



The impact of inspection reports on consumer behavior: A pilot study

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ABSTRACT

This pilot study evaluated the impact of inspection score information on consumer behavior. Protection motivation theory was used to investigate consumer's behavioral intentions resulting from food safety information provided in the questionnaire. The questionnaire was created to measure consumers' perceived likelihood of changing behavior based on protection motivation theory after reading restaurant food safety information in the form of inspection reports. The pilot showed that the methodology used to collect the data was sound. While the number of respondents was too small to show significance, several important trends were noted. One of the more important finding was that the affordable cost of selecting an alternative restaurant rose with the number of violations.

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1. Introduction

Food safety practices have always been sensitive topics for food service providers and consumers. An outbreak at a single restaurant in Pennsylvania resulted in 601 patrons contracted Hepatitis A leading to 124 hospitalizations and 3 deaths (Wheeler, Vogt, Armstrong, & Vaughan, 2005). Foodborne illness outbreaks can certainly damage a company's image and lead to decreasing sales. Grover and Dausch (2000) estimated that the average foodborne outbreak costs an operation \$100,000 and a 30 percent reduction in sales. There have been many studies on the impact of health inspection scores (Almanza, Ismail, & Mills, 2002; Almanza, Nelson, & Lee, 2003), employees' perception of food safety and training (Martin, Knabel, & Mendenhall, 1999; Pragle, Harding, & Mack, 2007; Robert, Binkley, Nelson, & Almanza, 2005) and consumers' perception of food safety (Houghton, Kleef, Rowe, & Frewer, 2006; Knight, Worosz, & Todd, 2007). However, specific research targeting the impact of inspection scores on consumers' behavior is lacking.

Consumer perceptions of food safety are especially critical for restaurant managers and owners; perceptions of poor sanitation might lead to consumers choosing a safer restaurant resulting in a loss of revenue. Previous research has found that 70 percent of respondents would no longer buy food from food service

establishment where they had concerns about hygiene (FSA, 2004). A study conducted by Knight et al. (2007) found that people who perceived that a restaurant was "not at all" committed to food safety were less likely to choose the restaurant when eating out. A study conducted by Henson, Majowicz, and Masakure (2006) found that cleanliness was the most important determinant for consumers perceptions of restaurant food safety. Health inspection scores by health inspectors are a reflection of restaurant cleanliness and presumably represent the "safety" of eating at the restaurant.

To fully understand the impact of inspection reports, it is critical to measure consumer perception of the seriousness of inspection violations. If sanitation is important to a consumer, this perception may affect behavior. This paper reports the results of a pilot study that tested a scenario type questionnaire to determine the impact of inspection reports on consumers' selection of restaurants. In order to investigate consumer behavior, the study adopted protection motivation theory (PMT) in relation to fear appeals (Rogers, 1975). A fear appeal is a communication about a threat to an individual's well-being that can change attitudes and behavior (Milne, Sheeran, & Orbell, 2000). This pilot study investigated the likelihood that inspection scores will generate a fear appeal and motivate consumers to modify their behavior.

PMT has previously been adopted for studies on reducing alcohol consumption (Rogers, 1983), the effects of antismoking advertisements (Pechmann, Zhao, Goldberg, & Reibling, 1993) and AIDS-related health behavior (Van der Velde & Van der Plight, 1991). This study uses this theory to explain how available information such as health inspection scores or reports influence consumer behavior when selecting a safe place to eat. PMT is

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a relatively new approach for determining consumer perceptions of food safety in restaurants.

2. Literature review

PMT was originally developed to provide conceptual clarity in the area of fear appeals and to bridge the gap between research on fear appeals and research on attitude change (Milne et al., 2000). Protection motivation is an intention to perform a health behavior and it is measured by threat appraisal and coping appraisal. According to a study by Boer and Seydel (1996), threat appraisal and coping appraisal are behavioral options that diminish or reduce threats. PMT originally proposed that the intention to protect oneself depends upon four factors: 1) the perceived severity of a threatened event; 2) the perceived probability of the occurrence, or vulnerability; 3) the efficacy of the recommended preventive behavior; and 4) the perceived self-efficacy (Rogers, 1983). Boer and Seydel (1996) explained that in PMT the outcome of the threat appraisal is the estimation of the likelihood of contracting a disease and the seriousness of that disease. They defined coping appraisal as a combination of self-efficacy and response efficacy. Belief in following recommendations to protect oneself is response efficacy. The ability to execute the recommended courses of action successfully is self-efficacy (Boer & Seydel, 1996).

The purpose of PMT research is usually to persuade people to follow the communicator's recommendations; therefore intentions indicate the effectiveness of the attempted persuasion (Floyd, Prentice-Dunn, & Rogers, 2000) and intentions are viewed as a precursor to behavior (Ajzen & Fishbein, 1980). Recent research included behavior in the PMT construct as the outcome variable (Floyd et al., 2000; Milne et al., 2000; Norman, Boer, & Seydel, 2005; Tulloch, Reida, & D'Angelo, 2009). PMT variables were all found to be significantly associated with concurrent behavior. The association between intention and concurrent behavior was the strongest and most consistent association found in the meta-analysis (Milne et al., 2000). In addition, PMT was used to predict exercise intentions and behaviors in the year following hospitalization for coronary artery disease (Tulloch et al., 2009). In their study, the PMT variables accounted for moderate percentages of variance for exercise intentions and behaviors at 6 months post-hospitalization.

The PMT model has provided a good fit for predicting short-term exercise intentions and behaviors. PMT may be a useful framework for understanding actions in the short-term when recommended action and consequences are presented together (Tulloch et al., 2009). Rogers's model showed protection motivation was a mediating variable between responses to information and coping modes such as action or inhibition action, a single act, repeated acts, multiple acts and repeated multiple acts (Rogers, 1983). To investigate the impacts of the level of protection motivation on a consumer behavior, this study developed the following conceptual model based on the PMT.

PMT has an advantage over the health belief model (Becker, 1974), the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), and the theory of planned behavior (Ajzen, 1988, 1991) in that it has provided more consistent results in experimental tests. Health Belief Model and PMT are better models than Theory of Reasoned Action and Subjective Expected Utility theories to assess individual's response efficacy: the Theory of Reasoned Action and Subjective Expected Utility theories lack elements of response efficacy (Floyd et al., 2000). In previous studies, researchers have used communications designed to manipulate PMT variables and then measure the effects of the communication on PMT variables (Pechmann et al., 1993; Rogers, 1983; Van der Velde & Van der Plight, 1991). This study

manipulated the PMT variables and health inspection scores and measured the effects on PMT responses.

Previously food safety researchers have concluded that college students aged 20–29 years old engage in unsafe practices, including risky food handling and food consumption (Li-cohen & Bruhn, 2002; Morrone & Rathbun, 2003). Ford and Goode (1994) suggested that individuals in this group would change their health behaviors if the related health issue was perceived as relevant or of concern to them or their peers. In order to change their attitude toward health issues, it was found that students strongly agreed that they needed more information on health issues (Ford & Goode, 1994). This study attempted to examine if college students were influenced by a restaurant inspection report when selecting a restaurant to dine.

3. Methodology

A questionnaire was created to measure consumers' perceived likelihood of changing behavior after reading restaurant food safety information in the form of inspection reports. The questionnaire addressed several components: the perceived risk of the violations identified on the inspection reports, consumers' likelihood of modifying their behavior based on the inspection reports, their perception of the effectiveness of their behavior modification, and general demographics. Prior to measuring consumers' protection motivation, it was necessary to determine if inspection reports would impact any of the 6 constructs in the conceptual model. These constructs are vulnerability, severity, benefits, response efficacy, self-efficacy, and costs (see Fig. 1).

A scenario approach was used to evaluate consumers' perceptions of threat, severity, and vulnerability. Four different scenarios of the inspection reports ("0" violations, "6" violations, "8" violations, and "10" violations) were presented to find out if changing the numbers of violations would trigger different protection motivation responses. The violations used in this study were taken from the inspection form used by the Tippecanoe Health Department, Indiana. They use the critical and non-critical violations system to inspect foodservice establishments. Critical violations refer to violations that need to be corrected immediately otherwise they pose an immediate threat to food safety. Non-critical violations refer to violations that need to be corrected but do not pose an immediate threat to food safety. Examples of critical violations include items like "Employees not washing hands" and "Food not being held at the proper temperature." Non-critical violations include items like "No shatter resistant covers on light bulbs."

To get the maximum response with the minimum number of health inspection violations, and to simplify the task for respondents, only critical violations, which appeared on actual health inspection reports, were used in the scenarios. The selected critical violations were based on the most common violations found by the Tippecanoe Health Department. Because of the fact that a failing score under the critical and non-critical violation system is based on the judgment of the health inspectors and is not a set number or level, it was first necessary to standardize the number of critical violations in the scenarios that would elicit differences in responses. Under the traditional 100 point demerit system described in older federal food codes, numeric scores could be transformed into letter grades in the following analogy: 90–100 points equals "A", 89–80 points equals a "B", 79–70 points equals a "C", and below 70 points equals a failing grade. Major (or critical) violations under the older system were worth 4 to 5 points, so the following critical violation numbers were selected for this study to represent similar levels: no violations would represent an "A" grade, 6 violations would represent a "B" grade, 8 violations a "C", and 10 violations a failing grade. A panel study was conducted prior

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