A Method Proposal for Determining Health Communication Campaigns' Messages

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Abstract

This research is focused on the question of deciding what to say in a (health) communication campaign. The goal is to search for ways of selecting/tailoring effective campaign messages which are persuasive for the targeted audiences. Accordingly, by considering Social Judgement Theory in the foundation of Integrated Behavior Model; two variables, belief strength and involvement are proposed with a method to predict the persuasiveness of campaign messages. When the people have strong beliefs and high involvements, a message that does not match with the most important behavioral determinant should be used in the campaign. However, when the people have weak beliefs, a message matching with the most important behavioral determinant should be used without considering the involvement level. These hypotheses are tested in the field of health communication on (cervical cancer) HPV vaccine acceptance and all accepted. CATI is used to collect data on surveys. The study sample, which is derived through a method close to probability sampling, is consisted of mothers who live in Istanbul/Turkey and have at least one 11-26-year-old daughter(N=145). Multiple linear regressions, decision trees (CHAID) and ANOVA are used for the analysis.

Keywords: Persuasive communication, message, belief strength, involvement, (cervical cancer) HPV vaccine

Theoretical Foundations

Introduction

The era we find ourselves today from the perspective of history of communication campaigns can be named as the era of conditional effects. The typical characteristic of this era is the effective and creative application of many principles or constructs that have been previously identified (Noar, 2006). Thus, a common mission of the

researches in the field of (health) communication campaigns since 1980 has been to examine the conditional effects of various variables on attitude, intention or behaviors (Bandura, 1977; Ajzen & Fishbein, 1980; Proschaska et al. , 1992; Logan, 2004, p. 1148-1149)

Today, communication campaigns are believed to be very successful in raising awareness towards issues, ideas or behaviors. However when it comes to changing (or effecting) the behaviours, the effectiveness of communication campaigns still tend to remain low which is indeed mostly the real goal (ASCOR, 2007). A possible way believed to enhance the effectiveness and efficiency of (health) communication campaigns (towards behaviors) is the customization.

Customization of communication campaigns requires paying attention or analyzing the specific characteristics (demographic, psychographic, cognitive and especially behavioral) of individuals, groups or much larger audiences and determining/providing most relevant and strategic communication components (such as medium, message content, message appeal…) in order to meet the needs and expectations of these audiences related with a certain behavior and context (Rimer & Kreuter, 2006, p. 184).

Accordingly, one of the core interests (or problems) of communication campaign planners today is the customization of campaign messages; in other words, developing campaign messages which are relevant to individuals, target groups or larger audiences while also considering the integrity of the whole campaign. This process is conceptualized to include both targeting (customization at target group level) or tailoring (customization at individual level) in many studies (Kreuter & Strecher, 1996; Kreuter et al. , 1999; Kreuter & Skinner, 2000; Kreuter & Wray, 2003; Kreuter et al. , 2004).

Benefiting from new and interactive media (Suggs, 2006), the increased importance of using participatory strategies (Krishnatray & Melkote, 1998), being able to customize many campaign materials (such as magazines, calendars, letters, leaflets…) which are used for educative or informative goals by the help of increased technology and inclusion of powerful computers (Rimer & Kreuter, 2006), the theoretical advancements in Psychology, Social-Psychology, Marketing (such as structural equation modelling (Stephenson et al, 2006) and segmentation analyses: Q sort, cluster analysis, conjoint analysis, logistic regression, CHAID-decision tree technique (Albrecht & Bryant, 1996)), Communication (mass communication and persuasion theories) and natural sciences have all helped to integrate much more specific knowledge in the customization of communication campaigns' messages.

Transtheoretical Model (covering Hierarchy-Of-Effects Theories, Social Cognitive Theory, and Behavioral Theories) (Slater, 1999) and Integrated Behavior Model (covering Health Belief Model, Social Cognitive Theory, Theory of Reasoned Action, and variables related with individual differences) (Fishbein & Cappella, 2006) can be thought to be two of these theoretical advancements, which rise on the shoulders of

many other theory or models, and brings together or synthesizes many previously founded/studied concepts within one framework.

Communication campaigns and particularly health communication campaigns are topic and behavior-specific. Thus the same set of variables used to predict a certain behaviour in a certain topic context within a framework may not be used to predict other behavious with in other topic contexts. However, there is also a need for the inclusion of some certain and above-the-behavior-and-context variables or theories (which should be independent from any behavior/context) to shed light to some common decisions in campaign planning (Maibach et al. , 1996). Our goal trying to answer the question of: How can we decide what to say in communication campaigns' messages? by the interaction of two concepts (belief strength and involvement) in this paper is planned to serve this need. Accordingly our goal is to try to explain target audiences' acceptance of communication campaign messages with two possible generic variables which may help to predict the persuasiveness of campaign messages) and can be applicable to either individual, group or mass communication level. In the paper, our focus will be on targeting in the context of customization, however if approved, the results will probably be able to account for both tailored and generic (uncustomized) communications.

One of the first steps in the process of customization is segmentation which can be defined as the identification and differentiation of various characteristics of certain groups which are similar within but different between groups. Then, designing the most relevant and persuasive (thus customized) messages that appeal to the specified characteristics of these groups can only be achievable once after segmentation (Slater, 1996, p. 272). Hence, the effectiveness of the (health) communication campaigns will be an overall function of how much of the distinct need and expectations of these various groups have been met.

Belief Strength

Belief strength is conceptualized as a predictor variable of attitude towards the behavior in Theory of Reasoned Action, Theory of Planned Behavior (and laterly also in Integrated Behavior Model) all of which are based on the summative model of attitude. Attitude towards the behavior can said to be about how much positive(favourable) or negative(unfavourable) acting towards a given behavior is judged. It is conceptualized to be a function of the underlying salient beliefs about the behavior ("which commonly are beliefs concerning outcomes of the behavior"). Hence firstly, the salient beliefs of the target group are identified and then the levels of how strongly each of these beliefs are held (belief strength) is multiplied with the importance level (or evaluation) attributed for each belief (this multiplication may be thought to be a kind of weighting for the belief strengths, indeed). Belief strength can be measured using such scales as: probable-improbable, true-false, likely-unlikely (O'Keefe, 2002, p. 53-56, 103-104).

Indeed, attitude towards the behavior is not the only construct in the mentioned theory or models that are based on some sorts of beliefs. Actually, all the constructs in these theories or models are both functions of and measured by beliefs having different category names. Here are how all the different sorts (categories) of beliefs (as with other names: judgments or considerations) predict the related constructs in Theory of Planned Behavior (TPB) (O'Keefe, 2002, p. 101-115):

Attitude towards the behavior= Σ belief strength (beliefs about the behavioral outcomes) x evaluation of each belief (the value or importance associated with each behavioral belief)

Subjective Norm= Σ normative beliefs ("that one ascribes to salient others") x motivation to comply with those others (how much valuable/important those normative beliefs are)

Perceived Behavioral Control= Σ individual's conrol beliefs (the beliefs about the likelihood or frequencies that given control factors will occur) x the power of the control factors to facilitate or inhibit the behavior (the value or importance associated with each control belief)

Behavioral intention, which is conceptualized as being "the most immediate determinant of a voluntary action, may also be thought to be at the epsilon neighbourhood of such an action or a behavior (O'Keefe, 2002, p. 101). And it is conceptualized to be a summative function of attitude towards the behavior, subjective norm and perceived behavioral control which would have certain weights and accordingly to be a function of beliefs in several types or categories (such as behavioral, normative and control). So, in TPB, a given behavior is explained or predicted with not only behavioral but also normative and control beliefs and thus how much these beliefs at all-together are held/believed is considered within the theory. Owing to this reason, in this paper, belief strength as a construct has been conceptualized to be a summative function of not only behavioral but all types of mentioned beliefs which actually accounts for the conceptualization of behavioral intention as mentioned above in this paragraph. Then our conceptualization can be likened to a 'total belief strength'.

The Role of Information Processing Theories in Determining (Health) Communication Campaigns' Messages

There are mainly three broad classes of theories which help us to explain the possible effects of messages which are used either to prevent risky behaviors and adoption of healthy behaviors (Table1). These are behaviour change theories (which are used in identifying "the rational, emotional, social and personal predictors" of such behaviors), information processing theories (which are "pertinent to behavior change") and message effects theories (which predicts the effects of message format and contents on cognitive, attitudinal and emotional outcomes). It has been

understood that we need to consider all groups of theories in order to predict message effects effectively (Cappella, 2006).

Behavior change theories and information processing theories, which have distinct advantages and disadvantages, are complementary filling the gap the other leaves behind or starting after where the other ends. Hence behavior change theories are very successful at identifing the underlying salient beliefs or predictors of a given group's given behavior. So it is very feasible to detect such beliefs/determinants of behaviors that can possibly "be targeted in persuasive efforts. However, they unfortunately can not tell us easily how persuasive any of these salient beliefs would be or "which combinations of audiences and messages are likely to be more amenable or more resistant to specific interventions" or how to change the identified beliefs but information processing theories can. On the other hand, for example elaboration likelihood model (ELM) being an information processing theory "is mute about which beliefs should be the targets of persuasion" (Cappella, 2006, p. 268-269).

ELM in this context, considering both the ability and motivations of audiences and assuming exposure and attention to the information in messages explains the conditions in which persuasion will be successful. According to the model, various features of messages would effect how much those messages will be elaborated and accepted (Cappella, 2006, p. 270-271). In the model, the concept that is used to predict such conditions is 'involvement'.

Table 1: "Groups of Theoretical Approaches Pertinent to Message Effects" (Cappella, 2006)

	Topic	**Authors**
Behavior change theories	Integrated model of behavior change	Fishbein and Cappella
	Behavioral beliefs in smoking initiation	Kroshnick et al.
Information processing	Activation model of information exposure	Stephenson and Southwell
	Limited capacity model of motivated mediated message processing	Lang
	Elaboration likelihood model	Briñol and Petty
	Unimodel	Kruglanski et al.
Message effects	Emotional appeals	Dillard and Nabi
	Emotional functions	Peters et al.
	Tailoring	Rimer and Kreuter
	Narratives	Green
	Frames (gain and loss)	Rothman et al.
	Exemplars	Zillman
Systemic factors	Cultural and social	Viswanath and Emmons

Involvement

Involvement has firstly been conceptualized by Sherif & Cantril (1947) in Psychology. The dimensions, definitions and operationalization of involvement varies among the researchers. Because different authors with different goals of study conceptualize and measure involvement in terms of different dimensions or types (Cakir, 2007). Then it is important to prefer one of these scales that best fits with the researcher's goal in the study but not looking for a generally most accurate scale (Cakir, 2007, p. 187). Thus it may be considered that involvement can be measured by scales emphasizing different dimensions and including different items in which what varies is the effectiveness towards the goal of the study.

From another perspective; involvement as being related with emotion or motivation may also be considered to be complementary for the effects of cognition (in other words, rationality) on acting towards a behavior (and hence on intentions or attitudes which are predecessors of behaviors at different levels). And this may be why both cognitive and emotional/affective/motivational factors (such as belief strength and evaluation of the belief, normative beliefs and motivation to comply, control beliefs and power of the control beliefs, respectively) are used in collaboration in Theory of Reasoned Action, Theory of Planned Behavior, Integrated Behavior Model…So involvement may also be considered to represent the 'value' role in those theory or models that are based on expectancy-value approach. Then the scales used to measure 'the evaluation of behavioral beliefs', 'motivation to comply', 'power of the control beliefs' (and also 'the experiential attitude' in Integrated Behavior for example) may be considered indeed to be different scales of involvement. Accordingly, involvement may be considered to be an umbrella construct which may have several dimensions, defintions and indicators and to whom we may approximate by using various scales.

In our study; 'experiential attitude', which is one of the constructs in the Integrated Behavior Model and defined closely to the construct of 'ego involment' in Social Judgment Theory, will be used to represent involvement. Ego involvement may be stated to be about an issue, object or behavior and related with motivations based on past experiences.

The Role of Social Judgement Theory in Determining (Health) Communication Campaigns' Messages

Social Judgement Theory's proposition is that "an individual's belief or attitude towards an object will influence the judgments he/she makes in various situations" (Krech & Crutchfield, 1967, p. 183). The two fundamental construct in the theory are ego involvement and reference point/anchor. Pfau et al. (1997, p. 464) explain Social Judgement Theory (SJT) as the following:

"The theory conceptualizes attitude based on an evaluative continuum divided into three parts or latitudes: acceptance, rejection, and noncommitment. The latitude of

acceptance includes positions a receiver finds acceptable in comparison with their own view, whereas latitude of rejection encompasses positions a receiver finds unacceptable. The latitude of noncommitment features those positions a person finds neither acceptable nor unacceptable.

In social judgment theory, persuasion is viewed as a two-stage judgmental process (Smith, 1982). Upon exposure to a persuasive message, the receiver views the message in terms of their initial attitudinal position, which serves as an 'anchor. ' Initially, if the message falls within the range of acceptance or rejection, there is a tendency to distort the message's content. Respondents tend to minimize a discrepancy between the anchor and a message when the latter falls in the range of acceptance, but maximize a discrepancy when the message falls in the range of rejection. Subsequently, attitude change is a function of the discrepancy between the message and the anchor…"

Hence, the messages falling in the range of acceptance (due to an assimilation effect) will be perceived as being more closer to one's ideas or emotions than they actually are, and the messages falling in the range of rejection (due to a contrast effect) will be perceived as being more contrary/further away from one's ideas or emotions than they actually are. So that messages falling in either of these ranges (acceptance and rejection) would not be acceptable or persuasive at all. On the other hand, "the messages that fall within the range (or latitude) of noncommitment should result in acceptance and behavior change" (Smith, 2006, p. 144).

According to the theory, the relationship between ego involvement and those ranges is as the following (Pfau et al. , 1997, p. 464):

"The division of the evaluative continuum (into the three ranges) depends entirely on receiver ego involvement in the content area. Sherif and Cantril define ego-involvement as receiver identification with an attitude. An ego-involved attitude is internalized as part of a person's value system. It is perceived as part of one's self: "as being part of me" (Sherif & Cantril, 1947, p. 93). An ego-involved attitude is '. . . inextricably linked to other aspects of the self. . . to important group memberships and identifications' (Eagly & Chaiken, 1993, p. 369). Greater ego-involvement in an issue reduces the range of noncommitment, extends the range of rejection, and thus enhances the prospect that a message will invoke the process of contrast (Sherif, Taub, & Hovland, 1958). "

Attribution Theory (which explains the behavioral internalization of any health information in a way that may directly be associated with involvement) and Inoculation Theory (which states that individuals compare the messages that are directed towards them against their preexisting attitudes, beliefs, or opinions of which may be associated with an anchor) meet with Social Judgement Theory at this point. Also according to the ELM, when individuals are highly involved, systematic (central route, on-the-content, cognitive) processing will excel. Furthermore, according to Cognitive Dissonance Theory, the expectancy towards the believability

(or consistency) of message contents will increase in such a condition. Thus, according to Social Cognitive Theory, as also the range of rejection relatedly increases, the likelihood that the message will be rejected (boomerang -or contrast- effect) and assimilated (passivized) increases, too (Ward, 2003).

Clark & Stewart (1971) states that, "beliefs which have direct behavioral consequences and which are based on firsthand experience appear to be the ones with the widest latitude of rejection".

Therefore, if the predictive power of a belief on a behavior is high, as the level of ego involvement with that belief will also be high and in conditions of high belief strength, any message content that matches with that belief would be disregarded, unbothered, rejected and may even reinforce the existing belief (owing to psychological reactance, falling in latitude of rejection, engaging in fear control or boomerang effect). This may be explained with the ego-defensive function of attitudes in situation of cognitive-dissonance (Katz, 1960).

On the other side, the latitude of acceptance of the belief or attitudes which are not so strongly held (where belief strength is not high), will be larger than their latitudes of rejection. This forms a theoretical bases for matching the message contents with those beliefs and benefiting from such large latitudes of acceptance of those beliefs or attitudes when target groups don't have the required positive (or negative) beliefs or attitudes to perform (or not to perform) a given behavior.

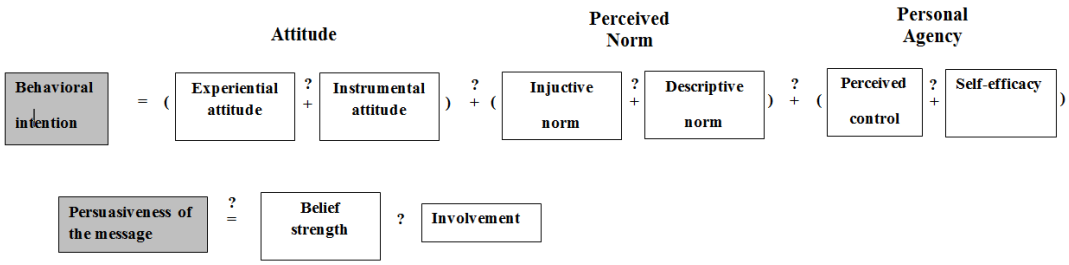
In conclusion, the hypotheses of our study are as the following:

H1: If (total) belief strength is high and attitude (involvement) is high, too; then the message content should not be matched with the most important determinant(s)[belief(s)] of the behavior (otherwise, if matched, the persuasiveness of such messages will be low).

H1a: If both total belief strength and attitude(involvement) are highly negative, owing to contrast-effect, boomerang effect, psychological reactance, the individual (group or larger audience) rejects the message.

H1b: If both total belief strength and attitude(involvement) are highly positive, the individual (group or larger audience) assimilates the message.

H2: If (total) belief strength is not high, without considering about the level of attitude (involvement) the message content should be matched with the most important determinant(s)[belief(s)] of the behavior (and so, when matched, the persuasiveness of such messages will be high).



The Case Study: Cervical Cancer and HPV Vaccine

Cervical cancer is the second most frequent type o cancer diagnosed among women (Somer, 2009, p. 96) and is the result of abnormal cell proliferation at cervix (http://www. rahimagzikanseri. org). If not treated, these abnormal cells may change into precancerous lesions or cancer. Mostly, this takes long years but in rare occasions this may also develop in one year. Cervical cancer is both a preventable and if diagnosed early a curable disease (Walker, 2009, p. iii).

Almost all incidences of cervical cancer are caused by continuous or repetitive contact with certain (most frequently with type16 and 18) types of a sexually trasmitted virus named Human papillomavirus (HPV) (Salman, 2007).

HPVs of which more than 130 genotypes have been discovered (Ozarmagan & Topkarci, 2006, p. 57), have effects on only humans (Somer, 2009, p. 96). The HPV types which have low risk for causing cancer, cause genital warts. HPV types which have high risk for causing cancer (type 16, 18, 31, 33, 35, 45, 58…) have been detected in 99, 7% of incidences of cervical cancer. The high-risk HPV types, which are the most frequent cause of cervical cancer, can also cause rarer cancers of vulva, vagina, penis and anus (Ozarmagan & Topkarci, 2006, p. 57). HPV infections are the most common sexually transmitted infections among the sexually active adults worldwide (Munoz et al, 2003). Penetration is not required but direct skin-to-skin genital contact or genital mucosa contact is sufficient for infection (Somer, 2009). The classical method of both preventing and monitoring cervical cancer is examining the cell samples taken from cervix which is called a PAP-smear test. The newer method of prevention have been the HPV vaccines.

2.1. HPV Vaccines

The first HPV vaccine against cervical cancer has been developed in 2006. It provides protection for high-risk HPV types 16 and 18 (which cause approximately 70% of cervical cancers) and low-risk HPV types 6 and 11 (which cause approximately 90% of genital warts) (Walker, 2009, p. 12). The second HPV vaccine against cervical cancer has been developed in 2007 also provides protection for high-risk HPV types 16 and 18 but not for low-risk HPV types (Walker, 2009, p. 12). Hence HPV vaccines can only provide protection for 70% of cervical cancer incidences. Hence, being vaccinated can not undermine the importance of having regular PAP smear test for women who are sexually active. In order to provide the highest protection, the HPV

vaccines must be applied before puberty or before sexual activeness, in other words they must be applied before having been ever met with HPV, generally between the ages 9-13. It is on the national routine vaccine calendar of many countries (Ozarmagan & Topkarci, 2006, p. 57; Somer, 2009, p. 99).

2.2. Factors effecting (Parental) Acceptance of HPV Vaccines

The most important risk factors for women towards cervical cancer are the age of first sexual intercourse and the number of sexual partners both during life span and within one recent year (Somer, 2009, p. 97). The perceived risk towards cervical cancer and the perceived benefits of the vaccine also effect the acceptance of the vaccine. In another researches, the perceived effectiveness of the vaccine, perceived side-effects of the vaccine, the cost of the vaccine have also been found to contribute to the acceptance (Zimet et al. , 2000; Zimet et al. , 2006).

Dempsey et al. (2006) have found that among the other independent variables effecting HPV vaccine acceptance, the beliefs and attitudes of parents are more influencial than their levels of knowledge about the issue. Constantine & Jerman (2007), identified the following reasons associated with parents' unwillingness to vaccinate their daughters (against HPV) by the age of 16: As the most common reason: worries about the consequences of HPV vaccine on their daughter's sexual behavior ((which can be explained as: "HPV vaccination could lend a false sense of security to their children regarding susceptibility to a STI, thereby leading to either earlier initiation of" or encouraging more frequent sexual behavior" (Zimet, 2006, p. 202.)), specific worries about possible side effects of the vaccine, worried about vaccines in general, moral sexual behavior worries (moral worries about the possible effects of the vaccine on her daughter's sexual behavior), rejecting that such vaccination is necessary at all (as in the belief: "i believe in my daugther and that there is no need for vaccination").

In a research of Dempsey et al. (2006, p. 1490), the acceptance of HPV vaccine by mothers increased as the age that vaccine had been proposed to their daughters increased. Relatedly, Herzog et al (2008, p. 6) concludes that (for the highest protection) the importance of being vaccinated before the sexual life starts is not clearly seen by the mothers.

Mays et al. (2004) has found that parents (owing to the lack of their childrens' sexual relationships or any of their childrens' psychological or behavioral characteristics) perceive a low risk for their children of being infected with HPV and this perception highly influenced their rejection of HPV vaccines. Charo (2007) states that some parents believe that "their children will remain abstinent (and therefore uninfected) until marriage" which may effect their risk perception **(Dempsey et al. , 2006; Herzog et al. , 2008).**

Parent-child communication is also found to contribute to parent's acceptance (Gamble et al. , 2010). Gamble et al. (2010) also mentions that: Mothers who are

willing to talk with their daughters about cervical cancer, sex, sexually transmitted diseases or HPV at an earlier age are found to have more tendency to accept vaccination and support being vaccinated against HPV at an earlier age (Marlow et al. , 2007). Whereas, the parents who find it difficult to talk about sex with their daughters are found to leastly approve the vaccination (Brabin et al. , 2006).

In another research about the "predictors of (HPV) vaccination among older adolescents and young adult women", it had been observed that "although many of these young women were old enough to receive the vaccine without their parents' consent, perception of their mother's approval and mother-daughter communication about sex were important predictors of vaccination (Roberts, Gerrard, Reimer, & Gibbons, 2010). Owing to mentioned reasons, we can see a how much important role the mothers have on HPV vaccination of their daughters being first-hand opinion leaders and role models for them. For this reason the beliefs of mothers towards getting their daughters HPV-vaccinated gains great importance. In the next title, the beliefs of a sample of mothers chosen from Turkey will be analyzed in order to search for the research hypotheses.

The Methodology

3. 1. Research Population and Sample

The research population consisted of mothers who have at least one 11-26-year-old daughter. The sample has taken from Istanbul which is believed to be more representative of Turkey in general than any other cities and consisted of such mothers having a telephone line in their houses. With a probability (simple systematic) sampling method, 16502 telephone numbers have been generated and dialing these numbers with CATI technique, revealed a sample size of 145.

3. 2. The Measures

3. 2. 1. The Survey Form

The survey instrument developed in 2007 at University of North Carolina at Chapell Hill by Reiter et al. (2009) and McRee et al. (2010) is translated to Turkish (the original survey form can be reached from the link: http://www. unc. edu/~ntbrewer/2007_caregiver1_v2010. pdf) and then adapted to also fit with constructs of Integrated Behavior Model (Kasprzyk & Montaño, 2007; Montaño & Kasprzyk, 2008). The applicability of Theory of Reasoned Action (TRA), Theory of Planned Behavior or Integrated Behavior Model (IBM) to both HPV vaccine acceptance and HIV prevention have been shown in various studies (Kasprzyk & Montaño, 2007; Costar, 2007; Askelson et al. , 2010). Mainly the changes in the original instrument have been in choosing the indirect beliefs and operationalization of IBM's constructs.

3. 2. 1. 1. Independent Variables

3. 2. 1. 1. 1. The selection of the indirect beliefs measured in the survey

The indirect measures about the specified behavior (having her daughter vaccinated against HPV within the next three months by consulting a doctor) which were relevant to our sample were identified by both with the help of an elicitation survey applied to 39 mothers in our sample using CATI technique and the beliefs which have been presented in the original survey instrument (Table2) before developing the adapted survey form.

3. 2. 1. 1. 2. The direct measures for the constructs of IBM used in the survey

Both the theoretical foundations and the applications or operationalizations of TRA, TPB and IBM in communication campaigns have been identified mainly by Martin Fishbein and Icek Ajzen in several studies (Ajzen & Fishbein, 1980; Ajzen, Albarracin, & Hornik, 2007). In the light of these studies and using the articles or guides in the personal web site of Icek Ajzen (http://www. people. umass. edu/aizen/tpb. html), the semantic differential scales advised for the direct measures of the constructs in IBM (Montaño & Kasprzyk, 2008, p. 74) were operationalized (the actual items used for such direct measures may be obtained from the author).

Table2: The Indirect Measures of the Constructs in the Adapted Survey Form

Experiential Attitude	
1	Knowing that my daughter will highly be protected against cervical cancer makes me happy.
2	Makes me relieved for my daughter's health
3	I'm hesitating as sexual issues may be early for my daughter
4	I'm hesitant as there are things i don't know about the vaccine*
5	I don't have a positive look for my daughter's being vaccinated against a sexually transmitted virus
Instrumental Attitude	
1	My daughter will get the most benefit from the HPV vaccine if she gets it sooner rather than later*
2	I think the HPV vaccine is unsafe.*
3	HPV vaccine is beneficial for my daughter's future health
4	The HPV vaccine might cause lasting health problems.*
5	Having the cervical cancer vaccine may negatively affect my daughter's chances of getting pregnant in the future.
6	The HPV vaccine is being pushed to make money for drug companies.*
7	I don't have enough information about the HPV vaccine to decide whether to give it to my daughter.*
8	The HPV vaccine protects my daughter against cervical cancer.*
9	My daughter is too young to get a vaccine for a sexually transmitted infection like HPV. *
10	The HPV vaccine is so new that I want to wait awhile before deciding if my daughter should get it.*
11	All girls going through puberty should get HPV vaccine.
12	If a girl gets HPV vaccine, she may have a tendency to experience sexuality before marriage

Normative Influence	
1	My friends
2	My female very close relatives such as my mother, my elder sister, my younger sister
3	My husband
4	Other close relatives
5	My daughter
6	My doctor
Perceived Control	
1	Unacceptedness and uncommonness of the vaccine
2	Approval of your doctor
3	If the HPV vaccine costs more than you can afford.*
4	Not knowing about anyone who got the vaccine but not encountered any problems.
5	Not having full information about the vaccine
6	The condition that your daughter is afraid of vaccines or injections in general
7	The condition that the HPV vaccine is not inoculated in primary education.
***The common items with "The Carolina HPV Immunization Attitudes and Beliefs Scale" (McRee et al., 2010)**	

3. 2. 1. 2. Dependent Variables

In the direction of research hypotheses, the participants were asked to rate the persuasiveness of some (11) messages on themselves towards performing the behavior. A 7-point rating scale (1=Not persuasive at all. . . 7=Very persuasive) was used for these ratings. And the degrees of persuasivenesses attributed to those messages have formed the dependent variables of the study. In the survey form, these ratings had been taken before the constructs of IBM were asked to participants. The 11 messages were derived by both the elicitation survey and secondary research conducted.

3. 2. 1. 2. 1. The messages whose persuasiveness were asked

Get your daughter HPV-vaccinated in order to be a healthy mother in the future.

For the complete health of your daughter in her coming life, have her HPV-vaccinated.

HPV vaccine protects your daughter against cervical cancer

Protect your daugter against cervical cancer at an early age

In order to protect your daughter's future, get her HPV-vaccinated

You can consider the importance of being protected against cervical cancer for both yourself and your family but your children (daughters) can't

Do your part to prevent cervical cancer

Strengthen your daughter for the life

By HPV vaccine, now a cancer is less threatening for your daughter

HPV vaccine is a privilege which you had not had when you were at your daughter's age but you can now provide to her

Whereas many childhood and adolescent vaccines are for some *now rare diseases, HPV is a very common virus which sexually active teens can easily get. By HPV vaccine, take your precaution against this virus from now on*

Analysis

The process of analyzing the research hypotheses is as the following:

Identying the model and the construct that best (highly) determines the target behavior

Dividing the sample into segments by '(total) belief strength' and 'involvement' in the direction of research hypotheses

By predictive modelling techniques, identifying the most determinative beliefs in each segment

Comparison of the segments of their reactions to proposed messages (the evaluation of the persuasivenesses of the messages among the segments)

3. 3. 1. The productivity of the model

The regression analysis resulted in a model consisting of these variables/constructs:

(Perceived) injuctive norm (direct measure)

Personal agency (direct measure) – 1st factor: Self-efficacy

Personal agency (direct measure) – 2nd factor: Perceived control

Behavioral beliefs

Descriptive norm (direct measure)

When these independent variables alltogether were analyzed by regression analysis (using 'enter' method), the total predictivity of the model (R^2) were: 0, 535 and the adjusted R^2 were 0, 509 ($p<0, 001$). As so, however, only coefficients of the attitudinal (behavioral beliefs) and self-efficacy (1st factor) variables were found to be significant. Hence, the same set of variables were re-regressed by using stepwise method this time. The resulted model and its variables are as the following:

Behavioral intention= ,211*Attitude + 0,925*Self-efficacy(1.Factor) + 2,753

Table3: Summary of the regression model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,705[a]	,497	,491	1,05364	,497	92,784	1	94	,000	
2	,725[b]	,526	,516	1,0281	,029	5,729	1	93	,019	1,607

a. Predictors: (Constant), 1.Factor(Self-efficacy)
b. Predictors: (Constant), 1.Factor(Self-efficacy), Attitude
c. Dependent Variable: Behavioral intention

Table4: Coefficients of the regression model

Coefficients[a]							
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2,753	,382		7,208	,000		
Self-efficacy (1.Factor)	,925	,111	,639	8,356	,000	,871	1,148
Attitude	,211	,088	,183	2,393	,019	,871	1,148

a. Dependent Variable: Behavioral intention

In the model, towards mothers' getting their daughters HPV-vaccinated, the mother's sef-efficacy is 3 times more influencial than their attitudes. The tolerances of these variables indicates that they don't share their predictiveness with each other, and hence there is no multicollinearity in the model. This is further supported by the Durbin-Watson statistic (being close to 2) and VIF statistic (being close to 0).

3. 3. 2. Dividing the sample into segments

The concept of belief strength, as a behavioral determinant, has been conceptualized to account for the total strengths of all possible beliefs (behavioral, normative, control. . .). Accordingly, the belief strength, in the perspective of summation model of attitude (O'Keefe, 2002, p. 103) can be calculated by the existing variables and their coefficients in the regression model. The belief strength was then computed by the following variables in the model:

'(total) attitude' which accounts for the sum of (strengths of) 12 indirect behavioral beliefs

'(total) self-efficacy' which accounts for the sum of (strengths of) indirect efficacy beliefs [as not the 1st factor but this new variable has a normal distribution (p>0, 05) and this new variable has a significant correlation (r=, 252; p<0, 01) with 1st factor]

After these two variables were weighted by the unstandardized coefficients (beta) in the regression model, the belief strength has been calculated by the following equation:

Belief strength= 0,183*total attitude + 0,639*total self-efficacy

Involvement was not directly measured in the model, it has been approximated or bypassed with the **mean of behavioral beliefs,** in other words with (instrumental) attitude[1]. Hartwick and Barki (1994, p. 442) mentions about the high correlation between these concepts as the following:

"Individuals who view the system as both important and personally relevant are also likely to hold positive attitudes concerning the system. Analogous support for this contention comes from involvement research in other disciplines. In attitude research in psychology, highly involved individuals (with an issue) have been found to have more positive attitudes concerning the issue (Sherif, Sherif, and Nebergall 1965). In marketing, highly involved individuals (with a product) have been found to have more positive attitudes toward the product (Gardner et al, 1985, Petty et al. 1983). In organizational behavior, highly involved individuals {with their job) have been found to have more positive job attitudes (Kanungo 1982). It, therefore, stands to reason that a highly involved user will have a more positive attitude. . . "

In the same article Hartwick and Barki also writes the following about this correlation of attitude and involvement:

"Sherif et al. (1965) have shown that individuals with extreme (i. e. , very positive or very negative) attitudes concerning an issue tend to become more involved (i. e. , they develop beliefs that the issue is both important and personally relevant). "

Therefore, in the segmentation the following formula is used:

$$\boldsymbol{the\ persuasiveness\ of\ the\ message} = \frac{\textbf{Attitude}}{\textbf{Attitude} + \textbf{Self efficacy}}$$

Accordingly, both continuous variables are transformed into categorical variables.

[1] The concept of "(instrumental) attitude" which is replaced with "involment", was found to have a correlation of ,559 (p<,05) with the direct and ,412 with the indirect measure of "experiential attitude" which is a construct in IBM and (according to the authors, owing to the arguments covered in the title: "1.3.1. Involvement") considered to best predict involvement. Behavioral intention is also found to have a correlation of ,547 (p<,05) with the direct and ,244 with the indirect measure of experiential attitude.
When the indirect measures of both instrumental attitude and experiential attitude were entered together in a factor analysis, the 65% of the total variance were found to be predicted by one factor (Kaiser-Meyer-Olkin sampling adequacy statistics: ,789; p<0,001 and the communality of experiential attitude: ,442).

Table5: The categories of belief strength*

N=145	f	%
<= 33,52 (low)	45	31,69
33,53 - 42,49 (moderate)	51	35,92
42,50+ (high)	46	32,39
Total	142	100,00

*3 missing values were not included in categorization

Table6: The categories of involvement (attitude)*

N=145	f	%
<= 3,47 (low)	40	27,78
3,48 - 4,90 (moderate)	63	43,75
4,91+ (high)	41	28,47
Total	144	100,00

*1 missing value was not included in categorization

Afterwards, the sample is divided into segments having the following conditions:

Table7: The segments' qualifications and number of participants*

N=145	Belief strength category	Attitude category	n	% (in sample)
Segment1	low	low	24	16,55
Segment2	high	high	23	15,86
Segment3	low	moderate or high	33	22,76
Segment4	moderate or high	low	34	23,45
Total			114	78,62

*Totally 31 participants who were calculated to be in "moderate" categories of both belief strength and involvement were not included in the segmentation

3. 3. 3. Identification of the most determinative beliefs in each segment

For identifying the dominant beliefs in the segments, decision trees are used. The two uses of decision trees that are benefited in our study are classification and profiling.

The following rules and process have been established with the decision trees:

As enabling multiway splits, depending on pre-pruning, considering the missing values in a separate category (and also for the reason that we will have a categorical dependent variable) CHAID technique is used.

The stopping criteria are set as 10 for parent nodes, and 5 for child nodes.

Before starting to analyze with decision trees, each segment is dummy coded as "1" representing "belonging to that segment" and "0" indicating "non-belonging to that segment". In the analyzes, these new dummy variables are used as dependent variables.

These 4 dummy variables are predicted with the behavioral beliefs (indirect beliefs about the attitude).

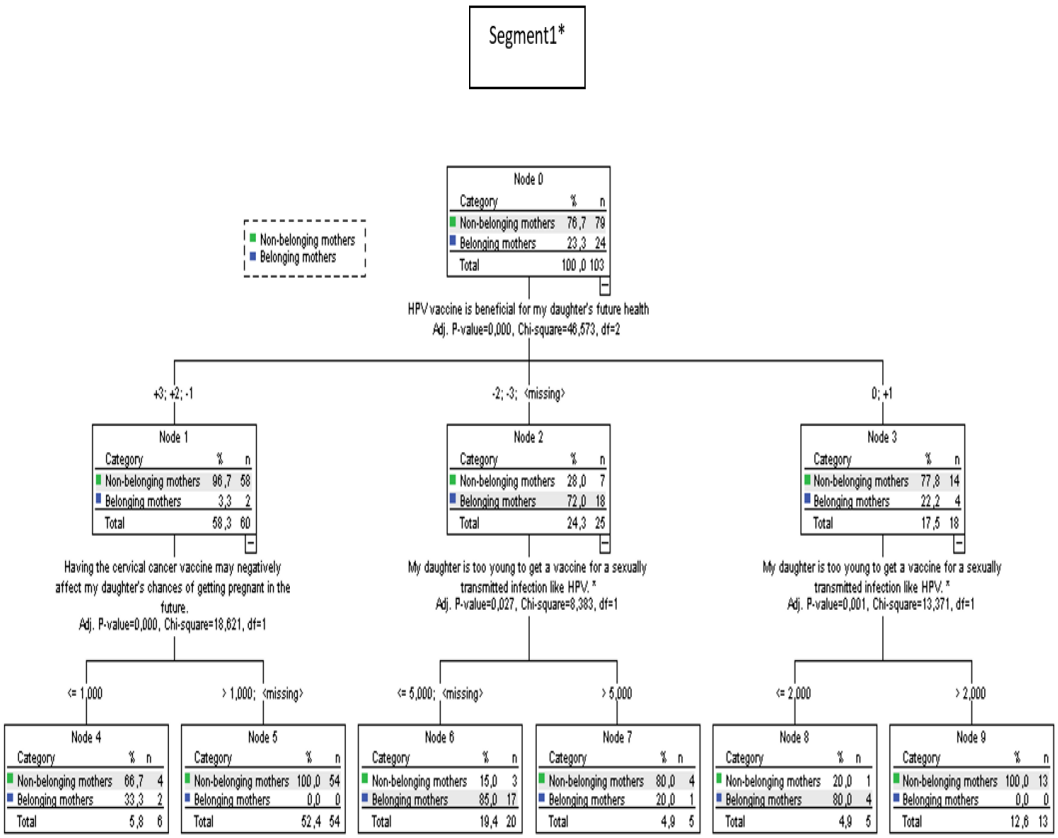
The dominant/determinant beliefs in each segment are as the following:

The majority of the mothers in Segment1 both believe that "HPV vaccine is absolutely not beneficial for their daughters' future" and "their daughters are too young to be vaccinated against a sexually transmitted disease". The mothers in general in this segment don't associate HPV vaccine with the future health of their daughters. Hence, the fundamental determinant in this segment can be said to be "a cognitive rejection".

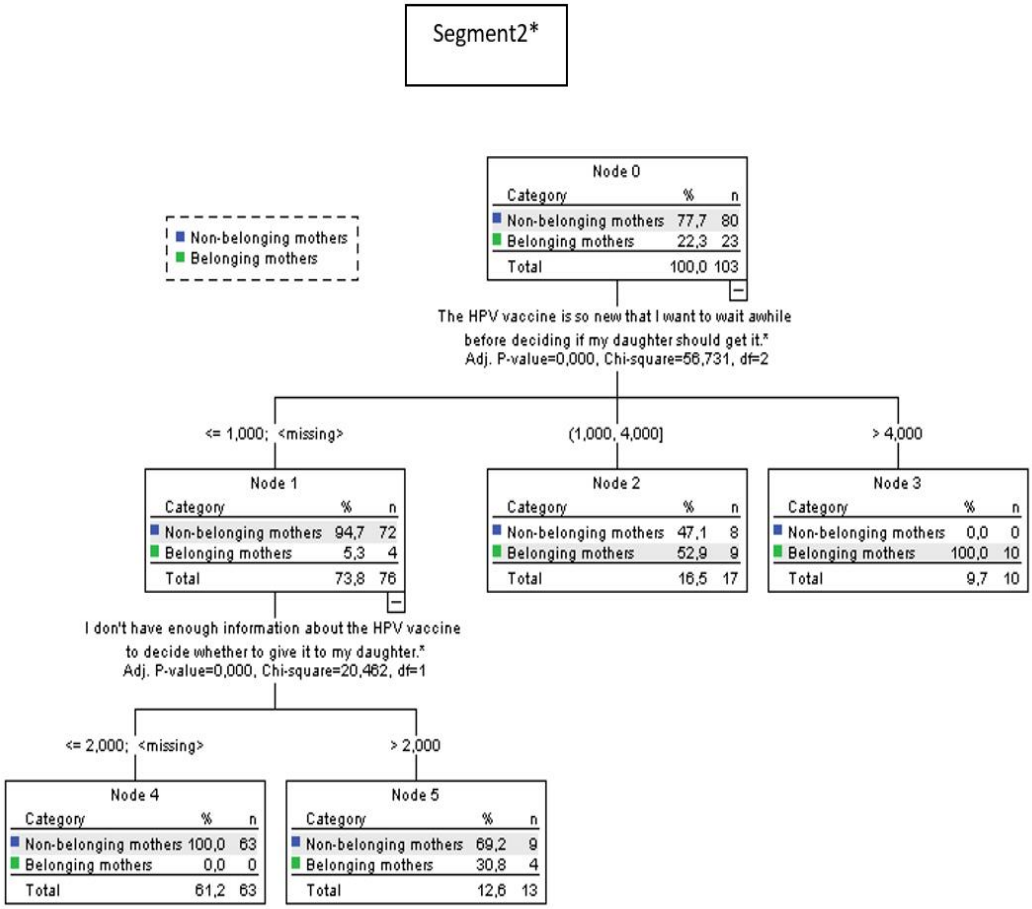
The 43% of mothers in Segment2 approached negatively to the idea that "they need to wait before they may agree to get their daughters HPV-vaccinated as HPV vaccine is new" and had a stand towards not needing to wait. Across all segments the same ratio equals to 76%. Hence, the mothers in this segment can be said to be more ready (or close to being ready) to get their daughters HPV-vaccinated than other segments.

The 88% of all mothers in the Segment3 believe that "they absolutely don't have enough information to decide for getting their daughters HPV-vaccinated" or "they don't know whether their information is sufficient for such a decision". Meanwhile, the 76% of these (same) mothers also support that "all girls going through puberty should get HPV vaccine". Neverthless, in majority, they think that "the HPV vaccine is yet new" and absolutely wish to wait before they decide about getting their daughters HPV-vaccinated or respond to saying "i don't know" to that belief.

The 71% of all mothers in Segment4 have a notr or negative opinion about the safeness of HPV vaccine. However, the same mothers also believe that HPV vaccine would protect their daughters against cervical cancer. The other 29% of the mothers in this segment, while considering that HPV vaccine is safe, think that getting their daugters HPV vaccinated may negatively affect her daughter's chances of getting pregnant in the future. The hesitation (fear) about possible side effects of HPV vaccine can be thought to effect the mothers in this segment. Hence, the most influencial determinant in this segment can also be thought to be "an emotional rejection".



* All the evaluations about the beliefs are polarized. Therefore, the scores of +3 or 7 indicate that the belief has been evaluated in a positive way towards performing the behavior.



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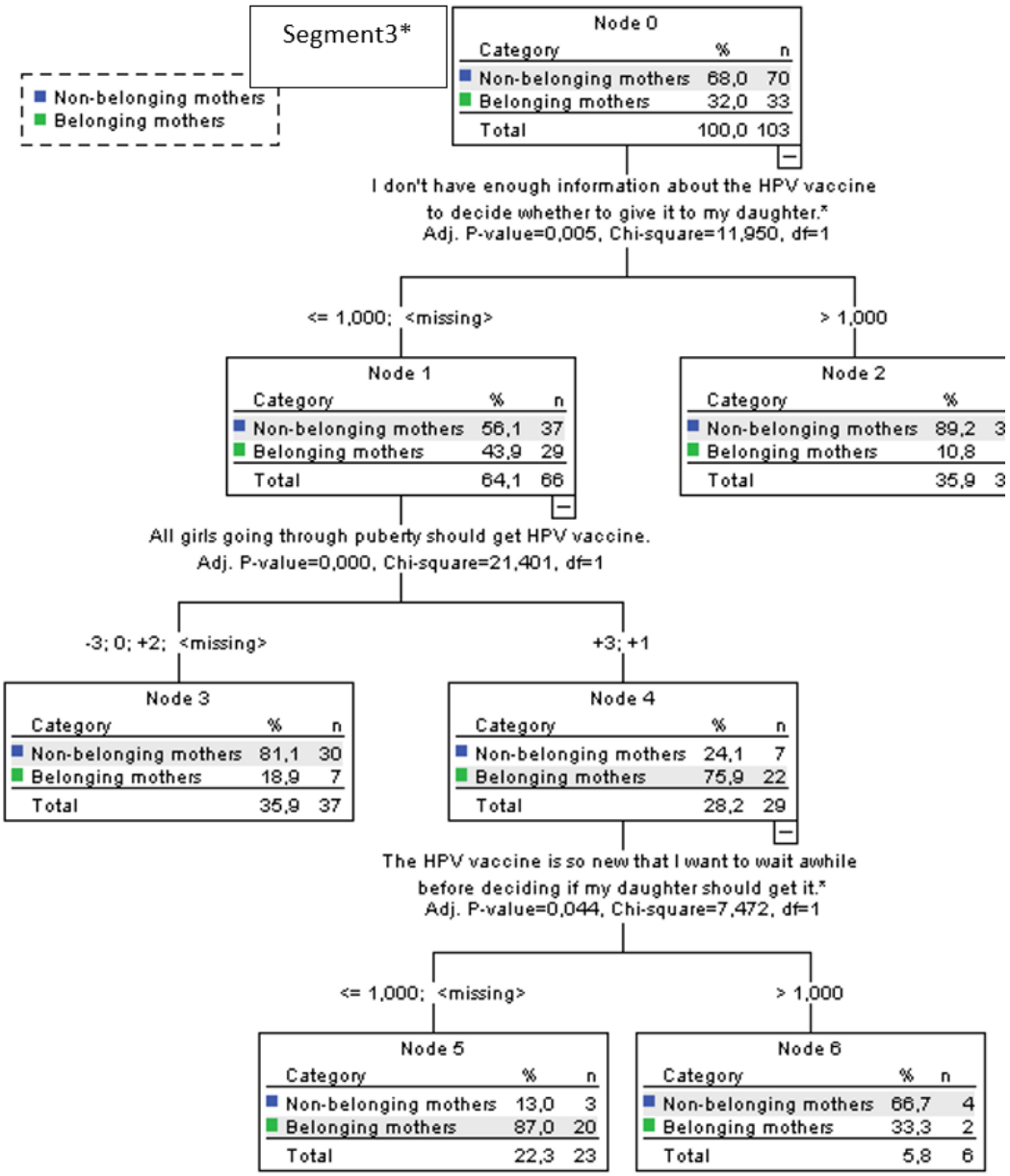
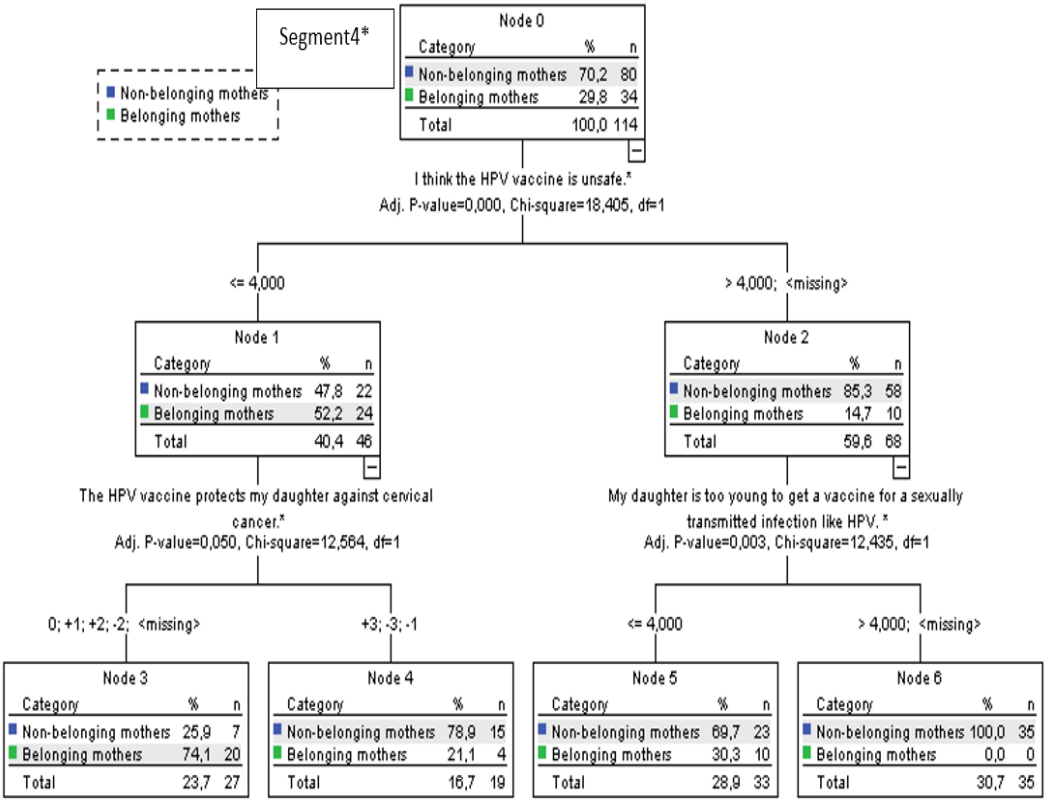


* All the evaluations about the beliefs are polarized. Therefore, the scores of +3 or 7 indicate that the belief has been evaluated in a positive way towards performing the behavior.



* All the evaluations about the beliefs are polarized. Therefore, the scores of +3 or 7 indicate that the belief has been evaluated in a positive way towards performing the behavior.

3. 3. 4. Comparison of the segments of their reactions to proposed messages (the evaluation of the persuasivenesses of the messages among the segments)

In Table8, any possible differences among the evaluations of various segments towards the persuasiveness of the proposed (campaign) messages are studied. One-way ANOVAs are used for this inquiry.

Table8: The Persuasivenesses of the proposed messages (within the same message)*

Messages	Segments	N	Mean
Get your daughter HPV-vaccinated in order to be a healthy mother in the future	1[a]	22	4
	4[a]	33	4,15
	3[b]	31	5,68
	2[b]	21	5,81
	Total	107	4,89
For the complete health of your daughter in her coming life, have her HPV vaccinated	1[a]	23	3,83
	4[a,b]	33	4,85
	2[b]	23	5,48
	3[b]	31	5,74
	Total	110	5,02
HPV vaccine protects your daughter against cervical cancer	1[a]	21	4,57
	4[a,b]	31	5,52
	2[a,b]	23	6,04
	3[b]	32	6,19
	Total	107	5,64
Protect your daugter against cervical cancer at an early age	1[a]	24	4,63
	4[a]	34	5,59
	2[a]	23	5,91
	3[a]	32	6,13
	Total	113	5,6
In order to protect your daughter's future, get her HPV-vaccinated	1[a]	23	4,74
	4[a,b]	33	5,18
	2[a,b]	23	5,96
	3[b]	31	6,13
	Total	110	5,52
You can consider the importance of being protected against cervical cancer for both yourself and your family but your children (daughters) can't	1[a]	21	5,67
	4[a]	33	5,94
	2[a]	23	6,13
	3[a]	31	6,58
	Total	108	6,11

Table8 (continued): The Persuasivenesses of the proposed messages (within the same message)*

Messages (continued)	Segments	N	Mean
Do your part to prevent cervical cancer	1[a]	23	5,43
	4[a]	33	5,85
	2[a]	23	6,04
	3[a]	32	6,63
	Total	111	6,03
Strengthen your daughter for the life	1[a]	24	5,38
	4[a]	33	5,55
	2[a]	23	6,09
	3[a]	32	6,56
	Total	112	5,91
By HPV vaccine, now a cancer is less threatening for your daughter	1[a]	23	5
	4[a,b]	34	6,09
	2[a,b]	23	6,35
	3[b]	30	6,5
	Total	110	6,03
HPV vaccine is a privilege which you had not had when you were at your daughter's age but you can now provide to her	1[a]	24	4,75
	4[a,b]	34	6,15
	2[b]	22	6,5
	3[b]	31	6,65
	Total	111	6,05
Whereas many childhood and adolescent vaccines are for some now rare diseases, HPV is a very common virus which sexually active teens can easily get. By HPV vaccine, take your precaution against this virus from now on	1[a]	24	4,92
	4[a,c]	34	5,82
	2[b,c]	23	6,43
	3[b]	32	6,69
	Total	113	6

The means of the persuasivenesses of the messages in each segment (except the message of: "get your daughter HPV-vaccinated in order to be a healthy mother in the future) pursued an order or pattern as: **segment1 <segment4 <segment2 <segment3**. However the means of the persuasivenesses of the following messages did not differ significantly among the segments (p>, 05):

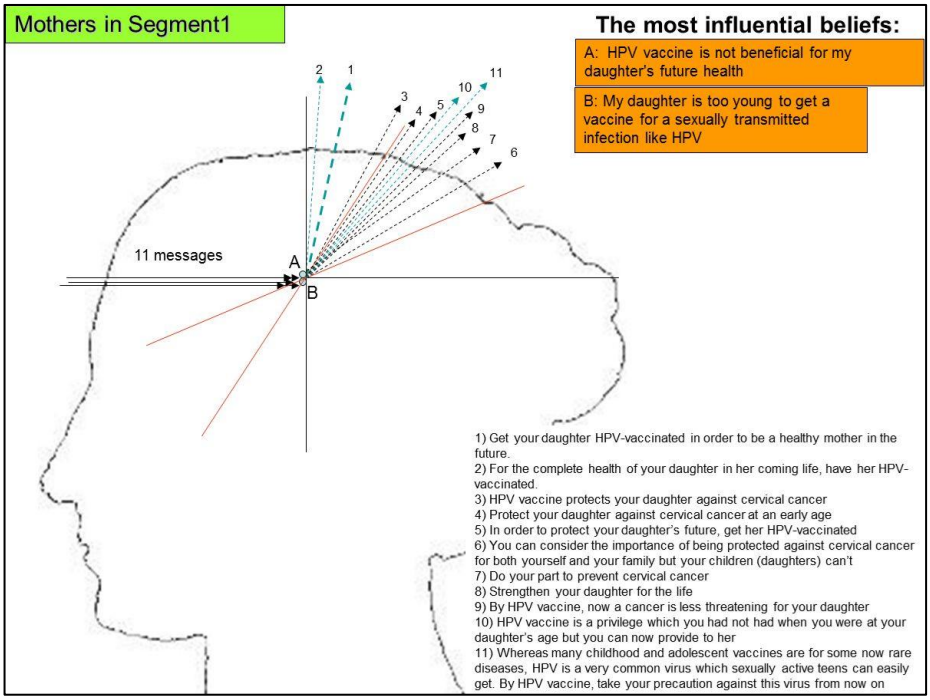
"Protect your daugter against cervical cancer at an early age"

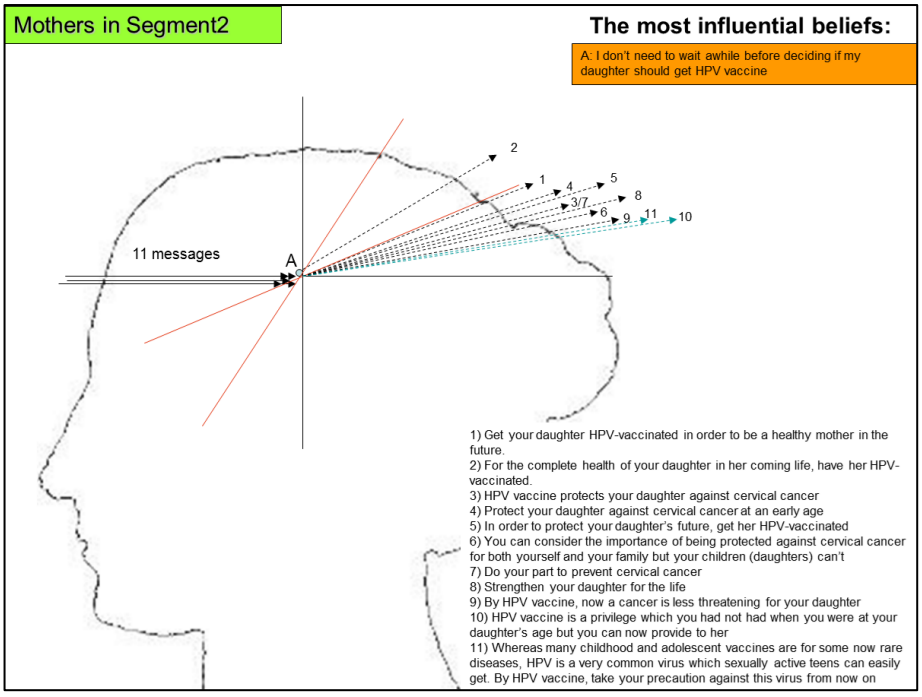
"You can consider the importance of being protected against cervical cancer for both yourself and your family but your children (daughters) can't"

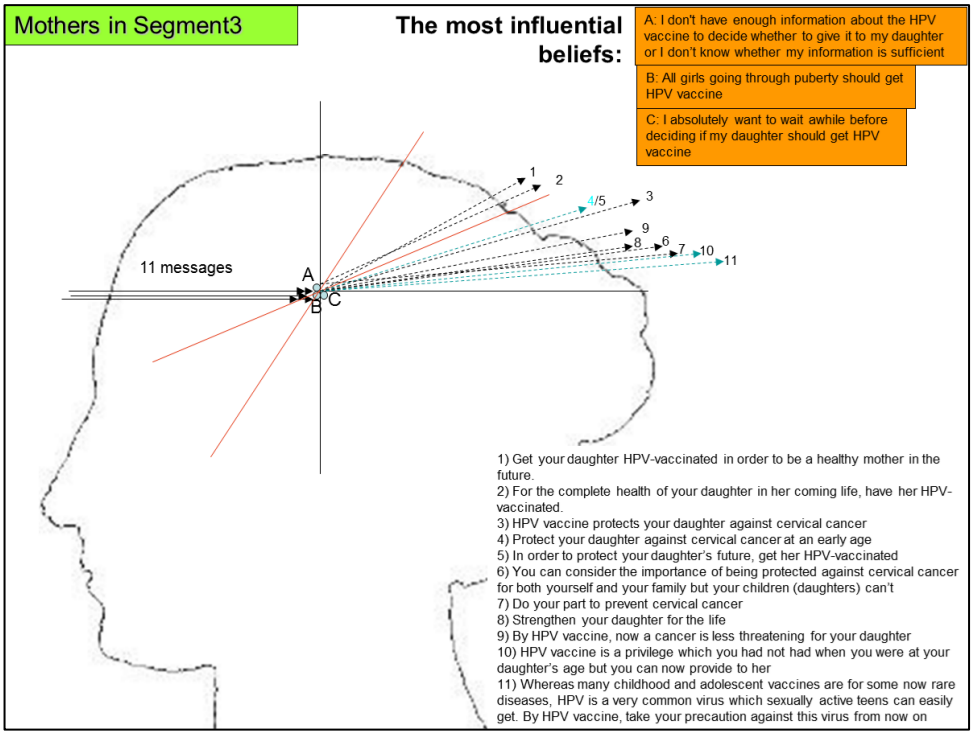
"Do your part to prevent cervical cancer"

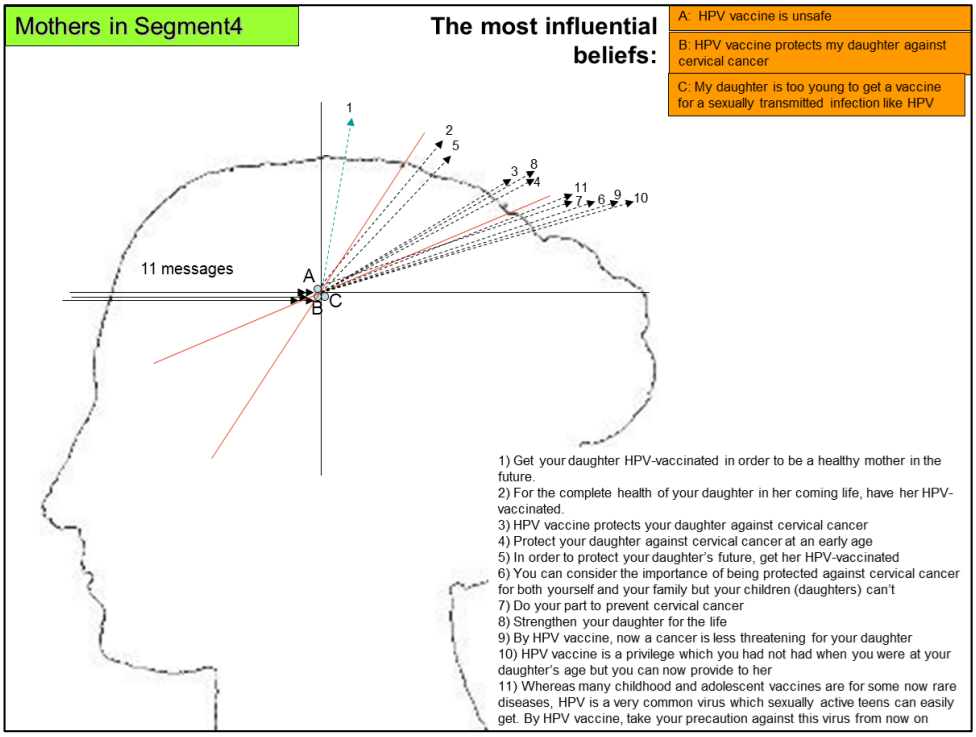
"Strengthen your daughter for the life"

Figure1: Visualizations of the persuasivenesses of proposed (campaign) messages in each segment






Mothers in Segment3
The most influential beliefs:
A: I don't have enough information about the HPV vaccine to decide whether to give it to my daughter or I don't know whether my information is sufficient
B: All girls going through puberty should get HPV vaccine
C: I absolutely want to wait awhile before deciding if my daughter should get HPV vaccine
11 messages
A
B
C
1
2
4/5
3
9
8
6
7
10
11
1) Get your daughter HPV-vaccinated in order to be a healthy mother in the future.
2) For the complete health of your daughter in her coming life, have her HPV-vaccinated.
3) HPV vaccine protects your daughter against cervical cancer
4) Protect your daughter against cervical cancer at an early age
5) In order to protect your daughter's future, get her HPV-vaccinated
6) You can consider the importance of being protected against cervical cancer for both yourself and your family but your children (daughters) can't
7) Do your part to prevent cervical cancer
8) Strengthen your daughter for the life
9) By HPV vaccine, now a cancer is less threatening for your daughter
10) HPV vaccine is a privilege which you had not had when you were at your daughter's age but you can now provide to her
11) Whereas many childhood and adolescent vaccines are for some now rare diseases, HPV is a very common virus which sexually active teens can easily get. By HPV vaccine, take your precaution against this virus from now on


Mothers in Segment4
The most influential beliefs:
A: HPV vaccine is unsafe
B: HPV vaccine protects my daughter against cervical cancer
C: My daughter is too young to get a vaccine for a sexually transmitted infection like HPV
11 messages
A
B
C
1
2
5
3
8
4
11
7
6
9
10
1) Get your daughter HPV-vaccinated in order to be a healthy mother in the future.
2) For the complete health of your daughter in her coming life, have her HPV-vaccinated.
3) HPV vaccine protects your daughter against cervical cancer
4) Protect your daughter against cervical cancer at an early age
5) In order to protect your daughter's future, get her HPV-vaccinated
6) You can consider the importance of being protected against cervical cancer for both yourself and your family but your children (daughters) can't
7) Do your part to prevent cervical cancer
8) Strengthen your daughter for the life
9) By HPV vaccine, now a cancer is less threatening for your daughter
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11) Whereas many childhood and adolescent vaccines are for some now rare diseases, HPV is a very common virus which sexually active teens can easily get. By HPV vaccine, take your precaution against this virus from now on

Conclusion

According to the findings, all research hypotheses are accepted.

To conclude, inthe context of our case study, although we have divided the sample into four different segments, due to the high amount of the unknown about HPV vaccines yet it may be more appropriate to target three segments in such a communication campaign:

The mothers who, while having many unknown information about HPV vaccine, are surely regarding the vaccine as unnecessary for their daughters and not wanting to get their daughters HPV-vaccinated (**segment1**)

The mothers who have generally high information about HPV vaccine and want to get her daughter HPV-vaccinated, however needing complementary information such as how, when and where to get the vaccine (**segment2**) and the mothers who, while not having as much information as the segment2 about HPV vaccine, having a positive look for getting her daughter HPV-vaccinated (**segment3**)

The mothers who, while having generally high information about HPV vaccine, don't have enough motivation to get their daughters HPV-vaccinated (**segment4**)

Therefore, the persuasive communication strategy and tactics that should (not) be developed for these segments may be the following:

By using peripheral route, choosing not to use a message content matching with the health of their daughters and choosing a message content which does not directly make reference to 'perceived risk of being infected by HPV'

(the most persuasive message according to the mothers in segment1 is: "You can consider the importance of being protected against cervical cancer for both yourself and your family but your children (daughters) can't. " The average persuasiveness for this message in this segment (5, 67) is significant different within all messages (p<, 05) but not within the segments (p>, 05).

By using the central route, determining the message contents which provides both general (aiming to increase the knowledge level about cervical cancer or HPV vaccine) and complementary (about the skills) information

By using the peripheral route, emotionally-driven messages which help to increase perceived risk of being infected by HPV or perceived value of HPV vaccine

The findings may help to foresee the (un)persuasiveness of alternative messages designed for large audiences, groups or individuals. The findings can be applied to many diverse fields of communication sciences such as: from health communication campaigns to patient-physician communication, from development of educational materials to patient- family communication in the field of health communication; deciding about the (un)appropriate message contents of advertising campaigns; scriptwriting; poster titles; deciding the (un)appropriate message contents of

interactive, digital or new media; deciding about the appropriate newspaper headlines, writing the news story; developing printed public relations tools.

References

[1] Ajzen, I. , & Fishbein, M. (1980). Understanding attitudes and predicting social behaviors. Englewood Cliffs: Prentice Hall.

[2] Ajzen, I. , Albarracin, D. , & Hornik, R. (2007). Prediction and change of health behavior-applying the reasoned action approach. Mahvah, New Jersey: Lawrence Erlbaum Associates Publishers.

[3] Albrecht, T. L. , & Bryant, C. (1996). Advances in segmentation modeling for health communication and social marketing campaigns. Journal of Health Communication, 1, p. 58-68.

[4] ASCOR (Amsterdam School of Communication Research). (2007). The research project topic announced for application to be studied by candidates in the web site. Indeed, while the second author had been considering to study such a subject, saw this topic in ASCOR's web site which have helped him focus his mind on the study field and choose the same topic/subject to study in his PhD thesis afterwards.

[5] Askelson, N. M. , Campo, S. , Lowe, J. B. , Smith, S. , Dennis, L. K. , & Andsager, J. (2010). Using the theory of planned behavior to predict mothers' intentions to vaccinate their daughters against HPV. The Journal of School Nursing, 26(3), p. 194-202.

[6] Bandura, A. (1977). *Social learning theory.* Englewood Cliffs: Prentice Hall.

[7] Bir, A. A. (1992). Trafik güvenliğinde algılanan yakalanma riskini yükseltici iletişim kampanyaları. Eskişehir'de bir araştırma (Communication campaigns for increasing perceived risk of apprehension in traffic safety. A research in Eskişehir) (Unpublished doctoral dissertation). Anadolu University, Institute of Social Sciences.

[8] Brabin, L. , Roberts, S. A. , Farzaneh, F. , & Kitchener, H. C. (2006). Future acceptance of adolescent human papillomavirus vaccination: A survey of parental attitudes. Vaccine, 24, p. 3087–3094.

[9] Cakir, V. (2007). Tüketici ilgilenimini ölçmek (Measuring the consumer involvement), Selçuk İletişim (Academic Journal of Selcuk University Faculty of Communication), 4(4), p. 163-180.

[10] Cappella, J. N. (2006). Integrating message effects and behavior change theories: Organizing comments and unanswered questions. Journal of Communication**,** 56, 265-279.

[11] Charo R. A. (2007). Politics, parents, and prophylaxis-mandating HPV vaccination in the United States. The New England Journal of Medicine, 356(19), p. 1905–1908.

[12] Clark, R. A. , & Stewart, R. (1971). Latitude of rejection as a measure of ego involvement. Communication Monographs, 38 (3), p. 228 -234.

[13] Constantine, N. A. , & Jerman, P. (2007). Acceptance of human papillomavirus vaccination among Californian parents of daughters: A representative statewide analysis. Journal of Adolescent Health, 40(2), p. 108-115.
[14] Costar, H. (2007). Creating persuasive health messages: Consideration of future consequences and intention to pursue vaccination against human papillomavirus (Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, Doctor of Philosophy).
[15] Dempsey, A. F. , Zimet, G. D. , Davis, R. L. , & Koutsky, L. (2006). Factors that are associated with parental acceptance of human papillomavirus vaccines: A randomized intervention study of written information about HPV. Pediatrics, 117(5), p. 1486-1493.
[16] Fishbein M. , & Cappella J. N. (2006). The role of theory in developing effective health communications. Journal of Communication, 56, p. 1-17.
[17] Gamble, H. L. , Klosky, J. L. , Parra, G. R. , & Randolph, M. E. (2010). Factors influencing familial decision making regarding human papillomavirus vaccination. Journal of Pediatric Psychology, 35(7), p. 704–715.
[18] Hartwick, J. , & Barki H. (1994). Explaining the role of user participation in information system use. Management Science, 40(4), p. 440-465.
[19] Herzog, T. J. , Huh, W. K. , Downs, L. S. , Smith, J. S. , & Monk, B. J. (2008). Initial lessons
[20] learned in HPV vaccination. Gynecologic Oncology, 109, p. 4-11.
[21] Kasprzyk, D. , & Montaño, D. E. (2007). Application of an integrated behavioral model to understand HIV prevention behavior of high-risk men in rural Zimbabwe. In I. Ajzen, D. Albarracin & R. Hornik (Eds.), *Prediction and change of health behavior-applying the reasoned action approach* (p. 149-172). Mahvah, New Jersey: Lawrence Erlbaum Associates Publishers.
[22] Katz, D. (1960). The functional approach to the study of attitudes. Public Opinion Quarterly, 24(2), p. 163-204.
[23] Kreuter, M. W. , & Strecher, V. J. (1996). Do tailored behavior change messages enhance the effectiveness of health risk appraisal? Results from a randomized trial. Health Education Research, 11(1), p. 97-105.
[24] Kreuter, M. W. , Bull, F. C. , Clark, E. M. , & Oswald, D. L. (1999). Understanding how people process health information: a comparison of tailored and nontailored weight-loss materials. Health Psychology, 18(5), p. 487-494.
[25] Kreuter, M. W. , & Skinner, C. S. (2000**).** Tailoring: What's in a name. Oxford University Press, 2000, 1-4.
[26] Kreuter, M. W. , & Wray, R. J. (2003). Tailored and targeted health communication: Strategies for enhancing information relevance. American Journal of Health Behavior, 27(3), p. 227-232.
[27] Krech, D. , & Crutchfield, R. S. (1967). *Theory and problems of social psychology* (E. Gucbilmez, O. Onaran, Trans.). Ankara: Türk Siyasi İlimler Derneği (Original work published 1967).

[28] Kreuter, M. W. , Caburnay, C. A. , Chen, J. J. , & Donlin, M. J. (2004). Effectiveness of individually tailored calendars in promoting childhood immunization in urban public health centers. American Journal of Public Health, 94(1), p. 122-127.

[29] Krishnatray, P. K. , & Melkote, S. R. (1998). Public communication campaigns in the destigmatization of leprosy: A comparative analysis of diffusion and participatory approaches. A case study in Gwalior, India. Journal of Health Communication, 3, p. 327-344.

[30] Logan, R. A. (2004). Evaluating consumer informatics: Learning from health campaign research. Amsterdam: IOS Pres. , p. 1147-1151.

[31] Maibach, E. W. , Maxfield, A. , Ladin, K. , & Slater, M. (1996). Translating health psychology into effective health communication: The American healthstyles audience segmentation project. Journal of Health Psychology, 1(3), p. 261-277.

[32] Marlow, L. A. , Waller, J. , & Wardle, J. (2007). Parental attitudes to pre-pubertal HPV vaccination. Vaccine, 25, 1945–1952.

[33] **Mays,** R. M. **, Sturm L. A. ,** & **Zimet, G. D. (2004).** Parental perspectives on vaccinating children against sexually transmitted infections. Social Science and Medicine, 58(7)**,** p. 1405-1413.

[34] McRee, A. L. , Brewer, N. T. , Reiter, P. L. , Gottlieb, S. , & Smith, J. S. (2010). The Carolina HPV immunization attitudes and beliefs scale (CHIAS): Scale development and associations with intentions to vaccinate. Sexually Transmitted Diseases. PMID: 19940807.

[35] Montaño, D. E. , & Kasprzyk, D. (2008). Theory of reasoned action, theory of planned behavior and the integrated behavioral model. In K. Glanz, B. K. Rimer & K. Viswanath (Eds.), *Health behavior and health education: Theory, research and practice* (p. 67-96). San Francisco: Jossey-Bass.

[36] Munoz, N. , Bosch, F. X. , De Sanjose, S. , Herrero, R. , Castellsague, X. , Shah, K. V. , Snijders, P. J. F. , & Meijer, C. J. L. M. (2003). Epidemiologic classification of human papillomavirus types associated with cervical cancer. N Engl J Med, 348(6), p. 518-527.

[37] Noar, S. M. (2006). A 10-year retrospective of research in health mass media campaigns: Where do we go from here?". Journal Of Health Communication, 11, p. 21-42.

[38] O'Keefe, D. J. (2002). Persuasion: Theory and research, (2. Ed.). London: Sage Publications, Inc.

[39] Ozarmagan, G. , & Topkarci, Z. (2006). Human papillomavirüs aşıları (Human papillomavirus vaccines). Ankem Dergisi. 20(Suppl. 2), p. 56-61.

[40] Pfau, M. , Tusing, K. J. , Lee, W. , Godbold, L. C. , Koerner, A. , Penaloza, L. J. , Hong, Y. , & Yang, V. S. (1997). Nuances in inoculation: The role of inoculation approach, ego involvement, and message processing disposition in resistance. Communication Quarterly, 45(4), p. 461-481.

[41] Proschaska, J. O. , DiClemente, C. C. , & Norcross, J. C. (1992). In search of how people change: Application to addictive behaviors. American Psychology, 47, p. 110-114.
[42] Reiter, P. L. , Brewer, N. T. , Gottlieb, S. , McRee, A. L. , & Smith, J. S. (2009). Parents' health beliefs and HPV vaccination of their adolescent daughters. Social Science & Medicine. 69(3): 475-480. PMID: 19540642. [Article abstracted in Perspectives on Sexual and Reproductive Health. 2010. 42(1): 65-66].
[43] Rice, R. E. , & Atkin, C. K. (2013). Public communication campaigns, 4. Ed. Thousand Oaks, CA: Sage.
[44] Rimer, B. K. , & Kreuter, M. W. (2006). Advancing tailored health communication: A persuasion and message effects perspective. Journal of Communication, 56, p. 184-201.
[45] Roberts, M. E. , Gerrard, M. , Reimer, R. , & Gibbons, F. X. (2010). Mother-daughter communication and human papillomavirus vaccine uptake by college students. Pediatrics, 125(5), p. 982–989.
[46] Salman, N. (2007). İnsan papillomavirus aşısı (Human papillomavirus vaccine). Ankem Dergisi, 21(Suppl. 2), p. 99.
[47] Sherif, M. , & Cantril, H. (1947). The psychology of ego-involvements, social attitudes and identifications. Hoboken. NJ, ABD: John Wiley & Sons.
[48] Sherif, C. W. , Sherif M. , & Nebergall, R. E. (1965). Attitude and attitude change: The social judgement—involvement approach. Philadelphia: Saunders.
[49] Smith, S. W. , Atkin, C. K. , Martell, D. , Allen, R. , & Hembroff, L. (2006). A social judgment theory approach to conducting formative research in a social norms campaign. Communication Theory, 16, p. 141-152.
[50] Somer, A. (2009). Human papillomavirus aşıları (Human papillomavirus vaccines). Ankem Dergisi, 23(Suppl. 2), p. 96-101.
[51] Stephenson, M. T. , Holbert, R. L. , & Zimmerman, R. S. (2006). On the use of structural equation modeling in health communication research. Health Communication, 20(2), p. 159-167.
[52] Slater, M. D. (1999). Integrating application of media effects, persuasion and behavior change theories to communication campaigns: A stages-of-change framework. Health Communication, 11(4), p. 335-354.
[53] Suggs, L. S. (2006). A 10-year retrospective of research in new technologies for health communication. Journal of Health Communication, 11(1), p. 61-74.
[54] Walker, C. L. (2009). Attitudes, practices, and beliefs about human papillomavirus vaccine among young adult African-American women: Implications for effective implementation. PhD Thesis, University of North Carolina, Chapel Hill.
[55] Ward, H. (2003). The effect of ego involvement on health news processing. International Communication Association, Annual Meeting, Conference Papers, San Diego, CA, p. 1-24.

[56] Zimet, G. D. , Liddon, N. , Rosenthal, S. L. , Lazcano-Ponce, E. , & Allen, B. (2006). P**sychosocial aspects** of **vaccine acceptability. Vaccine**, 24(3), p. 201-209.

[57] Zimet, G. D. , Mays, R. M. , Winston, Y. , Kee, R. , Dickes, J. , & Su, L. (2000). Acceptability of human papillomavirus immunization. Journal of Women's Health and Gender-Based Medicine, 9(1), p. 47-50. http://www. rahimagzikanseri. org