

Investigating The Role Of Social Marketing In Reducing The Use Of Personal Cars In City Traffics The Case Of Isfahan City

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Abstract

The usage of social marketing attitudes has been growing in social problems recently. Social marketing applies the principles of marketing to address social problems by influencing behavior change. The role of messages in social marketing is to notify people in a situation in order to change their behaviors. The purpose of this study was to investigate the relationship between social marketing messages and level of personal car usage as a traffic congestion cause. The statistical group included citizens from Esfahan, Iran that personal car was available to them. To test the main hypothesis of this research, a questionnaire was conducted to find the relation between variables mentioned above. The data was analyzed by spss software. Results demonstrated that the level of awareness about different issues of traffic congestion didn't have any relationship with people voluntary usage of personal car. In addition results revealed that information on restrictive traffic rules have relationship with rate of usage of personal car.

Keywords: Social marketing , Traffic congestion , Awareness ,personal car

1. Introduction

Traffic congestion is one of the most important issues in urban areas particularly in metropolitans. This problem becomes more widespread every day causing time and fuel to be wasted. Furthermore reduced productivity, economic costs and public health impacts can be named as other disadvantages of this social problem (Levy *et al.*,2010; Bertini, 2005). Different solutions have been applied to decrease urban traffics. Some of the solutions are based on the

infrastructures like road networks that develop the supply of the roads or release the space of roads that more vehicles can pass over it. This may include free way constructions, parking management and other like strategies. The other factor is referred to the people who use the roads and motivate them to decrease their personal car usage with plans like public transportation development and working on their driving behavior (Transport Research Centre,2007). It has been pervasively accepted that many social problems have underlying behavioral causes (Gordon et al., 2006) and car traffic as a social system can be affected by behavior of people which work with this system (Sorell,2005). Social marketing is a science which can focus on changing behaviors in order to increase society welfare(Kotler, Roberto & Lee, 2002). This study has focused on urban traffic as a social problem and the personal car usage, one of important behaviors which have impact on traffic rate,. This study desires to know if a social marketing campaign and increasing people awareness can affect people behavior and change their action in the case study.

2. Literature Review

2.1. Social marketing

Social marketing is a field which has been adapted from commercial marketing. Social marketing applies commercial marketing techniques to affect audiences voluntary behaviors by motivate people to exchange their old behavior with a new one (Rothschild,1999). Actually social marketing applies marketing principles to change socially beneficial behaviors(Grier & Bryant, 2005).Social marketers persuade audiences to accept a new behavior, reject potential behavior, modify current behavior, and behavior change (Kotler, Roberto & Lee, 2002). So the main subject of social marketing is change. Social marketing has some unique characteristics. First of all the emphasize of this science is the fact that changing behavior is voluntary and people decide whether they want to change their action or not. Second is the use of exchange concept which will be discussed later. Third is applying tools of commercial marketing such as marketing mix. At last it doesn't profit individuals or organization but its ultimate goal is social welfare(Houston and Gassenheimer, 1987; MacFadyen et al., 2002).

Decision-making process to change a behavior in social marketing is affected by rational models of decision making. In fact when a person wants to decide about a behavior change it is similar to his or her decision making about buying a car that beforehand he or she compare costs and benefits of the purchase. As like as the commercial marketing in the social marketing people compare the benefits that they acquire in the new behavior with the costs that they lose when they want to change their behaviors (Peattie and Peattie,2003).

There are different ways to acquire behavior change. Education and regulation can be named as two effective ways proposed by public health science. Education is a way for changing behavior in peoples who change their behavior by awareness but regulation is another way to compel people who awareness cannot change their behavior. Social marketing can help to mix these two approaches in order to convince people to accept a new behavior and help people to identify their behavior barriers (Maibach et al., 2002). To identify the barriers to the audiences

and encourage them to overcome these barrier, social marketing works based on some theories and tools which is derived from social sciences and commercial marketing.

One of the most important theories that has been taken from commercial marketing is marketing mix¹.Marketing mix has four elements that are product, price, place and promotion(Kotler and Roberto,1989).In social marketing field of study product means the benefits that audiences acquire when they replace a new behavior with an old one (Kotler and Roberto,1989).Some of the authors defined three level of product in social marketing. According to Kotler(2002) the core product means the benefits that audiences acquire with new behaviors. The actual product means behaviors that are being promoted and the augmented product means additional products that people acquire with new behavior (Kotler et al., 2002).Price refers to everything that audiences lose in order to get a product for example loss of time, pleasure, convenience. Place refers to a location which consumers face the product and information about it. Promotion refers to methods which marketers use to inform audiences the benefits of product and communicate with them(Kotler and Roberto,1989).In addition to these 4p which have been taken from commercial marketing some of the authors have proposed some other marketing mixes particularly for social marketing which important ones will be reviewed. One of them is Partnerships which means alliance between non-profit organizations or groups that have common targets in a social marketing campaign or program. If they work together on their common targets they will reach their audiences more easily and more efficiently (Smith and Strand, 2008).Another important p is policy which means rules and policies that are used to compel audiences to change some of their behaviors. Some situation people don't change their behavior or behavior change is so costly for them so this p is used to obligate a behavior change(Mohammadi et al,2005).By studying similar researches 4p's can be introduced in this study. As mentioned three level of product can be defined in this study the core product can be some things like more health and fitness , less air pollution with a better city environment and less costs for people and the actual product in this study is using public and green transportation also the competing product is using personal car for traffic in city. The price are loss of convenience and extra effort and time that wastes in using public transportation(Stein,2004).Place of study is urban region of Isfahan city, Iran. participation are the common efforts which different regions municipality of Isfahan do to reach people and policy is a set of restriction traffic rules which police forces execute in the city in order to decrease the rate of urban traffics with personal automobiles. Promotion has been ignored because the goal of study is not included implementation phase of social marketing.

The next theory is exchange theory. Exchange theory assumes that human being is a need-based creature with a constant desire to improve(hasting & saren,2003).It insists that people intend to acquire more values after exchange , so in a change they want to get more benefits in compare to costs that they bear in that exchange(Peattie and Peattie,2003). The Psychological and economical bases of this theory support social marketing conceptual framework. There are different types of exchanges one of them is mandatory exchange but based on definitions , exchange in marketing is Voluntary exchange (Lefebvre & Flora,1988;Andreason,1994).in the

¹ 4p

social marketing , marketers should select target audiences which behaviour change cause their satisfaction and perceived benefits.(AED. ,1991) Many experts have criticized this theory because they believe that an exchange just has two sides , One side is benefit and another side is cost , but in a social case this process may be affected by other variables like society or groups ideas(Young, 1989).in the other hand the sense of satisfaction after the exchange in social marketing is not as much as commercial marketing because in commercial marketing consumer need a product , so getting the product results in satisfaction but when it comes to social marketing people don't have any need and audiences don't care about the product(Siegel& Donor,1998)and even it replaces undesirable behaviours with behaviours that are often more costly in time or effort and also decrease convenience of people(Donovan & Henley,2003).

Other theories which argue about behaviour change in social marketing are change and learn theory. Change theory Express that people should pass a continues internal process from pre-contemplation to maintenance in order to become ready for a change in their behaviour (Prochaska & DiClemente & Norcross, 1992).

As Prochaska (1992) argues this process has six stages:

1. Precontemplation : people don't intend to change their behaviour;
 2. Contemplation: people intend to change their behaviour the next six months;
 3. Preparation: people will change their behaviour very soon
 4. Action: change has been achieved for less than six months;
 5. Maintenance: change has been longer than six months.
- (Prochaska & DiClemente & Norcross, 1992)

In the first steps of this Spectrum, people need to have awareness about the behaviour but in the last steps they should have more readiness but they notice to the costs of leaving current behaviour (Andreason, 1994).

One of the theories that work as a basis theory in social marketing is theory that describes the relationship between concepts like awareness, attitude or beliefs as independent variables with behaviour as a dependent variable. According to Schafer (1986) the people information which people assume it is true about an environment, makes their attitude and it affect their behaviour. The important point is that this relationship is not direct all the time and in different conditions some intervening variables may influence it. These intervening variables can be some things like customs and social norms (Schafer, 1986).A set of applied theories has been reviewed which it will help us in the results.

Social marketing can be used in different kind of issues such as the health problems, social pathologies, natural resources and environmental protections, air pollution issues and drug abuse (Kotler & Zaltman, 1971; Sargeant, 1999). Kotler, Roberto and Lee (2002) in a study introduced 50 areas which social marketing could be applied in them. They divided these issues to four groups which are health promotion, injury prevention, environmental protection, and

community involvement. If we want to review some examples in different areas we can point to HIV prevention, smoking quitting, drunk driving, air pollution and energy conservation (Sargeant, 1999).

2.2. Traffic Congestion

Traffic congestion is a common Pervasive problem in a lot of cities in the world. Various definitions have been provided for traffic congestion and different causes are enumerated for this problem. Congestion reasons divide to two important branches. The first one is the roads system and the capacity of it and the other one is people who use the road networks. Traffic congestion happens when the demand for road space by people becomes more than road supply. Congestion generally slows the speed of movement in urban areas so it slows down the access of people to urban facilities like services, goods and other peoples.

Different solutions have been proposed to decrease traffic congestion but there isn't any single solution. We need integrated and comprehensive strategies which include managing incidences, urban areas and people demands. The congestion causes are numerous. One of the important is behavioural factors (Transport Research Centre, 2007).The focus of this study is to research about people behaviours in traffic issue.

3.2. Social Marketing and Traffic Congestion

After introducing two area separately , we want to investigate how can we use social marketing in traffic congestion issue .As mentioned before the underlying existential philosophy of social marketing is changing behavior and in this study We have targeted a behavior change in urban traffic .This behavior is using personal car in urban traffic .Sorell(2005)argues that even without making any physical changes to the environment of a city , we can reduce using personal cars by the people which are not aware of other alternatives for traffic in the city and its benefits for them and society .In cities in addition to improve infrastructure for different mode of transits ,social marketing can be used to convince people about the other way of transportation instead of using personal cars. He also refers that if public service could help to reduce tobacco consumption by increasing disadvantages information among people it probably can be used for decreasing using personal car by increasing awareness about its disadvantages and its effects on environment, air pollution. By investigating the appliance of social marketing in the area of traffic and transportation it has been found that in this case there isn't a complete literature and there are just some scattered papers in different Subjects in the area (Sorell, 2005). Different strategies have been used in traffic problems to motivate people to select other alternatives for their transit instead of personal cars. One strategy is to advertising about the advantages of public transportation for example low cost for using bus , finding better parking space for bicycle or more health for walking(strading,2002).Another strategy is to make an image for public transportation in people eye. Generally people don't have a particular emotion or perception from the public transportation. If we want to find the reason, it can be said that the companies which produce automobiles plan their marketing activities to make an

image for their brand but for public transportation which is a public service there isn't any responsible group to planning its image and brand (Verkeer, 2005).

In the social marketing literature has been observed that if people awareness rise, they will change their behavior or in other words attitude can be result in behavior but a question is raised does it always work? In order to answer this question an example has been reviewed. Different studies and campaign have been focused on the tobacco consumption reduction especially between teenagers up to now. Lots of them have been succeed to enhance the awareness of tobacco consumption disadvantages between their audiences however most of them over estimate the disadvantages but this awareness doesn't have that much effect on their behavior and they still use it(Gladwell,2000). So it is not always worked and in order to justify this we can investigate the possible reasons that can be derived through literature.

One of the possible reasons can be behavior barriers that are one of the important concepts in social marketing. When a person want to replace a new behavior with an old one some benefits of previous behavior prevent people to replace new behavior. So the new behavior and its benefits should have more value for consumer in compare with old behavior (Sorell, 2005).

Another possible reason as Schafer (1986) stated can be the intervening variables that affect the relationship between awareness and behavior. These variables should identify and it should be controlled.

In the next part the methodology of research will be described.

3. Methodology

In the literature review part it has been observed that social marketing can be used in social issues like traffic congestion. Traffic congestion has different causes which in this study have been focused on the behavior of using personal car in city traffics. Also in literature we knew if the awareness between audiences increases it would change their social behaviors but it had some exceptions. In this study our aim is to investigate the relationship between level of people awareness about the traffic congestion disadvantages and advantages of using of other ways of urban transit instead of using personal car with the rate of using personal car in the case study place Isfahan, Iran. In order to conduct this study at first a brain storming session had been hold with five traffic experts and five ordinary people in order to gather the parameters which awareness of them can be results in changing people behavior to decrease their personal car usage. The parameters have been gathered and have been summarized to eight variables and eight hypotheses have been formed. In the following the hypothesis are presented:

H1: Awareness of public transportation development has a relationship with the rate of personal car usage

H2: Awareness of public transportation less expenditures has a relationship with the rate of personal car usage

H3: Awareness of traffic disadvantages has a relationship with the rate of personal car usage

H4: Awareness of traffic restriction rules has a relationship with the rate of personal car usage

H5: Awareness of green transportation development has a relationship with the rate of personal car usage

H6: Awareness of infrastructures which decreases urban traffic like IT has a relationship with the rate of personal car usage

H7: Awareness of the nearest centers which provide urban services has a relationship with the rate of personal car usage

H8: Awareness of disadvantages of gasoline overuse has a relationship with the rate of personal car usage

So the conceptual model of research is like figure 1.

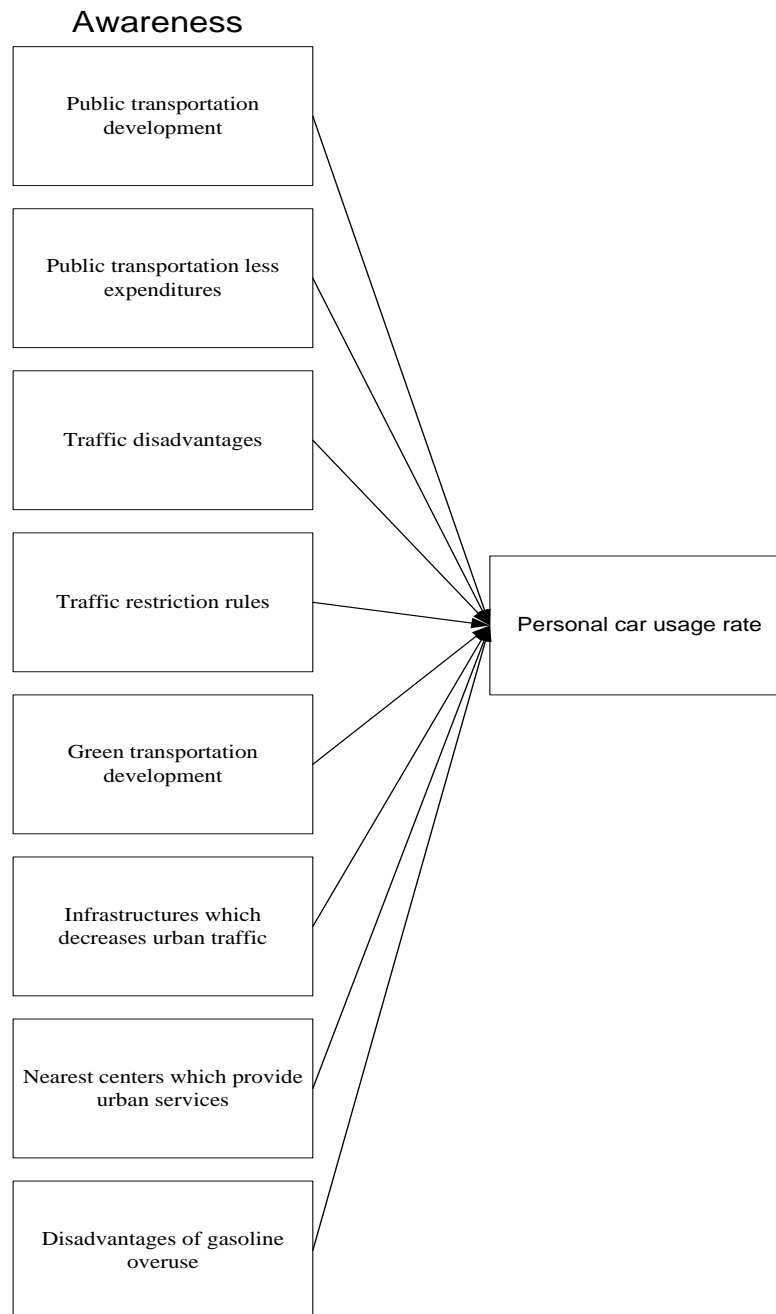


Figure 1-Conceptual Models

To test the hypothesis, questionnaires were dispersed among the people of Isfahan who personal car is available for them, randomly. At last, 384 questionnaires were ready for analyzing which assessed variables of people awareness and rate of personal car usage via 30 questions. The first 29 question measure awareness and a question measure the rate of personal cars for citizens. 0.921 of Cronbach's alpha for awareness questions showed acceptable reliability of the questionnaire which was conducted by investigating expert's

suggestions. All questions were rated on a five-point Likert scale from "very low" (1) to very high" (5).

4. Findings

In the first step of analyzing the descriptive statistics has been reviewed. Table 1 addresses demographic characteristics of the citizen’s sample.

Table 1: Sample Demographic Characteristics

	N	%		N	%
Age			Gender		
30 and less	165	43	Male	213	55.5
30 to 40	108	28.1	Female	171	44.5
40 to 50	50	13	Educational level		
50 to 60	44	11.5	less that diploma	19	4.9
60 and over	17	4.4	Diploma	102	26.6
Marriage status			Associates	51	13.3
Single	140	36.5	Bachelors	161	41.9
Married	244	63.5	Masters and higher	51	13.3

Before testing the correlation in order to ensure about the fitness of the model chi-square, the Tucker – Lewis index (TLI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA) and goodness of fit index (GFI) were used and analyzed with Amos software (Byrne, 2010).The results has been shown in table 2.

Table 2: Regression Weights of Model

	Estimate	S.E.	C.R.	P
p5 ←- 2	1.000			***
p7 ←- 2	1.129	.172	6.555	***
p15 ←- 2	.896	.131	6.834	***
p2 ←- 3	1.000			***
p22 ←- 3	2.091	.381	5.494	***
p23 ←- 3	2.685	.484	5.549	***
p17 ←- 3	1.758	.336	5.237	***
p14 ←- 3	1.383	.283	4.896	***
p4 ←- 4	1.000			***
p11 ←- 4	.987	.172	5.751	***

	Estimate	S.E.	C.R.	P
p27 ←- 4	1.210	.221	5.469	***
p6 ←- 5	1.000			***
p12 ←- 5	1.217	.313	3.883	***
p16 ←- 5	.489	.112	4.383	***
p13 ←- 6	1.000			***
p18 ←- 6	1.614	.249	6.495	***
p24 ←- 6	1.138	.185	6.135	***
p28 ←- 6	1.411	.221	6.392	***
p8 ←- 7	1.000			***
p19 ←- 7	2.697	1.085	2.486	.013
p26 ←- 7	1.814	.552	3.288	.001
p3 ←- 8	1.000			***
p20 ←- 8	1.508	.179	8.417	***
p21 ←- 8	1.326	.160	8.315	***
p25 ←- 8	.980	.130	7.511	***
p1 ←- 1	1.000			***
p9 ←- 1	1.676	.320	5.244	***
p10 ←- 1	1.968	.397	4.963	***
p29 ←- 1	.881	.229	3.852	***

*** $p < 0.01$

The p-values show that the model and questioner is appropriate in 95% confidence level and accuracy of 5%.

In this study Pearson correlation test was performed with 95% confidence level and accuracy of 5% to investigate the relationship among independent and dependent variables and results are presented in table 3.

Table 3: Pearson Correlation

personal usage	car	Pearson correlation sig.(2-tailed)	personal usage	car	H1	H2	H3	H4
			1		-0.052	-0.021	-0.003	-0.113
					0.313	0.676	0.96	0.026
personal usage	car	Pearson correlation sig.(2-tailed)	personal usage	car	H5	H6	H7	H8
			1		-0.37	-0.57	-0.39	0
					0.467	0.261	0.442	0.999

According to acquired results all the significant for the test is more than 0.05 so all the hypotheses was rejected except H4.

5. Discussion, Conclusion and Limitations

In this paper the relationship between people awareness of social marketing messages and the rate of personal car usage in urban traffic were investigated by correlation analysis. The findings imply that in research case study Isfahan , Iran in current condition of people awareness , just awareness of messages about traffic restriction rules has a relationship with their behavior, using personal car. So just hypothesis number 4 accepted with an inverse relationship which means that if people have more awareness about traffic restriction rules they will use their personal cars in city traffic less. The primary expect was that people awareness and information about different aspects of traffic congestion and the advantages of using other ways of transportation instead of using personal car effects their behavior of using personal car but in the contrary , findings revealed that in the case study city Isfahan , Iran it doesn't work so some possible reasons have been reviewed. As mentioned in literature part Verkeer (2005) in a research expresses that public transportation system and personal car don't have equal situation in people eye and there is a gap between levels of people awareness about them. He mentions that for personal cars the manufacturers, with a commercial point of view, plan marketing activities to make an image for their products but in the contrary in public transportation parts usually there aren't certain responsible to plan public transportation marketing in order to make an image for that or to motivate people to use it more. So the people awareness level for these systems is low.

As mentioned in the literature part on the basis of exchange theory an audience in a social marketing exchange faces with two options which consumer audience should decide between them. The first one is the old behavior and the other one is a new behavior which bring him or her some advantages and welfare for society and individuals but on the other hand in order to adopt new behavior he or she should pay the cost of exchange. In fact new behavior is similar to a product in commercial marketing which has a price and people have to pay for that. In this study the findings didn't show any relationship between Isfahanian people awareness and their action while the literature express on their relationship. it shows that in this city the cost for this exchange is high in fact there is a gap in the convenience, time or efforts that people should spend between using of personal cars and other ways of transportation and it can be interpreted that people are not willing to lose their convenience and time as the cost of the social marketing exchange.

The next probable reason is what has been mentioned as Schafer theory. He expressed that maybe some intervening variables can affect the relationship between and people behaviour. It seems that the satisfaction of alternative ways of transportation should be considered as intervening variables because if people aren't satisfied of public and green transportations they will not leave their car usage. So probably if satisfaction will be considered as control variables the relationship between awareness and behaviour will reveal.

On the basis of research findings it can be found that the responsible organizations should spend money on increasing awareness levels because it seems that the level of awareness is low between people because in present conditions in city the awareness doesn't affect on people behavior. Also the gap between personal car usage and other ways of transportation utility and convenience should decrease. One way is to increase the transportation system utility by better conditions in order to decrease the cost of exchange or also the costs of using personal car can be increased for examples restriction rules which accepted as a hypothesis in this paper that works on people can be used as a factor to compel people to change their behavior in present conditions.

This research faced limitations which should be considered when interpreting the results. The tendency of some groups of people to answer the questioner was low. This act was outstanding in people 65 years old and over and also people with the low education.

The recommendation for further studies is to investigate the relationship between awareness and behavior and simultaneously controlling the public transportation satisfaction and compare the results with this study. Another recommendation is to repeat this study in another city which has better public and green transportation and compare the results. Also other similar studies can be done on other traffic behaviors to decrease congestion instead of personal car usage behavior.

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