Research Poster

Compliance with Safe Food Handling Practices: What Influences Intention in U.S. Households?

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Introduction

Globally, foodborne disease accounts for 600 million illnesses and 420,000 deaths annually (Bhaskar, 2017; Devleesschauwer et al., 2018; Lee & Yoon, 2021; World Health Organization, 2022). In the United States (U.S.), 9.4 million cases of foodborne illness were reported annually with 55,961 cases of hospitalization and 1,351 deaths (Scallan et al., 2011). The economic burden of U.S. foodborne diseases reached $17.6 billion in 2018 (Hoffmann & Ahn, 2021). About one-fifth of foodborne infections in the U.S. are caused by improper food handling procedures at home (Centers for Disease Control and Prevention, 2006). Lacking food safety practices while handling and preparing food as one of the major reasons behind food-borne diseases (Salleh et al., 2017). Inadequate cooking, inappropriate storage, and reusing improperly rinsed cutting boards and knives are some of the unsafe food handling practices that cause cross-contamination (Bonny et al., 2018; Malcolm et al., 2018), and these types of practices are ideal targets for food safety Extension programs. Because safe food handling at different stages is imperative to ensure the hygiene of food, this study was designed to understand U.S. residents' intention to comply with such practices at the household level.

Theoretical Framework

The Theory of Planned Behavior (TPB) describes how attitudes, subjective norms, perceived behavioral control, and behavioral intention are related (Ajzen, 1991). This study considered the relationship between these core variables and personal norms and demographics which were also added to the TPB framework to analyze their effect on safe food handling intention.

Purpose and Objectives

The purpose of this study was to investigate the most salient predictors of safe home food handling among U.S. residents. Specific objectives were to: 1) Determine attitudes, subjective norms, perceived behavioral control, and personal norms among U.S. residents pertaining to safe home food handling practices and 2) Determine to which extent demographics, attitudes, subjective norms, perceived behavioral control, and personal norms influence safe home food handling intention among U.S. residents.

Methods

A non-experimental cross-sectional research design was used, and an electronic survey instrument was employed to collect data. Non-probability purposive sampling was used to access the study sample (N = 1,528) (Baker et al., 2013; Lamm & Lamm, 2019). Quota sampling was used to ensure participants meet their states and territories (Alabama, Florida, Georgia, Mississippi, North Carolina, Puerto Rico, South Carolina, and Virgin Islands) age, sex, race, and ethnicity proportions according to U.S. census data (Baker et al., 2013). Descriptive statistics were used to analyze participants' attitudes, perceived behavioral control, subjective norms, personal norm, and behavioral intent. In addition, stepwise hierarchical regression was employed to see how core TPB variables, personal norms, and demographics affect behavioral intention. Three models were used where Model 1 = demographics, Model 2 = Model 1 + TPB variables, and Model 3 = Model 2 + personal norms.

Results and Conclusion

Central tendency measures revealed that attitudes (*M* = 3.68, *S.D.* = 0.62), perceived behavioral control (*M* = 3.59, *S.D.* = 0.69), personal norms (*M* = 3.55, *S.D.* = 0.75), subjective norms (*M* = 3.41, *S.D.* = 0.84) and behavioral intent (*M* = 3.39, *S.D.* = 0.83) were all positive and strong given a potential range from 0 to 4 for all variables. Hierarchical regression showed that demographic variables predicted 5.3% of the variance (F (4, 1523) = 22.415, $p <.001$, $R^2 = 0.053$) in behavioral intent where gender ($\beta = -0.118$, t (1523) = -4.588, $p < 0.001$), age ($\beta = 0.218$, t (1523) = 8.511, $p < 0.001$) were significant at $p < .001$. Education ($\beta = 0.047$, t (1523) = 1.68, $p = 0.092$) was significant at p = .10 whereas income was not significant ($\beta = 0.002$, t (1523) = 0.077, $p = 0.938$). TPB variables were introduced in second model (F(3, 1520) = 441.15, $p <.001$, $R^2 = 0.493$) which predicted 49.3% of the variance in safe food handling intention, and when the personal norms were added, the third model (F(1, 1519) = 210.390, $p <.001$, $R^2 = 0.554$) fit the data best, predicting 55.4% of the variance in behavioral intention. Four variables were significant in Model 3: attitudes ($\beta = 0.070$, t (1519) = 2.70 , $p = 0.007$) were significant at a 5% level, whereas subjective norm ($\beta = 0.193$, t (1519) = 7.06, $p = < 0.001$), personal norms ($\beta = 0.438$, t (1519) = 14.505, $p < 0.001$) and perceived behavioral control ($\beta = 0.143$, t (1519) = 5.489, $p < 0.001$) were significant at 1%. Among all those highly significant variables, personal norms had a larger effect size.

Recommendations and Implications

Among all constructs in our extended TPB framework, attitude was found to be the most positive, followed by perceived behavioral control, personal norms, subjective norms, and behavioral intent among participants Despite significance in initial models, demographics such as age, education, income, and gender were found not significant determinants of behavioral intention once theory-based variables were introduced. In the final model, attitudes, subjective norms, perceived behavioral control, and personal norms significantly predict behavioral intention to comply with safe food handling practices, with personal norm having the greatest effect size indicating that an individual's personal obligations to engage food safety practices is the most important determinant regarding safe food handling compliance. So, intervention programs should prioritize facilitating the internalization of social norms related to safe food handling as these will contribute to developing favorable personal norms about safe food handling. Making people aware of how inappropriate food handling practices could cause cross-contamination of food resulting in lethal food-borne disease, would be helpful in developing a positive attitude toward safe food handling practices. In addition to the education, providing people with some experience which might be in a demonstration kitchen or through a virtual demonstration, could be helpful in complementing their perceived self-efficacy. Also, communicating with people about the need to comply with safe food handling is not merely essential to their referent group but is crucial for their own health and well-being and will help strengthen their perceived controllability and subjective norm.

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