

Situation and Personality Effects on Smokers'

Psychological Reactance

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ABSTRACT

This paper tries to investigate the situational and personal aspects that may trigger smokers' psychological state reactance. It was hypothesized that situational factors, such as perceived threat to freedom and perceived loss of control which are supposed to be triggered by an anti-smoking persuasive message, and a personality pattern, such as trait reactance proneness, predict the psychological state reactance. An experiment and a survey were conducted on a random sample of 352 smoking students in two Tunisian business schools. Four anti-smoking print ads, with two different levels of negative emotional intensity, were manipulated. The findings depict the importance of the anti-smoking ads with a high negative emotional intensity, the perceived threat to freedom and trait reactance proneness in the smokers' psychological reactance prediction.

Keywords: *Partial Least Square, Persuasion, Self-Control, Smoking, Structural Equation Modeling.*

In spite of the increasingly emerging literature focusing on persuasive message effectiveness, several persuasion-related issues are having not received sufficient scholarly attention and need to be further addressed. Recent research highlights the importance of incongruity between an individual's prior expectations and the content of a persuasive message (Nesterkin, 2013). This mismatch is mainly related to the individual disagreement with the persuasive attempts especially when the persuasive message is perceived to be characterized by constraints in terms of choice, thinking and behavioral freedoms (Seltzer, 1983). Accordingly, hardly has the problem of freedom been discussed in marketing literature because people are always considered as free by nature (Darpy and Allaz, 2006). However, freedom is one of the most vitally important human values (Jonas et al, 2009) that can be restricted. In fact, people want to maintain their freedom of thought, feeling and action (Donnell et al, 2001). The protection motivation theory and threat avoidance theory advocate in this sense that individuals tend to take adaptive

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protective measures whenever they perceive a threat (Ilie, 2013). In this respect, they often show an aversion toward losses and they may experience psychological reactance (Edwards et al, 2002). Bhattacharjee (2010) emphasizes that psychological reactance is a mechanism critical to individual functioning and it is a crucial avenue for future consumer behavior research. The theory of psychological reactance (Brehm, 1966) suggests that persuasion can arouse motivation for avoidance of any advocated idea (Darpy and Allaz, 2008). In this respect, psychological reactance appears as a construct that may have multiple implications in several persuasion fields (Buboltz et al, 2003). Furthermore, reactance theory might be profitably applied to understanding failures in persuasive health communication (Dillard and Shen, 2005). It seems to be best suited to the anti-smoking persuasion context especially with the increasingly high rate of reluctant smokers and an increasing tendency to reject anti-smoking messages. Indeed, the World Health Organization (WHO) emphasizes that, despite the decrease of smoking rate in Tunisia over the past five last years or so, this rate is still high. This phenomenon has become increasingly worrying for the Tunisian society and attracted social researchers' and practitioners' attention. Previous research found that the increasing consumption of cigarettes reflects high resistance to anti-smoking persuasion. Furthermore, a wide range of studies have been conducted on resistance to persuasion to better understand the reasons for which smokers reject anti-smoking persuasive messages (e.g.. Knowles and Linn, 2004).

At this stage, one may ask how people become reactant toward anti-smoking persuasive messages. The marketing literature highlights, in this regard, the existence of several situational and personality factors that may explain the psychological reactance process (Silvia, 2006).

This research tries to investigate, through a theoretical overview and an empirical study, the smokers' psychological reactance process by integrating situational and dispositional predictors of reactance.

THEORETICAL BACKGROUND

To bring more insight on the psychological reactance mechanism, an understanding of reactance extent, as well as, its predictors is quite important for social marketers.

Psychological reactance

Freedom is the essential tenet of the theory of psychological reactance which is derived from the free-choice paradigm (Brehm, 1966). Freedom is defined as a person's belief in their ability to engage in a certain behavior and to decide on the type of behavior, as well as how and when it should be performed (Brehm and Brehm, 1981). It is treated as an unconstrained ability to choose from any available alternatives, and any attempt to either eliminate or curtail the alternatives may present a threat to freedom (Kim et al., 2014). In this sense, psychological reactance refers to the counterforce to a threat to freedom (Kim et al., 2014) and is considered as a motivational state directed toward the re-establishment of free behaviors that have been eliminated, reduced or threatened (Shen, 2014; Woller et al., 2007; Darpy and Allaz, 2006; Mason, 2003). Hence, researches assert that reactance is plausibly viewed as an individual

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negative reaction, an anti-conformity (Grabitz-Gniech, 1971), a counter-argumentation (Rains, 2013) and a motivation for message rejection (Mourali and Yang, 2013; Clee and Wicklund, 1980) involving a combination of affect, particularly anger, and unfavourable cognitions toward advertising (Rains and Turner, 2007; Ringold, 2002). Kim et al. (2014) define anger in this respect as a reasoned emotion ensuing unfavorable rational judgment of the counterparts' provocative speech acts. That is, the intertwined model of psychological reactance depicts reactance as an amalgam of anger and counter-argumentation (Shen, 2014; Quick et al., 2013; Rains, 2013). It provides the special case of a synergistic model of attitudes via the interplay of cognitive and affective patterns which predicts the failure of a persuasive endeavour (Kim et al., 2014). Hence, according to the theory of cognitive dissonance (Festinger, 1957), when two or more cognitions are inconsistent with one another, a disruptive state of 'dissonance' is triggered. Individuals are therefore highly motivated to cope with such awkward situation (Risen and Chen, 2010) and to do their best to maintain their internal consistency (Laurin et al., 2012). Wiium et al. (2009) state that '*Psychological reactance serves an important function in people's lives and trying to restore one's freedom may be understood as a healthy aspect*'. In this sense, psychological reactance is often regarded as one form of individual resistance that may be triggered by persuasive attempts (Knowles and Linn, 2004). The literature in psychology points out that the magnitude of psychological reactance increases as the expectancy of freedom, the importance of freedom and the proportion of threatened freedoms increase (Shen, 2014; Quick, 2013). Indeed, the expectancy of freedom includes only behaviors that can be reasonably considered as free behaviors (like smoking). The importance of freedom by implication means the importance of free behaviors which are eliminated or threatened (tobacco consumption seems a very urgent need especially for highly addicted people). The proportion of threatened freedoms reflects the number of free behaviors eliminated or threatened compared to the general amount of freedoms an individual has. Otherwise, individuals experiencing a high level of psychological reactance tend to increase preference for the eliminated option(s), derogate the message source, maintain current attitudes (Kim et al., 2014) and show high resistance to persuasion.

The situational predictors of smokers' psychological reactance

The psychological reactance process includes a variety of situational and individual factors. In this research, four main factors were studied: anti-smoking persuasive message, perceived threat to freedom, perceived loss of control and trait reactance proneness.

Anti-smoking persuasive message

Anti-smoking communication has often used highly negative emotional appeals as a main persuasive tactic to motivate smokers to quit smoking. More precisely, high fear appeals were the most operationalized technique in such a communication. Highly fearful messages are a persuasive tool that aims to evoke fear to enhance motivation for precaution. They often carry harsh, frightening and threatening pictures that may offend the audience's sensitivity. Indeed, fear appeal derives its strength from its ability to generate highly negative emotions (Eppright et

al, 2002). Although research advocates the effectiveness of the fear appeal in attitudinal and behavioral changes (Gallopel-Morvan et al, 2010; Gallopel, 2005), other researches assert that it functions as a barrier to successful persuasion (Girandola and Michelik, 2008; Dillard and Nabi, 2006). Indeed, message features such as fear appeals as well as strong, dogmatic and controlling language may increase or decrease individuals' psychological reactance (Quick et al., 2015; Shen, 2014; Laurin et al., 2012). Assael (2005) emphasizes, in this regard, that the use of fear is tough since a level of fear that is too high triggers various defensive mechanisms, such as psychological reactance. Negative emotional appeals, such as fear arousal, may evoke a combination of affective and cognitive negative evaluations (Kim et al., 2014). That is, individuals often do not recognize the negative effects exposure to messages exert on them (Varava and Quick, 2015). They may develop cognitions that cannot be in accordance with a given persuasive message (Rains, 2013). Such cognitions make them consider the influence attempt underlying the message and aiming to shape, reinforce or change attitudes, as a threat to freedom (Shen, 2014). Individuals are unlikely to feel that they will be punished if they eliminate their current behaviour (Wright and Palmer, 2012). They experience, therefore, high psychological reactance.

Perceived threat to freedom

Reactance often increases when freedom is perceived as highly limited. That is, the amount of psychological reactance is positively correlated with the amount of threatened freedom (Quick et al., 2015; Varava and Quick, 2015; Jung, 2010). The perceived threat to freedom depends on the degree of importance attached to such freedom; the more the freedom is important for the individual, the stronger the perceived threat and greater the psychological reactance would be (Varava and Quick, 2015; Jonas et al, 2009; Clee and Wicklund, 1980). The threat would be seen as such strong when the individual makes an inference that lets him perceive the threat as general, limiting all his own behaviors and likely to occur repeatedly in the future (Chartrand et al. 2007). In the same perspective, fear arousal is assumed to cause a message to be rejected since a high level of fear may make individuals perceive a loss of freedom (Girandola and Michelik, 2008). Indeed, *'although a highly negative health message source may have good intentions; the person whose freedoms are threatened or removed is unlikely to see it that way'* (Miller et al, 2007). For this reason, the perception of an advertisement as highly intrusive should be considered as a negative cognitive evaluation of the degree to which the advertisement disrupts a person's goals or freedom (Edwards et al. 2002). Furthermore, *'threats to freedom that emanate from the social-influence attempts, like persuasive messages, increase as the externally-imposed pressure to change increases'* (Clee and Wicklund, 1980). High externally-imposed pressure may be materialized in a high negative anti-smoking message that may involve pressure to change attitudes, beliefs and behaviors (Ringold, 2002). In a recent study, Quick et al. (2011) point out that exposure to television ads warning against the dangers of smoking marijuana could reasonably be perceived as a threat to a legitimate freedom, which, in turn, would stimulate reactance. Following this rationale, it seems plausible to note that an anti-smoking message with a highly negative emotional intensity makes smokers perceive a great threat to their freedom. In

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turn, a great perceived threat to freedom gives rise to the smokers' willingness to re-establish the threatened freedom of smoking and triggers high psychological reactance. Indeed, loss-frame messages produce negative emotion, such as fear, guilt and anger, which are related to a greater perception of threat to freedom and psychological reactance (Quick et al., 2015). Accordingly, we can hypothesize :

H1: *A highly negative anti-smoking persuasive message positively influences perceived threat to freedom.*

H2: *Highly perceived threat to freedom positively influences smokers' psychological (state) reactance.*

Perceived loss of control

In social psychology, the concept of freedom is frequently observed in the context of control (Jonas et al, 2009). Quick (2005) asserts, on the basis of the theory of psychological reactance, that control and freedom are intimately linked. Thus, psychological reactance can be activated due to the perceived loss of control (Dowd, 1993). Perceived loss of control can be defined as '*the degree to which a consumer feels a loss of control in conducting their own tasks due to the exposure to intrusive ads*' (Morimoto and Chang, 2006). In this sense, individuals should maintain cognitive, emotional, physical, and psychological abilities to perform the threatened or eliminated action (Quick, 2013). If an individual has control over a behavior, they are assumed to possess the necessary skills and abilities to perform such a behavior (Quick, 2005). Nevertheless, when they lose control they become more reactant, especially when they perceive that it is possible to restore their control (Miller et al, 2007; Hellman and McMillin, 1997). Yet, Brehm (in Dowd, 1993) asserts that reactance refers to control motivation. Control motivation is an internal state aimed at regaining control over an outcome (Quick, 2005). This kind of motivation is mainly due to a perceived lost or threatened control (Quick, 2005). Hence, the control motivation suggests that individuals should have control over themselves and situations (Dowd, 1993; Ringold, 2002). That is, situations may provoke unwanted marketing communication messages, such as the anti-smoking ones. As a result, smokers may feel loss of control over their own behaviors (Morimoto and Chang, 2006). As Morimoto and Chang (2006) note, '*the theory of psychological reactance suggests that when individuals frequently act counter to restrictions or pressures put upon them by external sources, they are likely to react against threats or loss of control by acting in the opposite way that was intended by the source*' (Morimoto and Chang, 2006). Yet, the use of fear is not necessarily an effective means of persuasion, but rather a cause of reactance because people do not feel able to control the highly threatening message with a set of highly manipulative and authoritarian characteristics leading people to repudiate the frightening information (Girandola and Michelik, 2008).

In sum, a highly negative anti-smoking persuasive message seemingly increases the perception of loss of control over attitudes and behaviors that leads to the activation of the smokers' psychological reactance. Accordingly, the two following hypotheses can be formulated:

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H3: *A highly negative anti-smoking persuasive message positively influences the smokers' perceived loss of control.*

H4: *A highly perceived loss of control positively influences the smokers' psychological (state) reactance.*

Trait reactance proneness as a dispositional predictor

Researchers point out that reactance theory was originally hypothesized to be situation-specific, but individuals chronically differ in terms of their levels of trait reactance proneness (Jung, 2010; Hong and Faedda 1996). Trait reactance is generally a one-dimensional construct (Hong and Faedda, 1996) that refers to a personal characteristic that people show and that can fluctuate over life stages (Miller et al, 2007). Hence, Wiium et al. (2009) define dispositional reactance as '*people's general tendency to react negatively toward any kind of threats to their behavioral freedom*'. Accordingly, reactant people tend to be aggressive, dominant, and defensive; they can take quick offensive positions; they are individualistic and they usually retain unfavourable impressions toward others (Dowd, 1993; Dowd and Wallbrown, 1993). Reactant individuals are powerful and enjoy a disproportionate access to valuable resources, such as knowledge (Friestad and Wright, 1999), and have greater control over their own and others' outcomes (Mourali and Yang, 2013). Researchers emphasize that trait reactant individuals are likely to experience state reactance due to their strong need for independence and autonomy, confrontational and rebellious behavior, and a tendency to resist authority in general (Quick et al., 2011; Shen and Dillard, 2005, Seibel and Dowd, 2001). They are often motivated by a desire to signal their independence (Mourali and Yang, 2013), show high self-esteem (Wright and Palmer, 2012) and they are less trusting, more vigilant, prone to anxiety and worry, concerned about personal control, and suspicious or distrustful of others (Woller et al., 2007; Dowd and Wallbrown, 1993). Reactant people are characterized by issue-specific competence (Wright and Palmer, 2012), show a high level of coping self-efficacy that makes them rebuff influence attempts (Bandura, 1989) and more desirability for the forbidden behavior (Moore and Fitzsimons, 2014). Dowd et al. (1994) characterized reactant individuals as being less concerned with giving a good impression to others and less likely to conform to social norms. They have a tendency to act without considering potential consequences and tend to be more interested in being themselves than accommodating to the expectations of others (Buboltz et al, 2003). Dowd et al. (1994) noted that psychologically reactant individuals are less concerned with impressing others or adhering to social norms and regulations, somewhat careless about fulfilling duties and obligations, inclined to express strong emotions and feelings, and preoccupied with possible future problems. The authors assert that dispositional reactance should be higher among smokers than among nonsmokers and should be negatively associated with positive attitudes toward tobacco control measures. Hence, Miller and Quick (2010) assume that trait reactant individuals are more inclined to use tobacco products and to engage in risky behaviors. In accordance with this rationale, it can be hypothesized that:

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H5: *Smokers' trait reactance proneness positively influences their psychological (state) reactance.*

The suggested hypotheses form a theoretical model (figure 1).

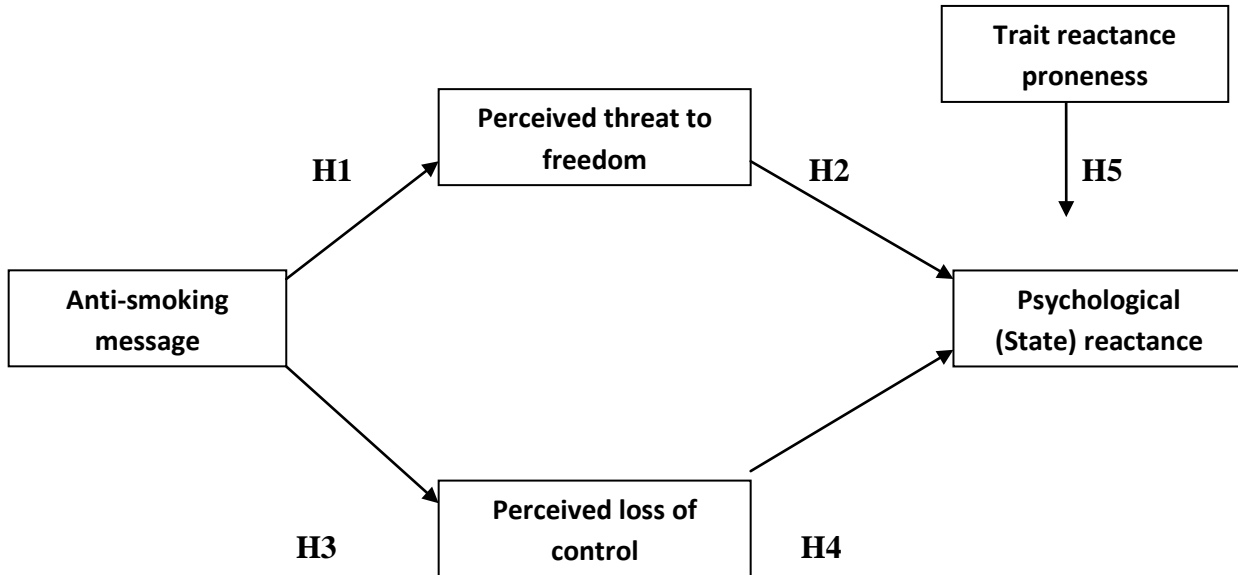


Figure 1: The research model: the psychological reactance mechanism

METHODOLOGY

To check the research model, an empirical approach was adopted. In this respect, a measurement specification and a data collection procedure were implemented.

Measures

To assess the retained constructs, four measurement scales were selected from the literature. Scale specification was performed on the basis of their previously proved psychometric qualities as well as their suitability to the context of this study. All the retained scales are 5-points Likert scales (1: *strongly disagree* and 5: *strongly agree*, see Appendix).

- *Psychological reactance*: state reactance was measured by four items which were used by Dillard and Shen (2005) and derived from the Hong's Reactance Scale of Hong and Faedda (1996). The four items reflected one dimension and had a good reliability level ($\alpha = 0.83$).

- *Trait reactance proneness*: Hong's reactance scale was used again to measure trait reactance proneness (Dillard and Shen, 2005; Hong and Faedda, 1996). More particularly, four other items forming the dispositional factor of reactance were chosen. These selected items were previously

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used by Wium et al. (2009) and showed one single factor. This subscale had a good reliability level ($\alpha = 0.79$) in the work of Dillard and Shen (2005).

- *Perceived threat to freedom*: Perceived threat to freedom was measured by four items used by Dillard and Shen (2005). These items showed one dimension (Jung, 2010) and a good psychometric quality ($M = 3.69$, $SD = 1.65$, $\alpha = 0.85$).

- *Perceived loss of control*: To assess the perceived loss of control, the Therapeutic Reactance Scale –TRS– (Dowd et al, 1991) was retained. This scale is composed of 28 items developed to measure client reactance and can be adopted to the anti-smoking context. Morimoto and Chang (2006) assert that the TRS is best suited to assess perceived loss of control in a reactance-related context. Because of their suitability for the construct meaning, only 12 items were selected to be used. The 12 selected items were the best to represent the perceived loss of control in a persuasion context.

Otherwise, a pilot study was conducted to check the psychometric qualities of the retained scales, a random sample of 80 students at graduate and undergraduate levels was recruited. Then, an exploratory factorial analysis was conducted using SPSS 19. The scales purification allowed eliminating 1 item from the trait reactance proneness scale and 2 items from the perceived loss of control scale because of their low fit quality. The exploratory analysis provided acceptable levels of KMO (> 0.6) and Bartlett sphericity indicators (Chi-square > 0 , $p=0,000$). All the scales, as predicted by the literature, were one-dimensional and indicated satisfactory levels of reliability ($\alpha > 0.75$).

Stimulus selection

Four different print ads were selected from previous research (Gallopel-Morvan et al, 2010; Gallopel, 2005). The four ads were negatively framed and supposed to evoke two different levels of negative emotional intensity (2 high vs. 2 low). The main negative emotion to be manipulated was fear arousal. The two first ads contained two highly negative images that show tobacco-related risks and smokers' vulnerability to hazardous diseases. The other two ads also contained two images that were supposed to be less negative than those of the first ads. These ads encourage smokers to quit smoking in order to escape from the potential risks of tobacco.

A pilot study was performed to check the relevance of the selected print ads. For that purpose, the 5 points' Differential Emotional Scale (Izard, 1977) was retained to measure the smokers' affective and cognitive reactions that might be induced by the print ads. More particularly, only the fear dimension, composed of 3 items (Scared, Frightened, Afraid), was measured. The four ads were tested on the aforementioned random sample of 80 student smokers.

An ANOVA (One-Way ANOVA) was performed thereafter to evaluate the differential effect of the ads on smokers. The findings showed a satisfactory mean difference between the

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participants' responses to the fear items, a significant student's t-test (>1.96) threshold and an acceptable F-test (see table 1) ; (high: M (ad 1) = 3.99 ; M (ad 2) = 3.85 ; low: M (ad 3) = 1.89 ; M (ad 4) = 1.53). The items, therefore, had a good internal consistency for the print ads (high: α (ad 1) = 0.850 ; α (ad 2) = 0.863 ; low: α (ad 3) = 0.798 ; α (ad 4) = 0.821).

Table 1: Differential effect of the print ads (ANOVA)

ANOVA F-test		High fearful print ads		Low fearful print ads	
		Print ad 1	Print ad 2	Print ad 3	Print ad 4
High fearful print ads	Print ad 1	-----	3.122 (p=0.000)	19,649 (p=0.000)	25.869 (p=0.000)
	Print ad 2	3.122 (p=0.000)	-----	23.417 (p=0.000)	31.571 (p=0.000)
Low fearful print ads	Print ad 3	19,649 (p=0.000)	23.417 (p=0.000)	-----	2.891 (p=0.000)
	Print ad 4	25.869 (p=0.000)	31.571 (p=0.000)	2.891 (p=0.000)	-----

Procedures

To collect data, an experiment and a survey were conducted face to face on a random sample of 352 student smoker belonging to two business schools (74 % males and 26 % females). The sample was divided into four groups. Each group was exposed to an anti-smoking print ad for about 2 minutes to let the participants think about the ads' content. After ad exposure, the case-study students were requested to respond to the questionnaire. After data collection, the questionnaires with missed and extreme data were eliminated from the study.

Analysis and results

To test the research model, an exploratory factor analysis was performed first. Then, a confirmatory factor analysis (CFA) was conducted through which the measurement and the structural models were assessed.

Exploratory factor analysis

An exploratory factor analysis (EFA) was performed. This analysis eliminated two other items from the perceived loss of control scale because of their low loading scores. The KMO indicators were acceptable for all the scales (> 0.6) and the Bartlett sphericity indicators were also satisfactory (Chi-square > 0 , $p=0.000$). Hence, in order to investigate the dimensionality of each scale, a principal component analysis was performed. The findings showed that all the scales were one-dimensional and had satisfactory levels of explained variance (psychological reactance: 76.33 %; perceived threat to freedom: 80.17 %; trait reactance proneness: 61.87 % and perceived loss of control: 57.66 %).

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Assessment of the measurement models

To assess the measurement models, we implemented the PLS (Partial Least Square) structural equation method. We used XLSTAT-PLS to analyse the data. Although PLS provides a relatively unbiased estimations, the method follows no distributional assumptions and does not present significance levels (Thies and Albers, 2010). In this respect, we applied a bootstrap resampling procedure with 500 iterations to have a better fit.

Reliability

The analysis showed a clear separation of items along construct lines with Eigenvalues greater than 1.0. This already suggested a high level of construct validity. Moreover, reliability was evaluated by assessing the items internal consistency of each factor using Cronbach's alpha. For each extracted dimension, Chronbach's coefficient alpha was > 0.7 which indicated satisfactory reliability as recommended by Nunnally and Bernstein (1994). Yet, we assessed the composite reliability using Dillon-Goldstein coefficient 'D.G. rho (PCA)'. The findings (table 2) showed satisfactory levels of D.G. rho (> 0.70) for all the estimated constructs in accordance with Fornell's and Larker's (1981) recommendations.

Table 2: The scales composite reliability

Latent variable	Items	Cronbach's Alpha	D.G. rho (PCA)	Eigenvalues
Psychological reactance	4	0.841	0.901	1.643
Perceived threat to freedom	4	0.813	0.888	1.271
Trait reactance proneness	3	0.759	0.821	1.116
Perceived loss of control	8	0.787	0.843	1.894

Convergent validity

Convergent validity was assessed primarily through the loadings factor generated by the PLS algorithm. Through a bootstrap resampling procedure (500 iterations), all the constructs showed high loadings within each factor which indicated good convergent validities. Secondly, we assessed convergent validity through the Average Variance Extracted (AVE). PLS analysis (Table 3) showed acceptable levels of AVE (> 0.5) for each factor in accordance with Fornell's and Larcker's (1981) recommendations, which also indicated a good convergent validity. Thirdly, the analysis provided relatively moderate levels of R^2 for all the measurement models based on Chin (1998) considerations. For R^2_{adj} , the measurement models also showed relatively moderate thresholds. Finally, the findings showed significant levels of D.G. rho of the confirmatory analysis for all the models (> 0.7), which confirmed a good convergent validity.

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Table 3: The measurement models assessment

Latent variable	R ²	Adjusted R ²	S.E	Mean Communalities (AVE)	D.G. rho
Psychological reactance	0.367	0.347	0.033	0.678	0.912
Perceived threat to freedom	0.288	0.265	0.041	0.644	0.878
Trait reactance proneness	---	---	---	0.633	0.913
Perceived loss of control	0.252	0.241	0.027	0.623	0.866
Mean	0.302			0.644	

Discriminant validity

Discriminant validity was tested on the basis of Fornell's and Larcker's (1981) approach. This approach indicates that the square root of the Average Variance Extracted (AVE) for each dimension should exceed the correlation estimate between any pair of dimensions. Hence, Fornell and Larcker (1981) point out that it is possible to assess discriminant validity by comparing AVE and the squared correlations between factors that should be < the AVE value. The results shown in table 4 confirmed good discriminant validity between all the dimensions.

Table 4: The discriminant validity assessment

	(AVE)	Psychological reactance	Perceived threat to freedom	Trait reactance proneness	Perceived loss of control
Psychological reactance	0.678	0.823*			
Perceived threat to freedom	0.644	0.233	0.802*		
Trait reactance proneness	0.633	0.273	0.167	0.795*	
Perceived loss of control	0.623	0.400	0.061	0.123	0.789*

* Square root of the AVE

Assessment of structural model

To assess the structural model, the PLS analysis provides a GoF (Goodness-of-Fit) index that should vary between 0 (model rejection) and 1 (model validation). According to the findings (Table 5), the model can be retained in accordance with Tenenhaus et al.'s (2005) recommendations (GoF=0.671 > 0.5).

Table 5: The structural model fitness

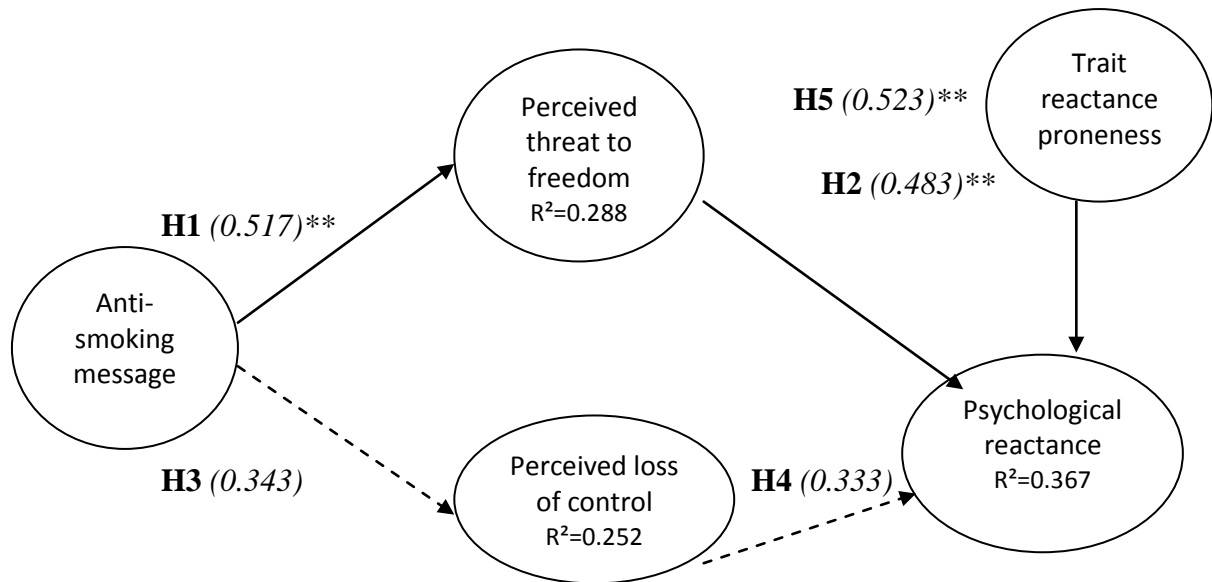
	GoF	GoF (Bootstrap)	Standard error	Critical ratio (CR)
Absolute	0.399	0.347	0.022	16.231
Relative	0.616	0.583	0.016	9.167
Outer model	0.788	0.742	0.009	33.549
Inner model	0.671	0.656	0.005	11.891

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Furthermore, the research hypotheses were tested (see figure 2 and table 6). First, the findings showed an acceptable regression weight between the print ad exposure and the perceived threat to freedom ($0.517 > 0.5$), which allowed retaining **H1**. Second, the effect of perceived threat to freedom on psychological reactance was relatively low ($0.483 < 0.5$), yet remained very close to the required threshold which could be retained. **H2** is therefore accepted. Third, the print ad seemed inefficient to make smokers perceive loss of control ($0.343 < 0.5$) and thus **H3** was refuted. Hence, perceived loss of control appeared to not have no significant effect on psychological reactance ($0.333 > 0.5$). **H4** was consequently rejected. Finally, psychological reactance seemed to be well-predicted by the trait reactance proneness ($0.523 > 0.5$). **H5** was therefore verified.

Table 6: The hypotheses verification

Hypothesis		Estimate	Path coefficient	Student T	Pr > t	Effect size f^2
H1	Print ad → Perceived threat to freedom	0.517	0.515	10.213	0.000	0.409
H2	Perceived threat to freedom → Psychological reactance	0.483	0.478	9.621	0.000	0.376
H3	Print ad → perceived loss of control	0.343	0.343	6.456	0.037	0.241
H4	Perceived loss of control → Psychological reactance	0.333	0.332	5.781	0.009	0.226
H5	Trait reactance proneness → Psychological reactance	0.523	0.523	10.467	0.000	0.428



- - - → Non-significant

— → Significant

mechanism

** p=0.000

Figure 2: The final model: the psychological reactance mechanism

DISCUSSION

The purpose of this research was to investigate smokers' psychological reactance mechanism. In light of the literature review, four main relevant factors may be integrated in the reactance process: highly negative anti-smoking message, perceived threat to freedom, perceived loss of control and trait reactance proneness. The obtained findings supported the suggested model through satisfactory thresholds of the fitness indicators. Yet, psychological reactance seemed to be predicted by the anti-smoking message, through the mediation of perceived threat to freedom, and the trait reactance. In fact, the print ad used in this study seemed effective in evoking threat to freedom that was well-perceived by the smokers under observation (**H1** was accepted). In this respect, the use of negative emotional appeals in anti-smoking print ads seemed relevant in evoking negative psychological reaction. Furthermore, the results showed a positive relationship between the perceived threat to freedom and psychological reactance (**H2** was accepted). These results confirmed the mediating role of the perceived threat to freedom in psychological reactance prediction. The findings are consistent with prior research that showed the relevance of the threat to freedom perception in the psychological reactance process (Jung, 2010; Jonas et al, 2009; Clee and Wicklund, 1980). Moreover, the analysis confirmed the psychological reactance conception as the individual negative reaction to any perceived attempt of freedom limitation or threat (Darpy and Allaz, 2006). This idea seems important for social marketing designers to better understand why Tunisian smokers reject anti-smoking advertisements. In the same perspective, the -smoking print anti ads seemed inefficient in triggering the sense of control loss (**H3** was rejected). In addition, psychological reactance seemed unaffected by the perceived loss of control (**H4** was dismissed). This result is logical since smokers did not perceive a loss of control when they were exposed to the anti-smoking ads. These results are not consistent with previous research that highlighted the importance of perceived loss of control in psychological reactance prediction (Miller et al, 2007; Hellman and McMillin, 1997; Dowd, 1993). Based on the findings, the perceived threat to freedom appeared as a unique mediator in the smokers' psychological reactance process. Finally, the psychological reactance process seemed well-explained by the trait reactance proneness (**H5** was accepted) which is in agreement with findings reported in prior research (Jung, 2010; Miller et al, 2007; Hong and Faedda, 1996). The Tunisian smokers seemed to be reactant by nature and tend to automatically reject all kinds of influence or pressure attempts.

CONCLUSION

The purpose of this research was to investigate smokers' psychological reactance process. According to the discussed results, the perceived threat to freedom, which depends on the highly negative anti-smoking message, appeared as a relevant mediator of the smokers' psychological reactance mechanism. Yet, trait reactance proneness came out as another important factor of the smokers' psychological reactance process.

This study has theoretical implications. In fact, the study has made a relevant contribution to the conceptualisation of psychological reactance, through the determination of its mechanism and its

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predictors. This seems to significantly further enrich the existing literature on psychological reactance.

The study has also managerial implications. In fact, the use of high fear appeals in the anti-smoking persuasion triggers more message refutation, materialized in the smokers' psychological reactance, rather than message acceptance. This seems quite important for social marketers to the extent that they should review their negative anti-smoking advertising tactics. More particularly, social marketers should conceive stimuli that should be less manipulative and less threatening to the smokers' freedom or attitudes toward smoking. Hence, Tunisian smokers seem to be reactant by nature. Indeed, social marketers should note that the main reason of the message refutation may be the personality type of smokers. This reasoning may be important to the extent that smokers are likely to deny the anti-smoking message to which they were exposed, not because the message is not actually manipulating or posing threat to freedom, but because they have a durable individual tendency to reject any form of pressure. This seems interesting to consider. Indeed, social marketers should conceive intelligent messages that should not contradict smokers' expectations.

This study is not without limitations. We recruited a random sample of students to test our model which seems not sufficiently representative and may affect the external validity. Hence, other factors may be investigated as potential contributors the smokers' psychological reactance process. Finally, other ad formats (TV, radio, Internet, etc) can be used to check if they really trigger smokers' psychological reactance. Future research focusing on these patterns may narrow this gap.

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APPENDIX: THE MEASUREMENT SCALES

- **Psychological reactance (Hong and Faedda, 1996)**

1. “The message makes me irritated,”
2. “The message makes me annoyed,”
3. “This message triggers a sense of resistance,”
4. “This message induces me to feel doing the opposite.”

- **Perceived threat to freedom (Dillard and Shen, 2005)**

1. “The message threatened my freedom to choose,”
2. “The message tried to make a decision form,”
3. “The message tried to manipulate me,”
4. “The message tried to pressure me.”

- **Trait reactance proneness (Hong and Faedda, 1996)**

1. “When someone tells me what to do, I feel like doing precisely the opposite”;
2. “Rules and regulations provoke some kind of resistance in me”;
3. “When somebody tells me not to do something, I react by thinking that is exactly what I want to do”;
4. “I react negatively when others try to tell me what to do.”

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- *Perceived loss of control* [Therapeutic Reactance Scale (Dowd et al, 1991)]

1. "I resent authority figures who try to tell me what to do".
2. "I have a strong desire to maintain my personal freedom".
3. "Nothing turns me on as much as a good argument".
4. "If I am told what to do, I often do the opposite".
5. "I am sometimes afraid to disagree with others".
6. "I don't mind other people telling me what to do".
7. "I am not very tolerant of others' attempts to persuade me".
8. "I often follow the suggestions of others".
9. "It is important to me to be in a powerful position relative to others".
10. "I am very open to solutions to my problems from others".
11. "I consider myself more competitive than cooperative".
12. "I usually go along with others' advice".