, males are overrepresented in the samples. Further, our samples are also slightly younger, likely reflecting the target audiences for the HELP campaign. Table 4 provides further details of these results.

Wave 2

Of the 24,161 respondents sampled, 5,587 (23 percent) indicated that they were current smokers, 14,199 (59 percent) were non-smokers, and 4,354 (18 percent) former smokers. Of the 5,587 smokers, 2,491 (45 percent) remembered having seen at least one of the three antismoking advertisements (see Table 1), with 1,168 (21 percent) reporting having seen one, 831 (15 percent) seen two, and 492 (9 percent) seen all three.

Analyses of the relationships between the degree of awareness of the advertisements and demographic variables for wave 2 yielded identical results found for wave 1. Similarly, the national samples have proportionately more males and are younger when compared against national demographic profiles (see Table 4).

Measurement validation

To assess the reliability and validity of the constructs (attitude, comprehension, and elaboration), a measurement model was assessed for each of the two data waves through confirmatory factor analysis (CFA) based on the sample variance-covariance matrix and maximum likelihood estimation. This measurement model revealed an adequate fit, with (167) = 1226.98, $p < 0.01$, CFI = 0.91, RMSEA = 0.051 for wave 1 and (167) = 1302.01, $p < 0.01$, CFI = 0.92, RMSEA = 0.053 for wave 2, according to the usual conventions (Hu and Bentler, 1999). All regression paths are significant at $p < 0.01$. Table 2 gives construct reliabilities for attitude, comprehension and elaboration which are above 0.60 for both data waves (with alpha values all above

0.7) and thus deemed acceptable (Bagozzi and Yi, 1988). Given these results, the items within each scale were averaged to form composites for further analyses. At this stage, list-wise deletion of cases took place resulting in a final sample size of 1,767 for wave 1 and 1,856 for wave 2.

Next, cluster analysis is employed to identify distinct target group segments of recipients of social marketing messages.

Cluster analysis

To segment the smokers according to their attitude toward the campaign, overall level of message comprehension, and their level of responsible thinking (i.e. elaboration) resulting from the advertisements, a hierarchical cluster analysis followed by a k-means analysis was performed on the wave 1 data. Respondents' relative standing on each of the three factors was estimated by the composite variables of the three factors, which were then used as input variables for clustering. Distances between the clusters were calculated with the Euclidean distance measure, and aggregation of clusters was performed with Ward's procedure. To reflect the true structure of the data set, the agglomeration schedule was examined and the elbow criterion used to decide on the number of clusters, which resulted in choosing a three-cluster solution as the most appropriate representation of the data. The cluster centroids are presented in Table 5.

As demographic profiling alone offers limited insight for targeting, other smoking and campaign related questions were included. For example, intention to initiate behavioural change is a central aim of any social marketing campaign. In order to detect differences in motivation scores across the different variables between the different clusters, chi-square tests, the (nonparametric) Kruskal-Wallis test, and ANOVA followed by a Scheffé test were performed.

For the 759 (43 percent) *Message-Involved* smokers in Cluster 1, compared with the other two groups, all three clustering variables – Attitude, Comprehension, and Responsible Thinking – have significantly above average relevance. Compared with the third cluster they smoke significantly less. Smokers in this largest cluster have the highest intention to quit smoking.

Cluster 2 contains 691 (39 percent) respondents and represents smokers for whom the three clustering variables are of average relevance compared to the other two clusters. Smokers in this group tend to be younger than those in the other two groups. These Message-Indifferent smokers comprehend, but do not think responsibly about the antismoking message, indicating that they may not care about smoking-related consequences. This group of smokers is unlikely to contemplate smoking cessation and may have little or no intention to change behaviour in the foreseeable future. Smokers in this cluster may be aware that a problem exists, but they are not seriously thinking about overcoming it or making a commitment to take action.

The third cluster with 317 (18 percent) respondents represents Message Distanced smokers for whom the three clustering variables have below average relevance. These Message Distanced smokers in this cluster are the least inclined to think responsibly about the message and have the lowest intention to quit with a large majority (70.7 percent) stating "No, not at all". Members of this cluster may be unaware of the problems and harms related to smoking. Or, they are smokers that discount the negative effects of smoking (Romer and Jamieson, 2001). Individuals in this stage of the cessation process tend to be characterized as information averse and resistant to discussion or thought with regard to the targeted health behaviour (Prochaska *et al.*, 1992). One reason for this resistance could be these smokers' perceived decreased latitude of acceptance (as a consequence of increasing antismoking measures) which leads to even more entrenched pro-smoking beliefs. It may also be that unlike claimed by some (e.g. Viscusi, 2003), some smokers do underestimate the risks of smoking (cf. Slovic, 2001).

Testing for differences across clusters

In contrasting the clusters beyond the clustering variables of Attitude, Comprehension, and Responsible Thinking, it is interesting to note that these three distinct clusters do not differ in terms of gender or socioeconomic status. More importantly, clusters 1 and 3 represent the opposite spectrum of the target audience for the campaign, however, the data suggests that they are similar ($p > 0.05$) in terms of demographic factors, age, gender, and socioeconomic status. What differentiates the Message Involved (cluster 1) from the Message

Distanced (cluster 3) are smoking intensity ($p < 0.01$) and the three clustering variables ($p < 0.01$), with likely consequential effect on the large difference ($p < 0.01$) in intention to quit smoking. Further pair-wise contrasts across the three clusters yield significant ($p < 0.05$) differences between Message Involved (cluster 1) and Message Indifferent (cluster 2) in terms of age, intention to quit and the three clustering variables, but not in terms of smoking intensity, the number of advertisements seen, gender or socioeconomic status. Significant ($p < 0.05$) differences between Message Indifferent (cluster 2) and Message Distanced (cluster 3) are found in respect of age, intention to quit, the number of advertisements seen and the three clustering variables, but not in respect of smoking intensity, gender, and socioeconomic status.

Examining the stability of the clusters across waves

To validate the results from the cluster analysis, data from the second wave was analyzed using cluster analysis and yielding very similar results. Table 6 gives equivalent information for wave 2 data as Table 5 for wave 1 data.

To objectively assess the stability of these two sets of cluster solutions, a series of *t*-tests, *F*-tests and chi-square tests are conducted to identify possible differences across waves. With two exceptions, tests of mean difference across waves for the variables attitude, comprehension, responsible thinking, intention to quit, age and number of cigarettes smoked per day show no significant wave effect ($p > 0.05$) for each of the three clusters. Comprehension is higher ($p < 0.01$) in wave 2 (mean 1.18 in wave 2 against 1.11 in wave 1) for the cluster "Indifferent", and responsible thinking is higher ($p < 0.01$) in wave 2 (mean 2.54 in wave 2 against 2.47 in wave 1) for the cluster "Involved". Chi-square tests on wave effect for gender and socioeconomic status show no significant ($p > 0.05$) effect. Assessment on equality of variance via the *F*-test also show no significant difference in variance observed for these variables (comprehension, attitude, responsible thinking, intention to quit, age and number of cigarettes smoked per day). Two exceptions are found – first, larger variance is observed for the variable intention to quit in wave 1 (0.59 in wave 1 and 0.43 in wave 2, $p < 0.01$) for the cluster "Distanced". Second, larger variance is observed for the variable number of cigarettes smoked per day in wave 1 (202 in wave 1 and

119 in wave 2, *p* < 0.05) for the cluster "Indifferent". The differences identified, in particular regarding mean values, are small in size and are likely to be significant due to the effects of large sample size.

To further assess the stability of the cluster solution obtained, we assessed the consistency of the proportion of smokers in each cluster across waves for each country. The tests of difference in proportions reveal no significant differences in the proportions of message distanced, message indifferent and message involved smokers for each country across the two data waves. Therefore, we conclude that the clusters are stable across the samples.

Country-level analysis

Next, the three clusters were examined in relation to the 25 EU Member States. The results show that the three clusters are not evenly distributed across the 25 Member States (see Figures 1 and 2). Specifically, Austria, Hungary, Lithuania, The Netherlands and Spain have greater proportions of Message Indifferents and fewer Message Involved smokers and are thus very different from Cyprus, Czech Republic, Finland, Germany, Ireland, Malta, Poland, Portugal, Slovakia, Slovenia and the UK.

To explain these differences, an exploratory analysis was undertaken. We examined the 25 countries' smoking prevalence and level of tobacco control. The average smoking prevalence in the EU is 27 percent, with Sweden having the lowest overall score (18 percent) and Greece the highest (45 percent). The average tobacco-control score in the EU is 46.7, with Ireland having the highest overall score (74) and Luxembourg the lowest (26) (Joossens and Raw, 2006). Sweden has an above-average (60) and Greece a below-average (38) tobacco-control score. Scores were created for the two higher-order value dimension of "openness to change versus conservatism" and "self-enhancement versus self-transcendence" using the procedures detailed on the ESS web site.

To assess if the level of smoking prevalence, tobacco control and value orientations in a country have an impact on the proportion of cluster memberships, we examined a series of step-wise regression analyses regressing the proportion of clusters in the country on smoking prevalence, tobacco control scores and scores for the two higher-order value dimensions. It is noted that in conducting three

separate regression analyses within each data wave, these regression models explaining cross-country variations are interrelated as the proportions of the three clusters within each country will add to unity. The decision is therefore taken to examine only the two "opposing" clusters Messaged Involved and Message Distanced. Preliminary examination when country level demographic information (sample mean age, percent male, and percent high social economic status (SES)) were entered, these demographic variables are not significant in the model and are thus excluded from further analysis. Subsequent analyses show that both smoking prevalence and the value dimension of "Openness to Change versus Conservatism" explain variations in cluster membership across the 25 EU countries. However, level of tobacco control in the country is not significant in the regression models. The findings are consistent across the two waves. As can be seen from Table 7, and across both waves of the data, Schwartz's dimension of "Openness to Change versus Conservatism" has a positive impact on cross-national variations in the percentage of respondents located in the cluster "Message Involved". This means that smokers residing in countries with higher cultural values in this dimension (i.e. more open to change) tend to have a more positive attitude toward the campaign, understand the advertised message better, elaborate on the campaign message more and have greater intention to quit. According to Schwartz (1992), openness to change depicts cultures where individuals are more willing to pursue new and challenging personal goals. With a preference for independent thought and action, these smokers are more likely to embrace the anti-smoking campaign and be involved with the advertised message in pursuit of better long-term personal health. However, smokers who reside in countries with a higher smoking prevalence and a cultural value less open to change (and greater tendency toward conservatism) tend to have a less positive attitude toward the campaign, understand the advertised message less, elaborate on the campaign message less and have lower intention to quit. According to Schwartz (1992), conservatism signals maintenance of the status quo. Individual within cultures that value conservatism pay more attention to social traditions and norms. Thus coupled with high smoking prevalence, these smokers would resist anti-smoking campaigns that advocates behavioural change more so against what they perceive as opposite to social norm.

Discussion

This study focuses on consumers' attitude toward and their comprehension of the advertisement, and their proneness to think about the message. The results show that these three variables can be used to identify distinct target segments. We believe this is an important step forward in providing the field of social marketing and communication with a tool that explicitly considers smokers, the main target group of antismoking campaigns. In addition, it suggests that customized messages may be necessary to reach different groups of smokers both within a country and across the 25 EU Member States too. This study demonstrates that social marketing campaigns, at least in the field of smoking, could benefit from segmentation and targeting. This has both managerial and theoretical implications.

Public policy and managerial implications

Our findings suggest that, in social marketing campaigns, customized messages based on audience needs are desirable. The three clusters that have emerged are also revealing. The existence of Message Indifferent and Message Distanced clusters suggests that clarity and likeability of message are both important. This reinforces one of the basic tenets of communication and advertising theory, namely that audiences have to be an active participant in the communication process and messages cannot be imposed against their will (Fill, 2006). In addition, the need to generate engagement suggests that advertising themes and content should be chosen for their capacity to create favourable attitudes, as sometimes hard hitting and fear inducing approaches used in antismoking campaigns or on tobacco packages can backfire (Hastings *et al*., 2004), yet at times can also be effective (Kees *et al*., 2006). This really emphasizes the value of pre-testing, especially for targets (e.g. smokers) for which messages may have the potential to boomerang or have unintended effects.

Of the respondents, 57 percent used for the cluster analytical procedure (i.e. the Message Indifferent and Message Distanced smokers) can be considered to be in the precontemplation stage (Prochaska and DiClemente, 1983) of the smoking cessation process (based on wave 1 cluster results). This is considerably less than the 70 percent reported a decade ago for Europe (Etter *et al*., 1997). A

possible reason for this discrepancy is that the EU's antismoking measures have had an effect and that a growing number of smokers have moved to the contemplation and preparation stage of the quitting process. This is also evidenced by the fact that over the last decade smoking prevalence has reduced across the EU Member States.

The Message Involved cluster, which concerns the inclination to think responsibly about the consequences of one's actions, is potentially of particular interest for future EU antismoking campaigns. For the campaign partners (e.g. health ministry officials, ad agencies, media, and research companies), this would be a key group to identify and target in society and to further explore via qualitative, survey, and tracking techniques. Not only are they likely to be more receptive to messages on their own behalf, but there is at least the potential that they could take on the role of opinion leaders and influence other groups. The potential is there, for instance to utilize our Involved cluster as ambassadors to help propagate and re-enforce the antismoking message among the Indifferent and even the Distanced clusters. This may enable antismoking messages to be filtered through to marginalized and disadvantaged groups who have long presented a great challenge for social marketing (e.g. MacAskill *et al*., 2002).

Although there are no clear demographic distinctions between the three clusters, Figure 1 does suggest that the majority of EU Member States (Austria, Belgium, Cypress, Czech Republic, Estonia, Finland, France, Germany, Greece, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Slovakia, Slovenia, Spain and the UK) would be particularly receptive to the pan-EU approach adopted in the HELP televised campaign, as in these countries more Message Involved than Message Distanced smokers are found. Drawing on Schwartz's work, our results further suggest that persuasive advertising is less effective in conservative countries. This is a unique finding that clearly illustrates the necessity to customize social marketing campaigns, and consider techniques to enhance the persuasive nature of the message (e.g. credible information and spokespeople, two-sided arguments; Shimp, 1990).

Given that the Message Indifferent cluster comprises large numbers of smokers (39 percent in wave 1 and 38 percent in wave 2), it would be beneficial to examine what separates these smokers from the Message Involved smokers. It is noted that apart from the three

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clustering variables (attitude, comprehension, and responsible thinking), significant differences are found in age and intention to quit, but not in terms of smoking intensity, the number of advertisements seen, gender or socioeconomic status, across these two clusters. We find smokers in the Message Involved cluster to be older and indicating a stronger intention to quit. Further, smokers in the Message Indifferent cluster are also younger than those in the Message Distanced cluster; therefore, it would suggest that a campaign with a stronger targeting of younger smokers might be necessary. Furthermore, such a campaign must engage more with the younger smokers in the EU to shift their attitudes more positively toward the campaign. Finally, further work might be undertaken to explore the framing of such social marketing messages to facilitate greater motivation to comprehend and elaborate responsibly on the messages by these younger smokers.

This study also explored the cluster solution across a second sample demonstrating stability of the solution across time. We find that almost all clustering variables and associated background variables remain unchanged over the two waves and find that the proportion of smokers in each of the segments across each country has also remained stable. There are both positive and negative implications of this result. We have demonstrated that cluster analysis can provide meaningful insights into target segments of smokers, which remain stable over time. We would expect that the basic structure and profiles such as age, gender and smoking prevalence of the clusters to remain stable over time. However, it may be argued that the proportion of respondents within each cluster may change if the campaign is effective in moving message distanced and message indifferent smokers to message involved smokers.

Research implications

To our knowledge, this is a first attempt to apply segmentation procedures to antismoking advertising and it inevitably points to many future research opportunities. First, we concentrated only on one context, namely antismoking. Future research should investigate if our clusters exist in other socially responsible behavioural contexts, such as excessive drinking, healthy eating, and irresponsible Internet use. Second, smokers in our sample were not asked about their preferred cigarette brand. The evaluation of the three factors might differ for

consumers who smoke traditional national brands compared to those who smoke foreign brands. It has been suggested that in Eastern Europe, Western cigarettes are an affordable (and easily accessible) way of consuming the west, which is reinforced by the existence of a successful brand of cigarettes actually called "West". Brand choice might influence smoker involvement with the brand and smoking-related advertisements in general. The individual-centred, often hedonistic nature of advertisements made them incompatible with the values of prior socialist or communist societies where more collectivist values were promoted. Whereas state-sponsored social messages are often perceived as propaganda and hence not taken as credible or relevant. With the move toward a market-based economy, consumers from post-communist central and eastern European countries have been exposed to and begun to embrace western consumption values and choice (e.g. Hassan *et al*., 2007; West and Paliwoda, 1996). Third, smokers in our sample were not asked about their motivation to smoke. Smokers might be classified, for example as "habitual smokers" or as "social smokers". If smokers differ in their motivation to smoke, they may also differ in their responses to antismoking advertisements, leading to different segments than the ones that were identified in this study. Future research could explore this question. Fourth, only smokers were examined in this study. Prior research shows that non-smokers and indeed former smokers are likely to respond differently to antismoking advertising (cf. Tangari *et al*. 2008). Future research would benefit from an examination of these other key stakeholder groups. Finally, it would be interesting to explore if our three clusters could be identified outside the European Union, especially in countries with high smoking rates, such as China, Indonesia, Japan, and Russia (Wright, 2007) as well as the US, where the current smoking rate is 21 percent (CDC, 2007).

Limitations and conclusion

The current study examined two waves comprising large samples of smokers across the EU Member States. However, the data is not longitudinal and cannot afford understanding of the migration of individual smokers across clusters. Second, exposure to the HELP televised advertisements is measured in terms of the number of ads recalled out of the three aired. This measure is based on memory and does not constitute any degree of impact. Third, a potential problem

with cluster analysis is that there are no natural clusters and there is no universally accepted definition of a cluster (Arnold, 1979; Everitt, 1986). A related problem is the lack of an in-built process on which its validity can be assessed. In response to this challenge, we conducted cluster analysis on two samples.

Our study has shown that social marketing segmentation can be employed to identify distinct target groups of antismoking messages. On a theoretical level, this provides us with a greater understanding about how message-related variables work in social marketing. On a more practical level, it has important implications for how social marketers should design campaigns from governmental and charitable organizations to maximize conversion to socially responsible behaviours. This research has demonstrated four important things. First, it indicates that segmentation can indeed be a useful tool in social marketing. Second, it shows that such segments can be stable over time. Third, messages need to be designed in partnership with key target audiences (e.g. countries with different cultural values). Fourth, that the capacity to think responsibly about the repercussions of one's actions, for both oneself and others, may be a particularly valuable segmentation variable. It is hoped that our study and insights from the EU's antismoking advertising campaign will prompt further research in this area.

Note

1. Only two of the EU Member States (Italy and the Czech Republic) have not ratified the FCTC, although these two countries have an obligation to implement the FCTC guidelines because the EU on behalf of all Member States ratified the treaty in 2004.

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Appendix

Table 1   Schwartz's value types and dimensions

Dimension	Value type	Definition
Self-enhancement …		Emphasis of pursuit of self-interest
	Power	Social status and prestige, control or dominance over people and resources
	Achievement	Personal success through demonstrating competence according to social standards
… vs self-transcendence		Concern for the welfare and interests of others
	Universalism	Understanding, appreciation, tolerance and protection for the welfare of all people and for nature
	Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact
Openness to change …		Independent action, thought and feeling and readiness for new experience
	Self-direction	Independent thought and action-choosing, creating, exploring
	Stimulation	Excitement, novelty, and challenge in life
… vs conservation		Self-restriction order and resistance to change
	Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms
	Tradition	Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self
	Security	Safety, harmony and stability of society, of relationships, and of self
Openness to change and self-enhancement	Hedonism	Pleasure and sensuous gratification for oneself

Source: Adapted from Schwartz (1992)

Table 2   Items included in index

Attitude [a]
Would you say that this campaign . . .
Delivers a worthwhile message
Is interesting
Is an incentive to look for information and/or help
Is meant for people like you
Is easy to understand
Is in people's best interest
Talks about smoking in a new way
Uses humour to convey the message?

Comprehension [b]
These advertisements are trying to say. . .
It is hard to stop smoking
There is help available to stop smoking
It is ridiculous to smoke to be like others
There is a telephone number and/or a web site that one may contact about smoking
Smokers and non-smokers need to respect each other
Smoking is absurd
Smoking harms the health of others around you
You should not start smoking

Thinking [c]
Would you say that the advert/the adverts . . .
Made you think about your smoking
Made you think that smoking is absurd
Made you think about the behaviour of smokers in the presence of non-smokers
Made you think about the value of help in quitting smoking?

Notes: [a]Wave 1 ($\alpha = 0.82$; c.r. $= 0.81$); Wave 2 ($\alpha = 0.84$; c.r. $= 0.85$). [b]Wave 1 ($\alpha = 0.70$; c.r. $= 0.62$); Wave 2 ($\alpha = 0.70$; c.r. $= 0.63$). [c]Wave 1 ($\alpha = 0.76$; c.r. $= 0.75$); Wave 2 ($\alpha = 0.83$; c.r. $= 0.83$); $\alpha =$ Cronbach alpha; c.r. $=$ construct reliability.
Source: Adapted from Hassan *et al.* (2007)

Table 3   Sample characteristics for wave 1 and wave 2

		Sample (*n*)	Gender (%)		Age (%)			Social class	
			Male	Female	15-24	25-44	45+	Higher	Lower
Wave 1									
Smokers	W	2,474	55	45	21	49	30	33	67
Smokers	N	3,346	58	42	9	41	50	33	67
Former smokers	W	1,463	56	44	10	42	48	35	65
Former smokers	N	2,988	61	38	4	25	71	32	68
Non-smokers	W	4,688	41	59	29	37	34	30	70
Non-smokers	N	9,151	38	62	11	33	56	30	70
Wave 2									
Smokers	W	2,491	55	45	22	46	32	30	70
Smokers	N	3,096	60	40	10	39	51	30	70
Former smokers	W	1,508	56	44	10	40	50	35	65
Former smokers	N	2,846	62	38	3	24	73	29	71
Non-smokers	W	5,173	41	59	31	34	35	27	73
Non-smokers	N	9,026	38	62	11	32	57	31	69

Note: "W" represents respondents who were aware of at least one of the HELP advertisements. "N" represents respondents who were *not* aware of any one of the HELP advertisements. Missing value   15 respondents recorded "Don't know" for smoking status and are excluded

Table 4   Sample characteristics for wave 1 and wave 2 within countries

	% of Males[a] (each country's gender profile)	Mean age[b] (each country's age profile)	% of Males Wave1	% of Males Wave2	Mean age Wave1	SD Wave1	Mean age Wave2	SD Wave2	% high SES Wave1	% high SES Wave2	% seen one ad Wave1	% seen one ad Wave2	% seen two ads Wave1	% seen two ads Wave2
Austria	47.2	41.7	54.13	67.92	35.06	14.35	35.42	15.15	59.63	49.06	48.62	35.85	33.94	42.45
Belgium	47.85	41.4	56.06	55.22	36.26	15.53	40.10	15.11	31.82	32.84	45.45	59.70	40.91	28.36
Cyprus	48.45	35.3	74.26	67.78	33.73	13.44	37.39	14.05	28.71	34.44	48.51	52.22	35.64	28.89
Czech Republic	47.65	39.8	48.91	62.00	35.66	15.26	36.47	15.80	39.13	24.00	39.13	60.00	38.04	34.00
Denmark	49	40.3	42.27	51.69	46.99	13.87	42.42	15.50	42.27	26.97	53.61	66.29	31.96	29.21
Estonia	41.25	39.6	61.42	57.76	35.94	12.36	35.82	13.85	27.56	31.68	33.86	37.27	35.43	35.40
Finland	47.9	41.8	45.21	58.33	32.60	14.67	35.67	14.00	42.47	25.00	49.32	70.00	35.62	23.33
France	47.1	39.2	51.85	40.21	36.72	12.77	36.37	13.47	39.81	49.48	56.48	61.86	27.78	29.90
Germany	47.9	43.4	47.62	53.33	34.68	12.52	38.95	13.59	42.17	36.00	50.00	53.33	28.57	30.67
Greece	49.05	41.5	54.55	46.36	35.21	12.39	38.06	12.35	30.30	31.82	55.56	65.45	28.28	25.45
Hungary	44.7	39.1	62.30	52.03	35.58	14.50	39.59	13.96	18.03	21.95	41.80	45.53	33.61	41.46
Ireland	50	34.6	53.10	53.91	37.48	16.36	37.89	15.33	39.22	38.28	35.40	43.75	38.94	42.97
Italy	47.05	42.9	50.00	47.44	39.07	15.42	36.05	15.18	39.66	30.77	43.10	52.56	39.66	28.21
Latvia	41.45	39.9	70.97	65.54	36.66	14.39	34.92	13.43	29.68	35.14	32.90	39.19	38.06	40.54
Lithuania	42.7	39	71.20	74.48	36.28	15.13	39.21	15.54	28.00	21.38	33.60	35.17	24.80	29.66
Luxembourg	49	39	45.24	57.14	39.38	13.21	36.61	13.82	21.43	28.57	54.76	75.00	38.10	17.86
Malta	49.35	39.2	53.85	53.66	33.75	11.84	37.83	15.02	17.31	17.07	42.31	39.02	28.85	34.15
The Netherlands	48.9	40	40.45	33.02	41.61	15.96	43.45	14.14	35.96	23.58	48.31	52.83	38.20	36.79
Poland	46.55	37.6	55.00	52.43	37.48	14.51	37.19	15.65	19.33	19.42	43.33	39.81	29.17	39.81
Portugal	46.7	39.1	66.67	64.15	33.56	12.34	34.64	12.15	21.33	22.64	44.00	58.49	30.67	26.42
Slovakia	47	36.5	61.25	53.81	35.06	13.37	37.80	15.49	23.13	28.25	45.00	21.52	30.00	25.11
Slovenia	41.4	41.4	44.66	58.33	39.17	13.76	39.64	12.58	21.36	29.76	45.63	46.43	33.01	41.67
Spain	48.65	40.7	56.41	45.95	37.42	12.41	36.45	12.59	51.28	33.33	42.95	43.24	37.18	37.84
Sweden	49.25	41.3	34.29	35.14	40.74	15.82	42.51	16.40	14.29	8.11	40.00	72.97	37.14	18.92
United Kingdom	48.05	39.9	43.36	56.25	41.48	14.27	39.61	14.40	43.36	34.38	40.71	47.66	41.59	35.94

Note: SES = Socioeconomic status
Sources: [a]Eurostat (2009); [b]US Central Intelligence Agency (2008)

Table 5 Characterization of smoking clusters for the wave 1 data

	Cluster 1: Message involved $n = 759$	Cluster 2: Message indifferent $n = 691$	Cluster 3: Message distanced $n = 317$
Cluster analysis results			
Attitude	2.55 (0.37)[a]	1.99 (0.48)[b]	1.31 (0.59)[c]
Comprehension	1.48 (0.47)[a]	1.11 (0.47)[b]	-0.09 (0.70)[c]
Responsible thinking/elaboration	2.47 (0.39)[a]	1.34 (0.49)[b]	0.73 (0.63)[c]
Profiling clusters			
Age	37.09 (11.12)[a]	34.87 (13.38)[b]	37.07 (12.80)[a,c]
Smoking intensity (cigarettes per day)	15.22 (12.11)[a]	15.92 (14.21)[a,b]	17.47 (12.63)[c]
Intention to stop smoking (Chi-sq $p < 0.01$; Kruskal-Wallis $p < 0.01$)			
Yes definitely	270 (35.8)	45 (6.6)	10 (3.2)
Yes quite a lot	218 (28.9)	113 (16.4)	24 (7.6)
Not really	156 (20.7)	228 (33.2)	59 (18.6)
Not at all	110 (14.6)	301 (43.8)	224 (70.7)
Awareness (Chi-sq $p < 0.01$; Kruskal-Wallis $p < 0.01$)			
1 ad	302 (39.8)	276 (39.9)	149 (47.0)
2 ads	280 (36.9)	252 (36.5)	104 (32.8)
3 ads	177 (23.3)	163 (23.6)	64 (20.2)
Gender ($p > 0.05$)			
Male	403 (53.1)	394 (57.0)	184 (58.0)
Female	356 (46.9)	297 (43.0)	133 (42.0)
Socioeconomic status ($p > 0.05$)			
Higher	250 (33.2)	232 (33.6)	126 (40.0)
Lower	502 (66.8)	458 (66.4)	189 (60.0)

Note: For the variables attitude, comprehension, thinking, age and smoking intensity, mean values with the *same* superscript are *not* significantly ($p > 0.05$) different from one another (based on ANOVA and a Scheffé test). (SD values are given in parentheses); Chi-square tests were applied to the variables intention, awareness, gender, and social status (for these four variables, percentages within clusters are given in parentheses). Kruskal-Wallis tests were conducted on the intention and awareness variables

Table 6 **Characterization of smoking clusters for the wave 2 data**

|	Cluster 1: Message involved $n = 826$		Cluster 2: Message indifferent $n = 706$		Cluster 3: Message distanced $n = 324$	
Cluster analysis results						
Attitude	2.59	(0.36)[a]	2.02	(0.48)[b]	1.28	(0.62)[c]
Comprehension	1.50	(0.46)[a]	1.18	(0.46)[b]	-0.04	(0.69)[c]
Responsible thinking/elaboration	2.54	(0.37)[a]	1.31	(0.52)[b]	0.78	(0.59)[c]
Profiling clusters						
Age	37.85	(14.29)[a]	35.23	(13.49)[b]	37.79	(13.23)[a,c]
Smoking intensity (cigarettes per day)	14.35	(11.73)[a]	14.74	(10.89)[a,b]	17.35	(15.12)[c]
Intention to stop smoking (Chi-sq $p < 0.01$; Kruskal-Wallis $p < 0.01$)						
Yes definitely	318	(38.8)	44	(6.2)	7	(2.2)
Yes quite a lot	236	(28.8)	117	(16.6)	12	(3.7)
Not really	471	(25.5)	245	(34.8)	65	(20.1)
Not at all	105	(12.8)	299	(42.4)	239	(74.0)
Awareness (Chi-sq $p < 0.01$; Kruskal-Wallis $p < 0.01$)						
1 ad	330	(40.0)	314	(44.5)	175	(54.0)
2 ads	278	(33.7)	256	(36.3)	109	(33.6)
3 ads	218	(26.4)	136	(19.3)	40	(12.3)
Gender ($p > 0.05$)						
Male	449	(54.4)	390	(55.2)	182	(56.2)
Female	377	(45.6)	316	(44.8)	142	(43.8)
Socioeconomic status ($p > 0.05$)						
Higher	247	(29.9)	234	(33.1)	110	(34.0)
Lower	579	(70.1)	472	(66.9)	214	(66.0)

Note: For the variables attitude, comprehension, thinking, age and smoking intensity, mean values with the same superscript are *not* significantly ($p > 0.05$) different from one another (based on ANOVA and a Scheffe test). (SD values are given in parentheses); Chi-square tests were applied to the variables intention, awareness, gender, and social status (for these four variables, percentages within clusters are given in parentheses). Kruskal-Wallis tests were conducted on the intention and awareness variables

Table 7   Regression results predicting cluster membership across countries

	Message − involved		Message distanced	
	Wave1	Wave2	Wave1	Wave2
R^2 (R^2 adjusted)	0.41	0.30	(0.44)	(0.37)
β [B (SE)]				
Open vs con	0.64 [23.17 (5.79)]	0.55 [18.68 (5.95)]	−0.53 [-12.57 (3.66)]	−0.49 [-13.83 (4.68)]
Smoking prevalence			0.55 [0.94 (0.26)]	0.52 [1.06 (0.34)]
t-value				
Open vs con	4.01 **	3.14 *	−3.45 *	−2.95 *
Smoking prevalence			3.56 *	3.13 *

Note: * $p < 0.01$; ** $p < 0.001$

Figure 1   Occurrence of the three clusters across the 25 member states for wave 1
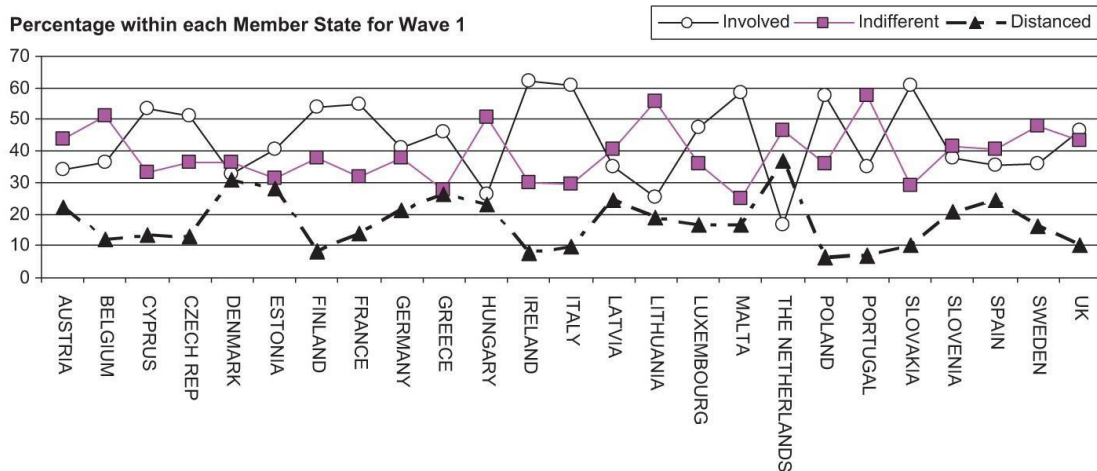
Figure 2

Occurrence of the three clusters across the 25 member states for wave 2