

*Social influences on meat alternative
consumption in Thailand and the Netherlands*



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***Name:** Sureerat Niyomsinth*

***Registration number:** 900820605100*

***Program:** Management, Economics and Consumer Studies (MME)*

***Specialization:** Marketing and Consumer Behavior*

***University:** Wageningen University & Research*

***Supervisors:** Arnout Fischer*

***Course:** MCB-80436 MSc Thesis Marketing and Consumer Behavior*

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Abstract

Meat alternatives are considered differently due to the diverse meat consumption patterns and cultures. In order to tailor the marketing strategy of meat alternatives to a specific culture, the cultural factors of meat alternative consumption should be investigated. This paper explores to what extent the social norms (descriptive and injunctive norms of family, friends, and colleagues) determining intention to consume meat alternatives in different cultural orientations (individualism and collectivism), by assuming that Dutch consumers are individualism and Thai consumers are collectivism. The online survey with meat eating consumers (Dutch respondents =102 and Thai respondents =109) confirmed that descriptive norms (when the family, friends, and colleagues eat meat alternatives) impact on the intention to eat meat alternatives. When considering by country, the descriptive norm of family impacts on the intention to consume meat alternatives only Dutch respondents. It was also shown that injunctive norms (when the family, friends, and colleagues think one should eat meat alternatives) impact on the intention to eat meat alternatives of Thai respondents, but not for Dutch respondents. Nevertheless, the current study shows that regardless the cultural orientations, social norms determine the intention to consume meat alternatives anyway. Besides the main hypotheses, the survey also confirmed that the higher intention to consume meat alternatives it became, the higher chance respondents will eat meat alternative. Together with the intention of eating meat alternatives, the attitudes toward meat consumption significantly impacts on the meat alternative eating behaviors. Hence, the marketing strategies of meat alternatives in the Netherlands should consider the implication of descriptive norms by focusing on the current meat alternatives consumers to influence others. In contrast, the implication of injunctive norms would be more suitable for Thai consumers. Therefore, policy makers can play an important role to recommend Thai consumers to replace meat by meat alternatives.

1. Introduction

Meat free and meat alternative products are growing to meet the demand as the number of vegans and vegetarians increase worldwide (Innova Market Insight, 2017). With a less willingness to consume red meat or meat products, the global meat alternative market is expected to continually grow with an average annual growth of +5.8% during 2018-2023 (Mordor Intelligence, 2018). Also, the global meat alternative market is forecasted to reach \$5.2 billion by 2020 (Allied Market Research, 2018). Apart from vegans and vegetarian diets, there is also an increase of consumer interest in the avoidance or reduced consumption of red meat (Sadler, 2004). This concern brought a new dietary pattern called flexitarianism which can be explained as a part-time vegetarianism or specifically a reduction in individual meat consumption to the recommended dietary guidelines for healthy (Raphaely & Marinova, 2014, p. 91).

Meat alternatives are also known as meat replacers, meat substitutes, or meat analogs (Hoek, Luning, Stafleu & Graaf, 2004). According to Shurtleff (2014), the writer of history of meat alternatives: 965 CE to 2014, meat alternative is defined as “a meatless food that has approximately the same taste, appearance, and texture of a related food made from meat, poultry, fish or shellfish. Its nutritional value is, in general, approximately equal to (or sometimes greater than) that of the related food, including essential vitamin B-12” (p. 5). The meat alternative products are based on a wider range of alternative protein (Sadler, 2004). They are primarily vegetable based food products that contain proteins (Hoek, Luning, Stafleu & Graaf, 2004) which traditionally has been made from tofu, wheat gluten, Tempeh (traditional soy product originating from Indonesia), Yuba (tofu skin), and nuts (Shurtleff, 2014).

In Europe, the rise of concerns about animal welfare, reactive nitrogen and greenhouse gas emissions has stimulated public interest to consume less meat products (Westhoek, Lesschen, Rood, Wagner, De Marco, Murphy-Bokern, Leip, van Grinsven, Sutton & Oenema, 2014). In addition to environmental concerns, consumer preferences may also change because eating meat would become less fashionable (Dagevos & Voordouw, 2013). The survey of vegan diet consumption shown that the number of self-identified vegan individuals in the United States, Germany, and the United Kingdom is on the rise and the proportion of consumers choosing to follow a vegan diet has increased in recent years, especially in developed countries (Radnitz, Beezhold & DiMatteo, 2015). Moreover, the empirical studies related to the frequency of meat consumption in the Netherlands also show that consumers are becoming meat-reducers who willing to eat no meat at least one day per week (Dagevos & Voordouw, 2013). DutchNews.nl also reported that meat consumption in the Netherlands has continually declined in the past 5 years and dropping to an average of 75.4 kg in 2015 (Dutch News, 2016).

In contrast to the meatless trend in Europe, the amount of meat and meat products have been a relatively small consumption in Asian countries due to the cuisines rely mainly on grains and

vegetables (Nam, Jo & Lee, 2010). Meat is rarely the main ingredient in a meal. Smaller amounts of meat are offered in dishes as a composition of vegetable and rice (Le, 2018). The study of Speedy (2003) aiming for interpreting statistics and information on global livestock production and the consumption of animal source foods stated that South Asia is one of the countries that consume the least amount of meat (Speedy, 2003). For example, a proper Thai meal is mainly constructed around, and is made up of rice and side dishes or with rice (Walker, 2018, p.3). The character of most Thai dishes is cooked with a small amount of meat and, if the meat is used, it is most likely fish (Facts and details, 2018). Apart from fish, other protein sources include poultry, eggs, pork, and other animal meat as well as beans and nuts. Vegetarianism has become increasingly popular through the Vegetarian festival across the country, particularly strong in southern Thailand (Hamilton, 1999). As the result, more southerners in Thailand are becoming vegetarian or vegan; however, other regions of the country are little known or have not yet been studied yet.

What should also be considered is meat consumption appears to be related to wealthiness in developing countries (Speedy, 2003). Consumers who are getting wealthier are going to eat more meat (Dagevos & Voordouw, 2013). With a rapid economic growth in Asian countries, the amount of meat consumption is expected to continuously grow (Nam, Jo, & Lee, 2010). A study related to the consumption of meat and milk in developing countries stated that the consumption of meat in developing countries increased by 70 million metric tons from the beginning of the 1970s to the mid-1990s which is almost triple the increase in developed countries (Delgado, 2003). Moreover, Delgado also mentioned that with the population growth, urbanization and income growth, the increase in meat consumption in developing countries is expected to continue on the rise. Thus, it is expected that by 2020 developing countries will consume 107 million metric tons more meat than they did in the mid-1990s.

The Livestock's Long Shadow report of the Food and Agriculture Organization (FAO) states that the livestock sector is one of the major stressors on ecosystems since it is one of the largest sources of greenhouse gases and one of the leading causal factors in the loss of biodiversity, also in developed and emerging countries it is the leading source of water pollution (Steinfeld, Gerber, Wassenaar, Castel, & De Haan, 2006). As meat production is one of the highest contributors to environmental impacts; therefore, a meat alternative product might considerably lead to alleviate the impact of livestock production on the environment (Tukker, Goldbohm, De Koning, Verheijden, Kleijn, Wolf, Pérez-Domínguez & Rueda-Cantucho, 2011).

The meat alternative marketing would be considered differently since meat consumption patterns and cultures are different between Europe and Asia. Vegetable based meat alternative products such as tofu and tempeh have been already eaten for centuries in Asian countries; however, these traditional vegetarian products are considered as meat substitute products and became widely available in Europe started in the nineties (Hoek, Luning, Stafleu & Graaf, 2004). Therefore, the

success of meat alternative products in Europe could not be immediately considered that they will be successful in Asia. As a consequence, the understanding of meat consumption cultures and consumers in Asia is important to ensure that meat alternative providers know how meat alternative marketing outside Europe. This study aims to provide a comprehensive analysis of the social and cultural factors shifting consumption from meat to meat alternatives. The emphases include *(1) What social and cultural factors influence consumer food choice regarding meat consumption in Europe and Asia; (2) To what extent these factors change consumer intention to eat meat alternatives in Europe and Asia; (3) To what extent these factors differ between Europe and Asia.* This study would provide consumer insights toward meat alternatives for future marketing strategy developments. To develop meat alternative products effectively, one must evaluate and understand consumers regarding to their cultures. Therefore, with these insights, meat alternative marketers would aware of factors determining consumer behaviors, and then able to further develop and provide meat alternatives in a marketplace successfully.

2. Literature study

2.1 What factors influence consumer preference regarding meat consumption

Consumers are the final step in the food production chain. The consumers' satisfaction would be higher when their demand and expectations are met. Therefore, it is important for food producers to understand the factors affecting consumer behavior and preference (Font-i-Furnols & Guerrero, 2014). In order to understand the eating behavior, the study of creating healthy food and eating environments explained the multiple factors influence on what people eat in the ecological framework (Story, Kaphingst, Robinson-O'Brien & Glanz, 2008). According to the framework, the factors are divided into 4 main levels:

- 1) Individual factors (personal): cognitions (e.g., attitudes, preferences, knowledge, values), skills and behaviors, lifestyle, biological (e.g., genes, gender, age) and demographic factors (income, race/ethnicity)
- 2) Social environment (networks): family, friends and peers
- 3) Physical environment (settings): home, work sites, school, after school, child care, neighborhoods and communities, restaurants and fast food outlets, supermarkets, convenience and corner stores.
- 4) Macro level environments (sectors): societal and cultural norms and value, food and beverage industry, food marketing and media, food and agriculture policies, economic systems, food production and distribution systems, government and political structures and policies, food assistance programs, health care systems, land use and transportation.

The study of Story et al. (2008) mainly focused on key issues in physical environment settings and macro level environment sectors.

In addition to physical and macro-level environments, studies focusing on the social environment influence on consumption conclude that the consumption pattern is also shaped by social factors. The conceptual model of the food choice process includes a social framework as one of the major influences on food choice among adults (Furst, Connors, Bisogni, Sobal, & Falk, 1996). The study stated that when making food choices, people were influenced by social framework which families and households provided one of the most important sets of interpersonal relationships, influencing food choice (Furst, Connors, Bisogni, Sobal & Falk, 1996). The strong relationship between intention and social influence is also found in the study of convenience food consumption (Contini, Boncinelli, Gerini, Scozzafava & Casini, 2018). It stated that when peers, friends, or relatives express a negative judgment on the consumption of convenience food products, the consumers tend to consume them less. Moreover, when predicting consumers' intention to consume, it shows that the opinion of others has influence on the food choice than one's own beliefs (Olsen, Sijtsema & Hall, 2010).

Even several studies explored the social environment influence on consumption, the social influence on consumption concerning cultural differences are rarely explored. Therefore, this paper would study the social environment factor (family, friends, and peers) that affect consumer intention and behavior to consume meat alternatives in terms of cultural influences.

2. 2 Social environment level

The definition of social environment level related to eating behaviors by Story et al. (2008) is “the interactions with family, friends, peers, and others in the community and may impact food choices through mechanisms such as role modeling, social support, and social norms (p.255).” A systematic review of environmental correlates of obesity-related dietary behaviors in youth also highlights that the social environment level is conceptualized as being interrelated at the individual level and the likelihood that an individual will change in eating behavior is largest when someone is motivated to act differently (Van Der Horst, Oenema, Ferreira, Wendel-Vos, Giskes, van Lenthe & Brug, 2006). Since food choice is influenced by social factors because attitudes and habits develop through the interaction with other people (Feunekes, de Graaf, Meyboom & van Staveren, 1998), in the following section the concept of each player in social environments will be defined.

2.2.1 Family

As a provider of food, the family influences food attitudes, preferences, and values that affect lifetime eating habits (Story, Neumark-Sztainer & French, 2002). Regards to family influence, it clearly begins at the age of children. The role of parenting in the family is particularly critical for young children because parents determine the child’s social environment that influence on children eating behaviors (Ritchie, Welk, Styne, Gerstein & Crawford, 2005). With regard to the social environment, including various socioeconomic and sociocultural, children’s eating patterns are more likely to influence by parents’ education, time constraints, and ethnicity influence the types of foods children eat. Moreover, parents also play a direct role in children’s eating patterns through their behaviors, attitudes, and feeding styles (Patrick & Nicklas, 2005).

When children grow older and turn into adolescence, several changes would take place: lifestyle change, social change, environmental change, and dietary intake pattern change (Ritchie, Welk, Styne, Gerstein & Crawford, 2005). Social or interpersonal factor (such as family and peers) is believe to be one of the environmental influences adolescent eating behavior (Story, Neumark-Sztainer & French, 2002). The study of factors associated with the consumption of adolescents (aged 12–15 years) in Tasmania, Australia explored the concepts of the descriptive social norms for the food defined as the frequency of consumption of each food by parents and by friends. The study found a strong linkage between perceived parental frequency of usage of a food and its frequency of consumption reported by their adolescent offspring (Woodward, Boon, Cumming, Ball, Williams & Hornsby, 1996). The results from the study of associations of social and demographic variables with calcium intakes in high school students suggest that the influence of

family members has a positive impact on calcium intake (Barr, 1994). Even the parents are found that have little influence over what adolescents eat outside the home, the study shown that home availability and accessibility of fruits and vegetables is strongly and positively related to fruit and vegetable consumption (Story, Neumark-Sztainer & French, 2002).

A conceptual model of food choice process among adults explores that families and households provide one of the most important sets of interpersonal relationships, influencing food choice by being assigned particular household food roles (Furst, Connors, Bisogni, Sobal & Falk, 1996). In the study, the household food roles are defined as a person who responsible for providing food for a household, a person who trying to shape the food choices of others, a person who willing to discount their own preferences, and a person who food choice will occur when entertaining, being entertained or in the workplace. It is believed that the patterns of adult's food choice would differ from everyday practices depending on different social content (Furst, Connors, Bisogni, Sobal & Falk, 1996).

2.2.2 Friends

Apart from family, friends also play a crucial role in a child's development (Maxwell, 2002). Food choices are influenced as children enter school and enjoy more social experiences with friends (Cullen, Baranowski, Rittenberry & Olvera, 2000). Young children's food preferences are also found to be strongly influenced by their peers and more similar to their siblings than their parents (Pliner & Pelchat, 1986). One possible reason is that it is mediated by imitation among young children. It is explained that siblings and friends are more similar in terms of age and narrower range of foods acceptance, therefore it is more likely that they imitate each other food preference (Pliner & Pelchat, 1986).

Moreover, the perceptions of children and adolescents toward their friend's eating behavior can influence their own behaviors (Baker, Little & Brownell, 2003). As the study related to social and environmental influences on children's diets among African, European and Mexican-American children reported that peer influence is a reason for children not eating certain foods (fruit, juice, vegetables and low-fat foods) since eating these foods would receive negative comments from their friends (Cullen, Baranowski, Rittenberry & Olvera, 2000). Although these students said negative comments would not affect their eating behaviors, the influences would counter the availability or accessibility of food choices in schools and other eating establishments and children's own preferences.

In adolescents, peers are one of the important sources of influence on adolescents' eating behavior. The study about the food choice process of adolescents also concluded that the interaction patterns with peers of adolescents is one of the trigger adolescents face in making food choices (Contento, Williams, Michela & Franklin, 2006). The examples from the study expressed this process as trade-offs between lunches with peers and interaction with peers (Contento et al., 2006). With peer

norms being more powerful than parental norms, it is also found that a female teenager who perceives her friends to think she should eat fruit would be expected to eat more of it (Lally, Bartle & Wardle, 2011). As corresponded with the study about the influence of peers and friends on children's and adolescents' eating and activity behaviors, this research states that the presence of peers and friends increases children and adolescents' energy intake (Salvy, De La Haye, Bowker & Hermans, 2012). In addition, in adolescent girls, friendship attitudes contributed significantly to their eating behaviors in related to body image concerns (Paxton, Schutz, Wertheim & Muir, 1999).

Concerning peer influence on adults, the study of influences on meat avoidance among British undergraduate students reported that influence of friends is one of the reasons for avoiding meat and perceived influences on preferences for food in vegetarian dish (Santos & Booth, 1996). Also, the study of socio-cultural influences on the behavior of South Asian women with diabetes in pregnancy reported that some participants placed higher value on advice considering how to manage diabetes and encouraged self-discipline in diet or exercise from peers than from professional advice (Greenhalgh, Clinch, Afsar, Choudhury, Sudra, Campbell-Richards, Claydon, Hitman, Hanson & Finer, 2015). Therefore, from this study, peers are believed to have a powerful influence on health-related behavior and the power of peer advice to influence behavior even higher than professional recommendations. This may be partly due to the fact that peer advice is familiar, meaningful, and morally grounded rather than unfamiliar, abstract, and morally rootless (Greenhalgh, Clinch, Afsar, Choudhury, Sudra, Campbell-Richards, Claydon, Hitman, Hanson & Finer, 2015).

2.2.3 Colleagues

In addition, from the roles of family and friends on eating behaviors, colleague is also found to have potential to influence eating behaviors. The study about the impact of the workplace atmosphere of eating behaviors concludes that employees would eat lunch more often with colleagues when their social interactions in the workplace and the relationship with colleagues improve (Arundell, Sudholz, Teychenne, Salmon, Hayward, Healy & Timperio, 2018). Moreover, the workplace eating policies, such as a healthy eating workplace culture and prohibiting eating at the desk are believed to be able to promote better nutrition and dietary improvements among employees such as reduction in junk food snacking and healthier eating behaviors (Arundell, Sudholz, Teychenne, Salmon, Hayward, Healy & Timperio, 2018).

These findings are correspondence with the study about the effects of a worksite environmental intervention on fruit, vegetable and fat intake and determinants of behavior (Engbers, van Poppel, Paw & van Mechelen, 2006). It is found that the employees with more social supports from colleagues at the worksite eat less fat. In addition, it is noticeable from this study that white-collar workers are perceived to have more favorable food patterns such as they eat more fruit-vegetables

and less fat since they are more likely to be highly educated (Engbers, van Poppel, Paw & van Mechelen, 2006).

Regarding to the factors of meal satisfaction in a workplace environment, the study of Haugaard, Stancu, MBrockhoff, Thorsdottir & Lähtenmäki (2016) found that perceived ambience contributed strongly to meal satisfaction in everyday meals. The study found that eating with close colleagues would increase the positive ambience so this would increase meal satisfaction at workplace meals (Haugaard, Stancu, MBrockhoff, Thorsdottir & Lähtenmäki, 2016). Therefore, social context is one of the factors related to ambience effects on individual eating behaviors.

2.3 Social influence on meat consumption

Consumer attitudes toward meat eating are not only a way of eating, but a reflection of the philosophy of life (Richardson, MacFie & Shepherd, 1994). The study of Richardson et al. (1994) about consumer attitudes toward meat eating stated that the motivations of meat avoider are often multi-layered. Several studies found that social influence, defined as the eating habits of family and friends, need to be considered when investigating meat consumption behavior (Richardson, MacFie & Shepherd, 1994; McCarthy, O'Reilly, Cotter & de Boer, 2004; Ruby & Heine, 2012).

Behavior choices are not only based on personal experience, but also on information acquired through various media, including family and friends, who are found to be important in the acquisition of information (Richardson, 1994). According to social and environmental factors, the opinions of family members and/or peers found to influence an individual's consumption behavior (McCarthy, O'Reilly, Cotter & de Boer, 2004). Moreover, the views of other people also significantly contributed to the behavioral intention towards consumption (McCarthy, O'Reilly, Cotter & de Boer, 2004).

Social support emerges as a critical factor in maintaining a vegetarian diet, along with other factor such as convictions about animal welfare, knowledge of vegetarian nutrition, and availability of vegetarian food products (Ruby, 2012). The study about the factors that help vegetarian people maintain and abandon their diet stated that the social factors such as having close friends who are vegetarian, being involved in a vegetarian group and receiving support from family members are important in maintaining a vegetarian diet (Ruby, 2012, p. 143). On the other hand, the enjoyment of meat consumption and family pressures to eat meat appear as common barriers to vegetarians. The research on former vegetarians also found that moving in with a meat-eating family cause vegetarians to resume an omnivorous diet (Barr & Chapman, 2002).

Moreover, the social context can also be a significant factor regarding to meat consumption attitudes. For example, the meat might be more likely to be chosen for meals in particular events such as weekend meals and celebrations (Richardson, MacFie & Shepherd, 1994). The study of food consumption during television viewing also stated that children in the households that turn

on the television during meals are likely to consume more red meat (Matheson, Killen, Wang, Varady & Robinson, 2004).

According to overall literature study, social factors (family, friends, and colleagues) are believed to play a critical role in the consumer food choices and eating behaviors. While most of referential studies mainly focus on meat consumption, in this study social factors will be applied to meat alternative consumption. Culture contents are rarely included in the referential studies regarding the social influence on meat consumption. Therefore, in this study, the conceptual framework developed for measuring the social environment factors (family, friends, and peers) effect on consumer intention and behavior to consume meat alternatives in terms of cultural influences will be developed.

3. Conceptual framework

3.1 Theory of Reasoned Action and Theory of Planned Behavior

Theory of Reasoned Action (TRA) provides a useful framework for the analysis of consumer behavior and it has been applied to food choice studies (McCarthy, de Boer, O'Reilly & Cotter, 2003). The TRA help to explain rational behavior that is under the control of the individual and it is suggested that the intention to perform a behavior is a good predictor of the actual behavior (McCarthy, de Boer, O'Reilly & Cotter, 2003). According to the study of McCarthy et al. (2003) about the factors influencing intention to purchase beef in the Irish market, it is stated that in related to food, perceived social pressure is one of influences on food choice (McCarthy, de Boer, O'Reilly & Cotter, 2003). Perceived social pressure is defined as *“the perceived pressure to perform the behavior in question from people (family and friends) that are important to the person (normative beliefs) and the motivation to comply with the wishes of these people”* McCarthy et al. (2003, p. 1075). The study concludes that the views of other people significantly contributed to the behavioral intention towards beef consumption (McCarthy et al., 2003).

The Theory of Planned Behavior (TPB) also considers a social factor termed “subjective norms” as a determinant of behavioral intention (Ajzen, 1991). According to the study, *“subjective norms conceptualized refer to the perceived social pressure to perform or not to perform the behavior”* (Ajzen, 1991, p. 188). The concept of subjective norms has been studied in relation to a number of meat consumption research settings. In the study of individual determinants of fish consumption, Verbeke and Vackier (2005) found that TPB served as a useful framework for understanding the determinants of fish consumption behavior (Verbeke & Vackier, 2005). The result from the study suggest that *“a higher social pressure from peers or one's own moral responsibility, and a higher conviction of one's personal ability to buy and prepare fish yield a stronger intention to eat fish* (Verbeke & Vackier, 2005).”

Moreover, in the study applying TPB about the attitudes toward following meat, vegetarian and vegan diets concludes that subjective norm (social pressure) is one of the significant predictors of the intention to follow meat and vegan diets (Povey, Wellens & Conner, 2001). According to the study, subjective norm is described as beliefs about whether others think you should or should not perform the behavior (Povey, Wellens & Conner, 2001, p. 17). The result of the study found that the pressures from significant others is important for meat eaters and vegans (Povey, Wellens & Conner, 2001). The strong intentions to eat a meat diet were associated with perceiving more social pressure to eat a meat diet and perceiving more control over eating such a diet (Povey, Wellens & Conner, 2001). For people who intend to eat a vegan diet, the stronger intentions were also associated with perceiving more social pressure to eat a vegan diet and perceiving more control over eating such a diet, being a vegan. Therefore, the result from these studies support that subjective norms would successfully predict intentions (Povey, Wellens & Conner, 2001).

3.2 Social perceived pressure: descriptive and injunctive norms

The eating behavior is believed to be determined by subjective norms (social pressures) where individuals try to act according to the expectations of their close friends or family (Šedová, Slovák & Ježková, 2016). Norms among key social groups are likely to influence food intake and both injunctive and descriptive norms are believed to be associated with behavior (Lally, Bartle & Wardle, 2011). By definition, descriptive norms specify what is typically done in a given setting (behavior), and injunctive norms specify what is typically approved in society (attitudes) (Reno, Cialdini & Kallgren, 1993).

The relevance of TPB in relation to eating behavior was confirmed by several studies (Šedová, Slovák & Ježková, 2016; Povey, Wellens & Conner, 2001). The strong influence of family and partners on meat consumption occurs when visiting parents and being offered meat during the meal (Šedová, Slovák & Ježková, 2016). It is explained in the study of Šedová et al. (2016) that when respondents refuse the meat dish offered by their mothers, she feels like herself being refused and unhappy, as the result they have to consume that meat dish. Moreover, the respondents would only buy and cook meat only because of their parents or partner eat meat. If the food choice were solely left to them, they would probably eat a lot less meat. According to the study of Zur and Klöckner (2014), meat consumption is also found to be strongly determined by eating habits (descriptive norms), while meat reduction intentions found to be determined by attitudes (injunctive norms).

In addition to food intake, the social perceived norms approach is also applied to the areas of alcohol consumption. Descriptive norms defined as beliefs about how often others drink alcohol and injunctive norms defined as beliefs about others' attitudes toward drinking, these norms are believed to be the predictors of behavior (Lally, Bartle & Wardle, 2011). The study about the relation between the students' perceptions of alcohol consumption in their pledge classes (descriptive norms) and the desirability of drinking (injunctive norms), the results revealed that descriptive norms significantly predicted current drinking behavior and injunctive norms significantly predicted drinking 1 year later after controlling for baseline drinking (Larimer, Turner, Mallett & Geisner, 2004). The results from the study of the relative impact of injunctive norms on college student drinking also suggested that, for injunctive norms, the perceptions of friends and parents are positively associated with drinking behavior (Neighbors, O'connor, Lewis, Chawla, Lee & Fossos, 2008).

In adolescents, the study about social norms and diet in adolescents conclude that descriptive norms were strongly associated with their eating behaviors (Lally, Bartle & Wardle, 2011). Predicted by descriptive norms, this study found that the more sugar-sweetened drinks and unhealthy snacks the respondent perceive their friends to consume, the more they consume themselves (Lally, Bartle & Wardle, 2011). However, injunctive norms are not associated with the intake of sugary drinks and unhealthy snack consumption (Lally, Bartle & Wardle, 2011). In

addition to friends, adolescent healthy eating (fruit and vegetable) found to be mainly influenced by family, with what they do (descriptive norms) being more important than what they say (injunctive norms) (Pedersen, Grønhøj & Thøgersen, 2015).

3.3 Cultural orientations: individualism and collectivism

Cultural factors moderate many aspects of consumer behavior (Kacen & Lee, 2002). Also, culture is believed to have an impact on food consumption behavior and meat consumption in particular (Vranken, Avermaete, Petalios & Mathijs, 2014). According to the study of Vranken et al. (2014), it is stated that consumer behavior will be heterogeneous because of cultural differences which is one of the determinants of meat consumption. Since the culture differences have an impact on consumption, to clearly understand the social factors influence on meat alternative consumption, the cultural differences, one of the dimensions used in the study of Vranken et al. (2014) is individualism and collectivism.

By definition, the individualist societies are defined as the societies that the ties between individuals are loose: everyone is expected to look after him/herself and his/her immediate family. While collectivist societies are defined as the societies that people from birth onwards are integrated into strong, cohesive in-groups, often extended families (with uncles, aunts and grandparents) which continue protecting them in exchange for unquestioning loyalty (Vranken et al., 2014, p. 98). As also mentioned in the study of Gregory and Munch (1997) that the cultural orientations: individualism and collectivism, may affect attitudes and behaviors toward products (Gregory & Munch, 1997). By definition, the term “individualism is defined as the emotional independence from “groups, organizations, or other collectivities”, in contrasts with collectivist societies where people are born into extended families or kinship systems which protect them in exchange for loyalty” (Hui, 1988, p. 18).

Based on the study about the measurement aspects of individualism and collectivism across cultures, the “separation from ingroups” and “self-reliance with hedonism” found to describe the individualistic aspects, whereas “family integrity” and “interdependence with sociability” found to describe the collectivistic aspects (Triandis, Bontempo, Betancourt, Bond, Leung, Brenes & Sinha, 1986). Correspondence with the previous study, the people in collectivistic cultures are believed to perceive their ingroups as more homogeneous than outgroups, while the opposite pattern is found among members of individualistic cultures (Triandis, McCusker & Hui, 1990). Moreover, the people in collectivistic cultures are perceived as closer and more dependent social behaviors as likely toward their ingroup members and more dissociative and superordinate behaviors toward members of their outgroups than the people of individualistic cultures do (Triandis, McCusker & Hui, 1990). Furthermore, collectivistic cultures are found to emphasize on the values that promote the welfare of their ingroup, whereas individualists emphasize on the values that promote individual goals (Triandis, McCusker & Hui, 1990).

Apart from the cultural comparison of individualism and collectivism, the study of Han & Shavitt (1994) described individualism and collectivism as the relation between the individual and collectivity in a given society (Han & Shavitt, 1994). According to the study, “*in individualistic cultures, individuals tend to prefer independent relationship to others and to subordinate ingroup goals to their personal goals. In collectivistic cultures, on the other hand, individuals are more likely to have interdependent relationship to their ingroups and to subordinate their personal goals to their ingroup goals*” (Han & Shavitt, 1994, p.328). Moreover, the study also states that the self is defined in terms of ingroup memberships (e.g., family and ethnic identity) to a greater extent in collectivistic cultures than individualistic cultures (Han & Shavitt, 1994). Behavioral consequences are also found to be a result from these cultural differences in the perceived relation of the self to others (Han & Shavitt, 1994).

In more individualistic (e.g. Western culture and European culture) people perceive themselves as autonomous and independent (Bonne, Vermeir, Bergeaud-Blackler & Verbeke, 2007). As mentioned in the study of Ruby and Heine (2012) that the past researches indicate that within individualistic cultural contexts, one’s family and friends have relatively little impact on one’s food choices. The study of two countries characterized as highly individualist (American culture) and collectivist Chinese culture stated that “*an individualistic culture emphasizes personal self more than social self, individual rights over group rights and personal self-esteem over social self-esteem*” (Li & Su, 2007, p.240). Thus, the individualistic is more responsible for his or her own consumption and emphasizes maintaining individual prestige, according to his or her will (Li & Su, 2007, p.240).

Within collectivistic cultures, the study of Ruby & Heine (2012) provides an evidence that one’s friends and family have a stronger influence on one’s food choices, among Hong Kong, Chinese, and Indian respondents. It is found that more value is placed on fitting in with close others, and people in these cultures exhibit higher levels of conformity than those from individualistic cultures (Ruby & Heine, 2012). Furthermore, the study about the effects of individualism and collectivism on conspicuous consumption found that the relationships between individualism-collectivism and conspicuous consumption (Wong, 1997). The study reported that the country that generally considered to be collectivist societies currently show a higher in luxury consumption, compared to individualist societies (Wong, 1997). One of the reasons is that people who are collectivistic are likely to value things that enhance their relationships with others within the social ingroup but elevate their social status to members from the outgroups (Wong, 1997). Moreover, in the results from the study investigating the determinants of green buying behavior suggest that the collectivism positive influence on predicting green purchase (Kim, 2011).

According to these previous studies, the assumption in this study is that people in the collectivistic cultures are more likely to follow the consumption pattern from ingroup members than individualistic culture. As mentioned in the study of Han & Shavitt (1994), the individualistic

cultural pattern is found in most northern and western regions of Europe, whereas the collectivistic cultural pattern is common in Asia (Han & Shavitt, 1994), therefore, the social factors influence on meat consumption in different culture orientations is expected to show difference results

4. Research hypotheses

According to the literature study, the conceptual framework applying for meat alternative consumption is shown in Figure.1. It was hypothesized that the significant close one (family, friend, and colleague) will contribute to social pressure (descriptive and injunctive norms). In this study, descriptive norm is defined as the way people you know eat meat alternatives and injunctive norm is defined as the way people you know think you should eat meat alternatives. Furthermore, these norms will contribute to intention to consume meat alternatives. To study the social factors influence on meat alternative consumption, the hypotheses in this study are:

H₁: When the close ones *consume* meat alternatives, then one's intention to consume meat alternatives would be higher.

H_{1a}: When *family* consumes meat alternatives, then one's intention to consume meat alternatives would be higher.

H_{1b}: When *friends* consume meat alternatives, then one's intention to consume meat alternatives would be higher.

H_{1c}: When *colleagues* consume meat alternatives, then one's intention to consume meat alternatives would be higher.

H₂: When the close ones *think* one should consume meat alternatives, then one's intention to consume meat alternatives would be higher.

H_{2a}: When the *family* thinks one should consume meat alternatives, then one's intention to consume meat alternatives would be higher.

H_{2b}: When the *friends* think one should consume meat alternatives, then one's intention to consume meat alternatives would be higher.

H_{2c}: When the *colleagues* think one should consume meat alternatives, then one's intention to consume meat alternatives would be higher.

H₃: In collectivism, the influence of social norms (descriptive/injunctive) on an intention to consume meat alternatives would be stronger than in individualism.

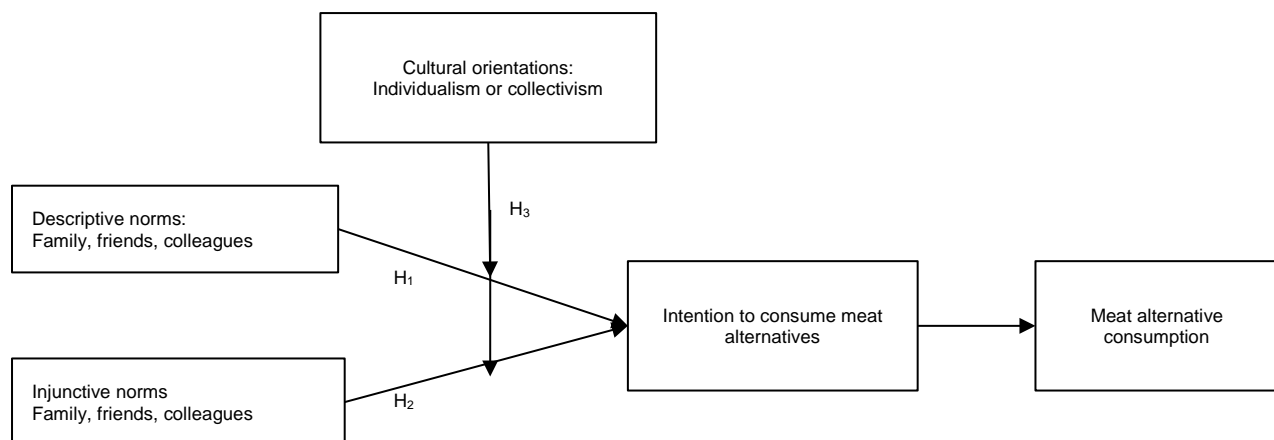


Figure. 1. The conceptual framework of social influences on meat alternative consumption

5. Methodology

5.1 Sample and design

Since the individualistic cultural pattern is found in most northern and western regions of Europe, whereas the collectivistic cultural pattern is common in Asia (Han & Shavitt, 1994), therefore, in this study, the population of the Netherlands and Thailand will be selected to represent individualistic and collectivistic cultures, respectively. The two hundred respondents in total are expected in this study, which is one hundred of Thai and another one hundred of Dutch respondents. A convenience sampling method will be applied to collect information from participants who are easily accessible to the survey. Respondents will also be the omnivore, screening by asking the question of “Do you eat meat?” Then, only the respondents who answer “Yes” can participate in the survey.

Cultural orientations will be assumed that Thai society is collectivism and Dutch society is individualism. In order to compare the cultural differences between groups, Thai respondents would represent collectivistic society, whereas Dutch respondents would represent individualistic society in this study. Since these two groups of respondents differed in terms of languages, the survey instruments of Thai respondents will be developed in Thai. While English survey instruments will be applied for Dutch respondents. A non-randomized or quasi-experimental design comparing two groups will be used in this study to estimate the causal impact of an intervention on the Thai and Dutch respondents without random assignment.

5.2 Measures

As the conceptual model consists of five hypothesized variables: descriptive norms (family, friends, and colleagues), injunctive norms (family, friends, and colleagues), oriented personality (individualism or collectivism), intention to consume meat alternative and behavior. The questionnaire included all of these components will be designed. The measures used for these components are discussed briefly below.

5.2.1 Descriptive norms of family, friends, and colleagues

The measures for family, friends, and colleagues’ descriptive norms of meat alternative consumption will be similar to those used in the study of Pedersen, Grønhøj & Thøgersen (2015) by the following statements. Responses will be on a seven-point scale, ranging from strongly disagree/totally unimportant (=1) to strongly agree/very important (=7).

1. My family eats meat alternatives.
2. My friends eat meat alternatives.
3. My colleagues eat meat alternatives

5.2.2 Injunctive norms of family, friends, and colleagues

The measures for family, friends, and colleagues' injunctive norms of meat alternative consumption will also be similar to those used in the study of Pedersen, Grønhøj & Thøgersen (2015) by the following statements. Responses will be on a seven-point scale, ranging from strongly disagree/totally unimportant (=1) to strongly agree/very important (=7).

1. My family thinks I should eat meat alternatives.
2. My friends think I should eat meat alternatives.
3. My colleagues think I should eat meat alternatives.

5.2.3 Individualistic and collectivistic

Culture orientations will not be measured directly, but by asking respondents following social interaction norms which the statements adapted from the previous studies of Cozma (2011). The adjusted statements are the 5th question of individualism and the 1st and 2nd questions of collectivism. Respondents could indicate their frequency of consumption using a 7-point frequency scale, ranging from “never or definitely no” (=1) to “always or definitely yes” (=7).

- Individualism
 1. I'd rather depend on myself than others
 2. I rely on myself most of the time, I rarely rely on others
 3. I often do my own thing
 4. My personal identity, independent of others, is very important to me
 5. It is important for me to do *everything* better than the others
 6. Winning is everything
 7. Competition is the law of nature
 8. When another person does better than I do, I get tense and aroused
- Collectivism
 1. If a *friend* gets a prize, I would feel proud
 2. The well-being of my *friends* is important to me
 3. To me, pleasure is spending time with others
 4. I feel good when I cooperate with others
 5. Parents and children must stay together as much as possible
 6. It is my duty to take care of my family, even when I have to sacrifice what I want
 7. Family members should stick together, no matter what sacrifices are required
 8. It is important to me that I respect the decision made by my groups

5.2.4 Intention to consume meat alternative

The measures for behavioral intention to consume meat alternatives will be similar to those used in the study of Honkanen, Olsen & Verplanken (2005). The questions consisting of two items, indicate how often the subjects expected and tried to consume meat alternatives during the next month. Responses will be on a seven-point scale, ranging from strongly disagree (=1) to strongly agree (=7).

1. I expect to eat meat alternatives in my meal within next month.
2. I will try to eat meat alternatives in my meal within next month.

5.2.5 Behavior of meat alternative consumption

The measures for behavior will be similar to those used in the study of Towler & Shepherd (1991). Behavior will not be measured directly, but by means of the frequency of consumption by asking respondents following statements. Respondents could indicate their frequency of consumption using a 7-point frequency scale, ranging from 'never' (=1) to 4 or more times a week (=7).

1. How often do you not eat meat in your meal?

5.2.6 Attitudes toward meat alternatives

The measures for attitudes toward meat and meat alternatives will be similar to those used in the study of Conner (2001). The four questions will be asked to assess participants' attitudes toward meat alternatives by asking *how bad to good, how harmful to beneficial, how unpleasant to pleasant, how unenjoyable to enjoyable meat, and how cheap to expensive meat and meat alternatives would be*. As attitudes are believed to be elicited towards the eating behavior instead of towards the food itself (Ajzen & Fishbein, 1980), therefore, the eating meat behavior will be applied in this study. Responses will be on a seven-point scale, ranging from bad, harmful, unpleasant, unenjoyable, cheap (=1) to good, beneficial, pleasant, enjoyable, expensive (=7). Also, the open question for the reason of eating meat alternatives will be asked for further eating meat behavior insights.

- Eating meat is:
 1. bad to good
 2. harmful to beneficial
 3. unpleasant to pleasant
 4. unenjoyable to enjoyable
 5. cheap to expensive
- Eating meat alternative is:
 1. bad to good

2. harmful to beneficial
 3. unpleasant to pleasant
 4. unenjoyable to enjoyable
 5. cheap to expensive
- open question asking the reason of eating meat alternatives

5.2.7 Background

The background information of respondents will also be collected in order to explore other possible influences. The background questions about gender, age, highest education level, living arrangements (living alone, living with a partner, living with a parent(s)/relative(s), sharing with friends, co-workers or classmate, others), children in the household, living area, and nationality will be asked at the end of the survey.

5.3 Procedure

The questionnaires were in Thai version for Thai respondents and in English version for Dutch respondents which were included questions based on the research sub-questions and on the conceptual framework (the questionnaire can be seen in the appendix). The link of questionnaire applying wur.qualtrics.com format will be shared via social media (e.g. Facebook and LinkedIn) or sent directly to expected participant's emails. The approximate time to complete this particular survey is estimated to be about 5-10 minutes. The respondents will be informed of their participation would be totally anonymous and the explanation about the objective of the project and meat alternative definition. The respondents then will receive the measurement with descriptive norms statements first, then injunctive norms statements, behavioral intention and behavior to consume meat alternative statements, individualism–collectivism statements, and, finally, background questions. The questionnaire will end with the thank you for participates the survey page. The randomize questionnaire will be applied in the order of descriptive and injunctive norms and among the statement of family, friend, colleague descriptive and injunctive norms. The procedure framework applying for meat alternative consumption is shown in Figure.5.3.

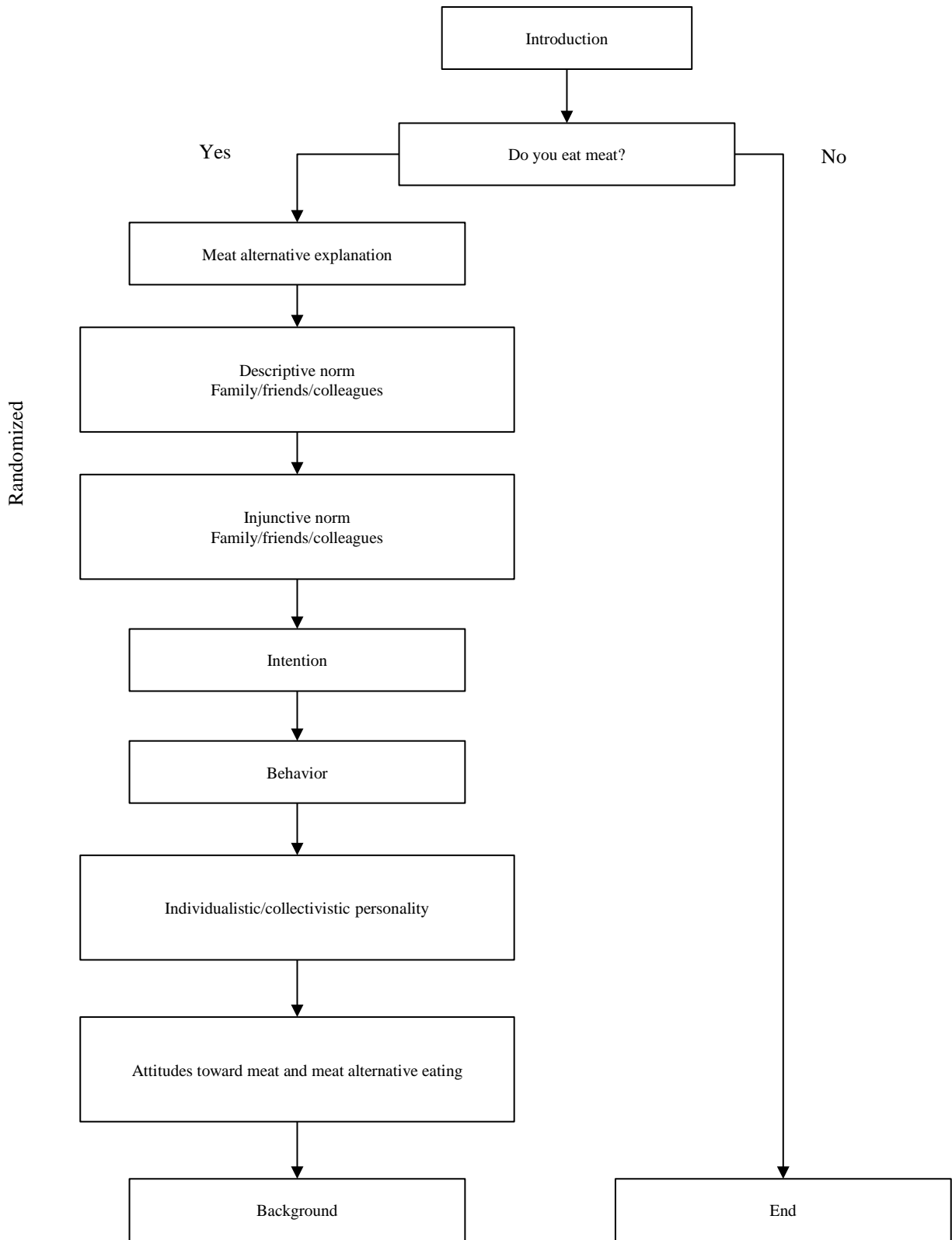


Figure. 5.3. The procedure framework of social influences on meat alternative consumption

6. Statistical analysis

All statistical analyses were performed using IBM SPSS Statistics (Version 23, Wageningen University & Research) with a critical p-value of .05. All scales were found to be sufficiently reliable which Cronbach's $\alpha \geq .70$; descriptive norms (3 items; $\alpha = .78$), injunctive norms (3 items; $\alpha = .86$), individualistic culture orientation (8 items; $\alpha = .70$), collectivism culture orientation (8 items; $\alpha = .75$), intention to consume meat alternatives (2 items; $\alpha = .93$), attitudes toward meat (5 items; $\alpha = .73$), and meat alternatives (5 items; $\alpha = .76$). Mean and standard deviation of background items were used for investigating the respondents. Then, in order to answer the sub-questions from the conceptual framework, we analyzed the data in SPSS statistics.

The SPSS analysis guideline by Field (2009), suggest to conduct multiple regression for the model of one outcome variable (intention), continuous type of outcome, two or more predictor variables (social norms), and continuous type of predictor. Therefore, multiple regression analysis was used to test if the descriptive and injunctive norms of family, friends, and colleague significantly predicted intention to consume meat alternatives. For testing all hypotheses, the scores for the descriptive norms, injunctive norms, individualism, and collectivism were averaged to get a single aggregated score from each variable.

The effect of descriptive and injunctive norms on intention to consume meat alternatives, moderated by culture orientations were performed by adding interaction variables for each norm and cultural orientations. Then, the effect of each interaction on intention to consume meat alternatives was investigated by Regression analysis. In addition, the direct effect of cultural orientations was also performed for both individualism and collectivism. Analyses consisted of Pearson's Correlation, ANOVA's, correlation, and regression models to investigate the relationships between social norms and cultural orientations and intention to consume meat alternatives.

To investigate whether the model of the study fits the data, regression analysis was performed to check R square. Since each statement in the questionnaire was represented each descriptive norms or injunctive norms of family, friends, and colleagues, to investigate the effect of family, friend, and colleague descriptive norms (H_1) and injunctive norms (H_2), the Multiple Regression Analysis was performed. The effect of descriptive and injunctive norms on intention to consume meat alternatives, moderated by culture orientations (H_3) were performed by adding the interaction variables for each norm and cultural orientations. For example, the interaction of family descriptive norms and individualism, the interaction of family descriptive norms and collectivism, the interaction of friend descriptive norms and individualism, and so on. Then, the effect of each interaction on intention to consume meat alternatives was investigated by regression analysis. In addition, the direct effect of culture orientations was also performed for both individualism and collectivism.

7. Results

7.1 Descriptive statistic

Only meat consuming respondents from the Netherlands and Thailand with no missing values for any of the variables studies were included in the analyses, reducing the sample size by 36.3% from $n = 377$ to $n = 240$. From the total of 240 respondents, there are 102 Dutch respondents account for 42.5% and 109 Thai respondents account for 45.4%. The other 29 respondents account for 12.1% from other countries (e.g. Germany, India, Spain, China, etc.) will not be studied.

The total sample of 211 Thai and Dutch respondents (complete information in table 6.1.1), there are a total of 102 Dutch respondents completed the survey. The majority of respondents (65.7%) were female. The age ranged from 18 to 60 years old, which their mean age was 26.2 years old ($SD = 8.5$). The age less than 24 years accounted for 52.0% ($n = 53$), following 25-29 years accounted for 38.2% ($n = 39$). The educational background of the Dutch respondents included more respondents with a Bachelor degree, which accounted for 59.8% ($n = 61$). The most living arrangements of Dutch respondents were sharing with friends, co-workers or classmates) accounted for 35.3% ($n = 36$), following by living with a partner accounted for 28.4% ($n = 29$). The 98.0% of Dutch respondent also living with no children younger than 18 in their household ($n = 100$).

A total of 109 Thai respondents completed the survey. The majority of respondents (64.2%) were female ($n = 70$). The mean age 28.7 years old ($SD = 5.9$), which the age group of 25-29 years accounted for 67.0% ($n = 73$). The educational background of Thai respondents included more respondents with a Bachelor degree, which accounted for 56.9% ($n = 62$). The most living arrangements of the respondents were living with a parent (s) /relative (s) accounted for 58.7% ($n = 64$) and 84.4% of Thai respondent living with no children younger than 18 in their household ($n = 92$).

A Chi-square test of independence was performed to investigate whether there is a significant association between the Dutch and Thai participants, the full statistics can be seen in Table 7.1.1. According to the p-value, there were significant differences between Dutch and Thai participant scores for age ($p < .01$), living arrangements ($p < .01$), living with children younger than 18 years old ($p < .01$), living area ($p < .01$), and level of education ($p < .05$).

Table 7.1.1. Characteristics of the Dutch and Thai samples (N = 211) with Chi-square, t-value, p value to compare the different characteristics between the Netherlands and Thailand respondents

	Netherlands	Thailand	Chi-square X ² (df) or t-value(df)	P value
Number of respondents	102	109		
Gender (% contribution)			X ² (1)= .050	.824
Female	67 (65.7%)	70 (64.2%)		
Male	35 (34.3%)	39 (35.8%)		
Age in year: Mean (SD)	26.2 (8.5)	28.7 (5.9)	t(209)=2.51	.013**
Living arrangements (% contribution)			X ² (4)=70.959	.000**
Living alone	23 (22.5%)	26 (23.9%)		
Living with a partner	29 (28.4%)	13 (11.9%)		
Living with a parent(s)/relative(s)	10 (9.8%)	64 (58.7%)		
Sharing with friends, coworkers or classmates	36 (36.3%)	6 (5.5%)		
Others	4 (3.9%)	-		
Living with children younger than 18 years old (% contribution)			X ² (1)=11.956	.001**
No	100 (98.0%)	92 (84.4%)		
Yes	2 (2.0%)	17(15.6%)		
Living area (% contribution)			X ² (3)=25.098	.000**
Living in the city	59 (57.8%)	45 (41.3%)		
Living in the suburb	11 (10.8%)	34 (31.2%)		
Living in the a village or countryside	30 (29.4%)	17 (15.6%)		
Others	2 (2.0%)	13 (11.9%)		
The highest level of education			X ² (4)=10.946	.027*
Less than BSc degree	10 (9.8%)	1 (0.9%)		
BSc degree	61 (59.8%)	62 (56.9%)		
MSc degree	27 (26.5%)	42 (38.5%)		
Doctorate	3 (2.9%)	2 (1.8%)		
Others	1 (1.0%)	2 (1.8%)		

*significant at the .05 level

**significant at the .01 level

An independent t-test also was performed to investigate the equality of means between Dutch and Thai participants for descriptive and injunctive norms of family, friends, and colleagues, cultural orientations, intention to consume meat alternatives, attitudes toward meat and meat alternatives, meat alternative consumption, the full statistics can be seen in Table 7.1.2.

There was a significant difference in the score for descriptive norms for Dutch respondents ($M = 4.17$, $SD = 1.2$) and Thai respondents ($M = 3.55$, $SD = 1.6$), conditions; $t(209) = -3.12$, $p = .002$. When considering each descriptive norms separately, only the descriptive norms of family shown nonsignificant difference between two groups of the respondents, Dutch respondents ($M = 3.33$, $SD = 1.9$) and Thai respondents ($M = 3.25$, $SD = 1.8$), conditions; $t(209) = -0.34$, $p = n.s.$, while descriptive norms of friends and colleagues presented a significant difference.

There was a nonsignificant difference in the score for injunctive norms for Dutch respondents ($M = 3.12$, $SD = 1.5$) and Thai respondents ($M = 2.69$, $SD = 1.4$), conditions; $t(209) = -0.87$, $p = n.s.$ When considering each injunctive norms separately, only injunctive norms of friends shown a significant difference between two groups of the respondents, Dutch respondents ($M = 3.39$, $SD = 1.6$) and Thai respondents ($M = 2.93$, $SD = 1.5$), conditions; $t(209) = -2.20$, $p = .029$, while injunctive norms of family and colleagues were not significant differences.

There were significant differences in the score of other variables ($p < .01$ and $p < .05$); individualism, collectivism, intention to consume meat alternatives, attitudes toward meat consumption, attitudes toward meat alternative consumption, and meat alternative consumption as a behavior, which the complete information can be seen in Table 7.1.2.

In addition to the numeric value of attitudes toward meat alternative consumption, some respondents also provided their reason of eating alternatives. Among Dutch respondents, the most mentioned reason is the ethical issue regarding animal welfare and environmental issues. Some given reasons are “It is better for the environment and animal welfare.”, “substitutes it for meat to benefit the environment and the welfare of animals”, “It is better for the environment than meat”. Other reasons are easy to prepare and value for money. On the other hand, some Thai respondents mentioned about “wondering what it tastes like” and “just to try”. Other reasons are “when I have to reduce my daily meat consumption.”, “no other choices”, and “on diet”

Table 7.1.2. Mean, (SD), *t* value and *p*-value for comparing the different between the Netherlands and Thailand in term of descriptive and injunctive norms of family, friends, and colleagues, cultural orientations, intention to consume meat alternatives, attitudes toward meat and meat alternatives, meat alternatives consumption (measured on a 7-point scale, ranging from strongly disagree/totally unimportant (=1) to strongly agree/very important (=7))

	All Respondents (N=211): Mean, (SD)	Netherlands (N=102): Mean, (SD)	Thailand (N=109): Mean, (SD)	<i>t</i> value (209)	<i>P</i>
Total descriptive norms	3.85, (1.5)	4.17, (1.2)	3.55, (1.6)	-3.12	.002**
Descriptive norms of family	3.29, (1.8)	3.33, (1.9)	3.25, (1.8)	-.34	.733
Descriptive norms of friends	4.23, (1.8)	4.77, (1.6)	3.72, (1.8)	-4.46	.000**
Descriptive norms of colleagues	4.04, (1.7)	4.40, (1.5)	3.70, (1.8)	-3.14	.002**
Total injunctive norms	3.03, (1.3)	3.12,(1.2)	2.69, (1.4)	-.87	.384
Injunctive norms of family	2.91, (1.5)	2.83, (1.5)	3.00, (1.6)	.80	.426
Injunctive norms of friends	3.15, (1.6)	3.39, (1.6)	2.93, (1.5)	-2.20	.029*
Injunctive norms of colleagues	3.04, (1.5)	3.13, (1.4)	2.95, (1.5)	-.90	.369
Individualism	4.81, (0.8)	4.55,(0.79)	5.07, (0.7)	5.11	.000**
Collectivism	5.55,(0.7)	5.28, (0.7)	5.80, (0.6)	5.36	.000**
Intention to consume meat alternatives consumption	3.72, (2.1)	4.56, (2.1)	2.94, (1.7)	-6.23	.000**
Attitudes toward meat consumption	4.64, (1.0)	4.42, (0.9)	4.84, (1.0)	3.22	.002**
Attitudes toward meat alternative consumption	4.31, (1.0)	4.54, (1.0)	4.10, (1.0)	-3.16	.002**
Meat alternative consumption	2.60, (1,2)	3.05, (1.0)	2.18, (1.2)	-5.44	.000**

*significant at the .05 level

**significant at the .01 level

Based on the results of the study, intention to consume meat alternatives and all descriptive norms were significantly correlated, $p < .01$, for all, Dutch, and Thai respondents. The intention of all respondents was most significantly correlated with the descriptive norms of family, $r = .518$, $p < .01$. The intention to consume meat alternative of Thai respondents showed a higher correlation with the descriptive norms of family, $r = .590$, $p < .01$. (Complete correlation can be found in Table 7.1.3).

Regarding to injunctive norms, the intention to consume meat alternative of all respondents was significantly correlated with all injunctive norms, $p < .01$ and the injunctive norms of friends were most significantly correlated, $r = .438$, $p < .01$. For Dutch respondents, there was a nonsignificant correlation of colleagues injunctive norm, $r = .178$, $p = n.s$. While, all injunctive norms of Thai respondents were significantly correlated with the intention. The intention to consume meat alternative was most significantly correlated with the injunctive norms of family ($r = .637$, $p < .01$), following by injunctive norms of colleague ($r = .622$, $p < .01$) and injunctive norms of friends ($r = .605$, $p < .01$)

When considering the correlation between norms, the injunctive norm of friends for all respondents was most significantly correlated and highest with the descriptive norms of family, ($r = .445$, $p < .01$). Considering by country, the injunctive norm of friends in the Netherlands was also most significantly correlated and highest with the descriptive norms of family, ($r = .317$, $p < .01$), as well as in Thailand ($r = .576$, $p < .01$).

In addition to social norms, the attitudes toward meat and meat alternatives were also significantly correlated with the intention to consume meat alternatives ($p < .01$). For all respondents, the intention was significantly correlated with the attitudes toward meat alternatives, $r = .528$, $p < .01$. The intention to consume meat alternative of Dutch respondents showed a higher correlation with the attitudes toward meat alternatives, $r = .595$, $p < .01$.

Table 7.1.3. Correlation (*r*) and significance level (*p*) for descriptive and injunctive norms of family, friends, and colleagues, cultural orientations, intention to consume meat alternatives, attitudes toward meat and meat alternatives, meat alternatives consumption

			Intention	Descriptive norms			Injunctive norms			Attitudes
				family	friends	colleagues	family	friends	colleagues	Meat
All Respondents (N = 211)	Descriptive norms	family	.518**							
		friends	.457**	.419**						
		colleagues	.463**	.517**	.689**					
	Injunctive norms	family	.394**	.636**	.238**	.313**				
		friends	.438**	.445**	.471**	.396**	.648**			
		colleagues	.387**	.390**	.347**	.496**	.626**	.730**		
	Attitudes	Meat	-.312**	-.068	-.177**	-.141*	-.101	-.211**	-.167*	
		Meat ALT	.528**	.331**	.313**	.295**	.256**	.294**	.170*	-.125
Netherlands (N = 102)	Descriptive norms	family	.525**							
		friends	.367**	.232*						
		colleagues	.403**	.370**	.452**					
	Injunctive norms	family	.284**	.609**	.140	.158				
		friends	.254**	.317**	.498**	.227*	.488**			
		colleagues	.178	.215*	.243*	.421**	.398**	.623**		
	Attitudes	Meat	-.229*	.017	-.243*	-.267**	.038	-.099	-.045	
		Meat ALT	.595**	.371**	.273**	.291**	.220*	.165	-.001	-.187
Thailand (N = 109)	Descriptive norms	family	.590**							
		friends	.416**	.604**						
		colleagues	.455**	.652**	.818**					
	Injunctive norms	family	.637**	.667**	.363**	.459**				
		friends	.605**	.576**	.414**	.500**	.826**			
		colleagues	.622**	.546**	.420**	.548**	.818**	.828**		
	Attitudes	Meat	-.279**	-.139	-.029	.018	-.240*	-.262**	-.245*	
		Meat ALT	.400**	.301**	.264**	.242*	.319**	.366**	.287**	.001

*Correlation is significant at the .05 level

** Correlation is significant at the .01 level

7.2 Multiple regression

A multiple linear regression was firstly calculated to predict intention to consume meat alternatives based on descriptive norms, injunctive norms, individualism and collectivism and the combination of each norm in each cultural orientations. For all respondents, a significant regression equation was found ($F(8,202) = 17.214$, $p < .01$), with an R square of .405. Descriptive norms ($p < .01$), injunctive norms ($p < .01$), and individualism ($p < .05$) were significant predictors of intention to consume meat alternatives, while collectivism was not a significant predictor (complete data in Table 7.2.1).

The results by country indicated the predictors explained more than 37.6% of the variance in the Netherlands (R square = .376, $F(8, 93) = 7.007$, $p < .01$) and 52.0% in Thailand (R square = .520, $F(8, 100) = 13.522$, $p < .01$). Descriptive norms ($p < .05$), injunctive norms ($p < .01$), and individualism ($p < .01$) were significant predictors of intention to consume meat alternatives in Thailand, while only descriptive norms ($p < .01$) were significant in the Netherlands. Collectivism was not a significant predictor in any counties, $p = n.s.$

Table 7.2.1 Multiple regression models predicting intention to consume meat alternatives by selected variables.

Independent variable in the equation	All Respondents			Netherlands			Thailand		
	β	t	p	β	t	p	β	t	p
Total descriptive norms	.617	6.531	.000**	.993	4.866	.000**	.230	2.202	.030*
Total injunctive norms	.353	3.432	.001**	.019	.087	.931	.696	5.529	.000**
Individualism	-.377	-2.449	.015*	-.089	-.386	.701	-.512	-2.597	.011**
Collectivism	-.153	-.936d	.350	-.164	-.639	.524	.262	1.232	.221
Descriptive norms with individualism	-.037	-.242	.809	.127	.478	.634	.018	1.232	.915
Descriptive norms with collectivism	-.168	-1.051	.294	.108	.387	.699	.121	.712	.478
Injunctive norms with individualism	-.128	-.852	.395	-.235	-.951	.344	-.232	-1.375	.172
Injunctive norms with collectivism	.282	1.833	.068	.375	1.394	.167	-.039	-.227	.821
	$F(8,202) = 17.214$, $p = .000$, R square = .405			$F(8,93) = 7.007$, $p = .000$, R square = .376			$F(8,100) = 13.522$, $p = .000$, R square = .520		

* Correlation is significant at the .05 level

** Correlation is significant at the .01 level

A multiple linear regression was then calculated to predict intention to consume meat alternatives based on the descriptive norm of family, friends, and colleagues, the injunctive norm the descriptive norm of family, friends, and colleagues, individualism, collectivism, and the combination of each norm in each cultural orientation (complete data on Table 7.2.2). For all respondents, a significant regression equation was found ($F(20,190) = 7.211$, $p < .01$), with an R square of .431. The result shows that the descriptive norms of family ($p < .01$) and the descriptive norms of friends ($p < .01$) were significant predictors for intention to consume meat alternatives of all respondents. While none of injunctive norms were significant predictors. For cultural orientations, only individualism was a significant predictor ($p < .05$). The interaction term of family

injunctive norms with collectivism was an only significant predictor of intention to consume meat alternatives, $p < .05$.

When considering by each norm in the Netherlands, descriptive norm of family was an only significant predictor of the intention to consume meat alternatives, $p < .05$. While none of other norms were significant predictors of the intention to consume meat alternatives, $p = n.s.$ Both cultural orientations were not significant predictors, $p = n.s.$ The interaction term of family injunctive norms with collectivism was an only significant predictor of intention to consume meat alternatives in the Netherlands, $p < .05$.

None of descriptive norms were a significant predictor of the intention to consume meat alternatives in Thailand, $p = n.s.$, while only the injunctive norms of colleague was a significant predictor, $p < .05$. The cultural orientations of individualism was a significant predictors of the intention to consume meat alternatives, $p < .05$, while collectivism was not a significant predictor, $p = n.s.$ The interaction term of colleague injunctive norms with collectivism was an only significant predictor of intention to consume meat alternatives in the Netherlands, $p < .05$ (complete data on Table 7.2.2).

Table 7.2.2 Multiple regression models predicting intention to consume meat alternatives by selected variables.

		All Respondents			Netherlands			Thailand		
Independent variable in the equation		β	<i>t</i>	<i>p</i>	β	<i>t</i>	<i>p</i>	β	<i>t</i>	<i>p</i>
Descriptive norms	family	.317	3.127	.002**	.460	2.564	.012*	.161	1.014	.314
	friends	.237	2.327	.021*	.319	1.879	.064	.273	1.516	.133
	colleagues	.069	.610	.543	.269	1.460	.148	-.284	-1.302	.196
Injunctive norms	family	.147	1.078	.282	.154	.767	.445	.346	1.560	.122
	friends	.139	1.024	.307	.082	.375	.708	.009	.040	.968
	colleagues	.053	.375	.708	-.336	-1.384	.170	.428	2.151	.034*
Cultural Orientations	Individualism	-.408	-2.478	.014*	-.110	-.422	.674	-.574	-2.383	.019*
	Collectivism	-.177	-1.046	.297	-.157	-.557	.579	.095	.372	.711
Family descriptive norms with individualism		.035	.287	.774	-.065	-.379	.706	.175	.921	.359
Friend descriptive norms with individualism		-.074	-.495	.621	-.059	-.294	.769	-.518	-1.370	.174
Colleague descriptive norms with individualism		-.013	-.082	.935	.154	.721	.473	.401	.981	.329
Family descriptive norms with collectivism		-.094	-.725	.469	-.025	-.119	.905	.206	1.002	.319
Friend descriptive norms with collectivism		.051	.347	.729	.309	1.319	.191	.079	.322	.748
Colleague descriptive norms with collectivism		-.131	-.840	.402	.059	.276	.783	-.109	-.381	.704
Family injunctive norms with individualism		-.093	-.538	.591	.103	.439	.662	-.310	-.836	.405
Friend injunctive norms with individualism		.033	.220	.826	.134	.662	.510	-.039	-.121	.904
Colleague injunctive norms with individualism		-.065	-.404	.687	-.417	-1.844	.069	-.031	-.106	.916
Family injunctive norms with collectivism		.323	1.968	.050	.498	2.106	.038*	.622	1.697	.093
Friend injunctive norms with collectivism		.165	.778	.437	-.119	-.399	.691	.454	1.103	.273
Colleague injunctive norms with collectivism		-.196	-.941	.348	-.055	-.205	.838	-1.203	-2.358	.021*
		F(20,190) = 7.211, p = .000, R square = .431			F(20,81) = 3.317, p = .000, R square = .450			F(20,88) = 6.174, p = .000, R square = .584		

* Correlation is significant at the .05 level

** Correlation is significant at the .01 level

A multiple linear regression was then calculated to predict meat alternative consumption based on intention to consume meat alternatives. Intention to consume meat alternatives was a significant predictor of meat alternative consumption for all respondents ($F(1,209) = 40.911, p < .01$), with an R square of .164, and when considering by countries, the Netherlands ($F(1,100) = 13.464, p < .01$), and Thailand ($F(1,107) = 13.600, p < .01$) (complete data in Table 7.2.3).

Table 7.2.3 Multiple regression models predicting meat alternatives consumption from intention to consume meat alternatives

Independent variable in equation	All Respondents			Netherlands			Thailand		
	β	<i>t</i>	<i>p</i>	β	<i>t</i>	<i>p</i>	β	<i>t</i>	<i>p</i>
Intention to consume meat alternatives	.243	6.396	.000**	.176	3.669	.000**	.205	3.067	.003**
	<i>F</i> (1,209) = 40.911, <i>p</i> = .000, <i>R square</i> = .164			<i>F</i> (1,100) = 13.464, <i>p</i> = .000, <i>R square</i> = .119			<i>F</i> (1,107) = 13.600, <i>p</i> = .003, <i>R square</i> = .081		

** Correlation is significant at the .01 level

Together with intention to consume meat alternatives, attitudes toward meat consumption and meat alternative consumption were added to investigate the meat alternative consumption behavior by multiple linear regressions. Intention, attitudes toward meat consumption, and attitudes toward meat alternative consumption were calculated to predict meat alternative consumption. For all respondents, a significant regression equation was found ($F(3, 207) = 19.027, p < .01$), with an *R square* of .216 and by countries, the Netherlands ($F(3, 98) = 5.444, p < .01$), and Thailand ($F(3, 105) = 7.015, p < .01$) (complete data in Table 7.2.4). Attitudes toward meat consumption was a significant predictor of meat alternative consumption of Thai consumers ($\beta = -.355, p < .05$), but not for Dutch consumers ($\beta = -.153, p = \text{n.s.}$), while attitudes toward meat alternative consumption was not a significant predictor for meat alternative consumption in any countries; Thai consumers ($\beta = -.109, p = \text{n.s.}$) and Dutch consumers ($\beta = .103, p = \text{n.s.}$).

Table 7.2.4 Multiple regression models predicting meat alternatives consumption from attitudes toward meat and meat alternatives.

Independent variable in equation	All Respondents			Netherlands			Thailand		
	β	<i>t</i>	<i>p</i>	β	<i>t</i>	<i>p</i>	β	<i>t</i>	<i>p</i>
Intention to consume meat alternatives	.208	4.570	.000**	.131	2.189	.031*	.175	2.371	.020*
Attitudes toward meat consumption	-.300	-3.674	.000**	-.153	-1.394	.166	-.355	-3.016	.003**
Attitudes toward meat alternative consumption	-.036	-.414	.680	.103	.813	.418	-.109	-.931	.354
	<i>F</i> (3,207) = 19.027, <i>p</i> = .000, <i>R square</i> = .216			<i>F</i> (3,98) = 5.444, <i>p</i> = .002, <i>R square</i> = .143			<i>F</i> (3,105) = 7.015, <i>p</i> = .000, <i>R square</i> = .167		

* Correlation is significant at the .05 level

** Correlation is significant at the .01 level

8. Discussion

The study shows that social norms of family, friends, and colleagues impact on the intention to consume meat alternatives of Dutch and Thai respondents. In line with the hypotheses (H_1), the survey confirmed that descriptive norms impact on the intention to eat meat alternatives. The descriptive norms of meat alternative eating, or when the family, friends, and colleagues eat meat alternatives, one's intention to consume meat alternatives would be higher for all respondents. Considering by each descriptive norm, only when family and friends eat meat alternatives, then one's intention to consume meat alternatives would be higher, but no effect if colleagues do so. When considering by country, the descriptive norm of family impacts on the intention to consume meat alternatives only in the Netherlands. So when a Dutch family eats meat alternatives, then there is more likely that the other members of family will intent to eat meat alternative, while no significant impacts on Thai respondents. The possible explanation is that Dutch households are already more likely to consume meat alternative products, while Thai household are not used to it yet. As the result shown that 1 in 5 of Dutch respondents (20%) strongly agree/agree/somewhat agree with the statement of "my family eats meat alternatives", while in the only minority of Thai family does so (7%).

The results also confirmed that injunctive norms, or when family, friends, and colleagues think one should consume meat alternatives, then one's intention to eat meat alternatives eating is higher for all respondents (H_2). However, when considering by each injunctive norm separately, none of the injunctive norms of family, friends, or colleagues significantly impacts on the intention to consume meat alternatives of all respondents. When considering by country, injunctive norms impact on the intention to consume meat alternatives only in Thailand. This finding in line with the study of Ruby & Heine (2012) mentioned that other people's opinions (injunctive norms) influence on one's food choices in collectivistic cultures. As in the case of Thai respondents, the collectivism score of Thai respondents ($\bar{x} = 5.80$) is significantly higher than the collectivism score in the Netherlands ($\bar{x} = 5.28$). Since in the collectivist cultures where people are born into extended families (Hui, 1988), there is more likely that they eat together and share the food with other members in the family. As the survey shown, the majority of Thai respondents is living with a parent (s) /relative (s) (58.7%). Meal consumption patterns in Thailand become a social activity that would consider all family members. Also, considering the seniority of extended families in collectivism, living with parents or older relative(s) generally influence on younger members' behavior and attitudes, which also explains the result of injunctive norms influence on consumers' intention in Thailand.

The interaction effects between social norms and cultural orientations are not found in this study. Therefore, the hypnosis of cultural orientations moderates the relationship between social norms and the intention to consume meat alternatives (H_3) is not confirmed. In other words, the social norms (descriptive/injunction norms) would influence the intention to consume meat alternatives, regardless the culture orientations. When considering by the interaction of each norm and each culture orientation separately (for example descriptive norms with individualism, descriptive norms with collectivism, and so on), none of the interactions significantly impacts on respondents' intention to consumer meat alternatives. Also, when considering by country, none of the interactions impact on the intention to consume meat alternatives in any countries. Considering the differences between Dutch and Thai respondents in this study, the individualism mean score of Thai respondents ($\bar{x} = 5.07$) is significantly higher than Dutch respondents ($\bar{x} = 4.55$). As found in the study of Zhao & Chen (2008), the score of individualism would be possibly

mediated also by age, so the value of individualism is higher when people get older. Therefore, this might be the consequence of a significant difference between Thai and Dutch respondents, as Thai respondents ($\bar{x} = 28.7$ years old) are older than Dutch respondents ($\bar{x} = 26.2$ years old). Another possible reason is according to the theory of cultural change, modernization theory. The theory predicts that the individualism will be rise as the economic growth (Hamamura, 2012). As the World Bank reported, “Thailand expected to post 4.1% growth in 2018 - best economic performance since 2012” (Gonzales, 2018). Therefore, the cultural change in Thailand might possibly impact on the results.

Besides the main hypotheses, the survey also confirmed that the higher intention to consume meat alternatives it becomes, the higher Dutch and Thai consumers will eat meat alternatives. Together with the intention to consumer meat alternatives, the attitudes toward meat consumption significantly impact on meat alternative eating behaviors for all respondents, while attitudes toward meat alternative consumption does not significantly impact. When considering by country, the attitudes toward meat consumption is a significant factor determining meat alternative eating behavior only in Thailand, not in the Netherlands. Comparing to Dutch consumers, Thai consumers are more positive about eating meat and less positive about eating meat alternatives. As the mean score of attitudes toward meat consumption of Thai consumers ($\bar{x} = 4.84$) is significant higher than Dutch consumers ($\bar{x} = 4.42$), while the mean score of attitudes toward meat alternative consumption of Thai consumers ($\bar{x} = 4.10$) is significantly lower than Dutch consumers ($\bar{x} = 4.54$). The attitudes toward meat consumption of Thai consumers can be explained as mentioned in the studies of Speedy (2003) that meat consumption represents the wealthiness in developing countries. Also, the study of Wong (1997) states that the country that considered being collectivist societies, in this case is Thailand, generally show a higher in luxury consumption. One of the reasons is that people in the collectivism are more likely to value things that enhance their relationship with others within their social group. Therefore, meat consumption in Thai society is not just a basic nutrition requirement, it refers to a premium and indulgent consumption and it is a social symbol representing a person’s financial level in the society.

In addition to the relatively low mean score of the attitudes toward meat alternative consumption of Thai consumers, the score of meat alternative eating behavior in Thailand ($\bar{x} = 2.18$) is also significantly lower than in the Netherlands ($\bar{x} = 3.05$). This follows the assumption that the meat consumption patterns and cultures are different between Europe and Asia, as mentioned in the study of Hoek et al. (2004). In Europe, the concerns about animal welfare and environment issues have motivated consumers to eat less meat products (Westhoek et al. 2014). The survey of Dutch consumers also shown that there was a significant percentage of Dutch consumers indicated that their meat consumption has reduced and express their intention to reduce meat eating in the future (Dagevos, 2014). Moreover, a study also found that students from European countries had more concern for animal welfare than students from Asian countries (Phillips et al. 2012). Since the trend of eating meat alternatives is on the rise in the Netherlands, the direction of marketing strategies would related to grow the business from current consumers and expand the meat alternative markets to non-consumers.

In contrast, Thailand is one of the Asian countries projected to become the highest consumer of meat products. As a favorable economy in Asia, consumers diversify their diets away from staples, such as rice, towards food categories with positive income elasticities of demand including meat and livestock products (Pingali, 2007). What can be implied from the results is that changing Thai consumers to eat meat

alternatives would be more challenging and the different marketing strategy is required to tailor to Thai consumers. Since the meat alternative market is still a niche in Thailand, the market strategies for Thai consumers could relate to create the demand of meat alternatives and acknowledge Thai consumers about the benefit of shifting from meat to meat alternative consumption.

9. Limitation and future researches

There are some limitations in this study that need to be considered. The convenience sampling respondents were not fully representative for both Dutch and Thai population, for example, they are younger than the average Dutch and Thai population in 2018. Moreover, there were several differences between Dutch and Thai respondents such as age, education, and living arrangement. These significant differences between groups show that they are not completely comparable which could impact on the results and conclusion. Therefore, in the future researches, the characteristics and representation of respondents should be investigated before conducting the survey, i.e. control age group of the respondents.

Another limitation relates to cultural difference and other individual factors when comparing different cultures, in this study are Dutch and Thai respondents. The only factor being considered here is cultural orientations (individualism and collectivism) which might not cover all the differences. Therefore, to enhance future researches, other differences, i.e., cultural norms, lifestyle, or preferences, could probably be considered to get more comprehensive results.

In this study, Dutch consumers were immediately assumed to be the individualism and Thai consumers were assumed to be collectivism, without prior measuring. Even the previous studies show that European countries are more individualistic than Asian countries, they might be not significantly different in the individual level or this cannot be generalized across populations or regions, as also found in the study of Oyserman et al. (2002). This may lead to misinterpreting the results when they are not significantly different in cultural orientations. So in the future studies, it would be more precise if I are tested before labeling the respondents or countries.

There are the limitations of questionnaires in this study. The questionnaire was designed for Thai respondents in Thai languages, while the Dutch questionnaire was in English. Even though English would be understandable in the Netherlands, it would be more parallel if these respondents can answer in the mother tongue languages. Another limitation of the questionnaire is regarding to the behavior of meat alternative consumption. The question is “how often do you not eat meat in your meal?” This question might mislead the respondent from meat alternative consumption to meatless consumption. The future studies would be more careful with this type of limitation and improve by asking more precise questions.

Furthermore, by adding the interaction terms of each norm (descriptive or injunctive norms of family, friends, and colleagues) and cultural orientations in the statistical analysis is not making a huge difference than considering the interaction of combination of norms together (total descriptive and injunctive norms). By adding the interaction, R square increase from .405 to .431 and from 8 to 20 independent variables, respectively. Therefore, the future researches might consider the combination of descriptive norm and injunctive norms in the model for analyzing interaction effects. However, if the objective of a study is related to the direct effect of each norm on intention, then each norm can be separately analyzed.

10. Practical implication

To be successful in the Netherland, the descriptive norms are better to be applied. Meat alternatives could be promoted as a type of products that can enjoy with other people (family, friends, or colleagues). Since the behaviors or opinions of the others impact on one's behavior, the current meat alternative consumers can also play an important role of motivating others to try meat alternatives. Therefore, to increase the future meat alternative consumers, marketers could promote meat alternative products via the current consumers. By doing this, the current meat alternative consumers can share and motivate their family, friends, and colleagues to try.

In addition, the ethical positioning of meat alternatives could be highlighted on the packaging. As the majority of Dutch consumers consider meat alternative products as better options for improving animal welfare and reducing environmental impacts. By claiming with these ethical positions, meat alternative products can be more attractive for the current consumers and probably increase the intention to try meat alternatives for meat eating consumers.

On the other hands, to promote meat alternative in Thailand, the injunctive norms are better to be applied. As the result shows that Thai consumers take others' recommendation into consideration and that can influence on their food choice consumption. An important practical implication of these findings is that local governments or other authority could be able to improve meat alternative consumption in the country. To motivate Thai people to consume more meat alternatives, a policy implication of government or other authorities should be considered. The policy suggests people to consume meat alternative, for example Thai people should eat meat alternatives for the better life, can possibly influence and motivate them to try meat alternative products and turn into eating meat alternative behavior later.

The marketing strategy that can be applied for Thai market is positioning meat alternative as premium products and be able to show wealthiness in the society. For example, meat alternative can be claimed as an exclusive selection, for indulgence, or as a premium product. Furthermore, the trend of eating meat alternatives can be created and driven via the social media or advertisements, presented by superstars or local celebrities showing the luxury aspects of meat alternative consumption. By doing that, the meat alternative products can be conceptualized as high class items in Thai society, then this would increase the intention to try meat alternatives for Thai consumers.

11. Theoretical implication

Together with considering the social cultural factors as a whole, the individual factors, i.e. cognitions, lifestyle, and other demographic characteristics should be considered as important influential factors for the intention to eat meat alternatives. This also provides a better understanding of a society as a whole and as an individual level. Therefore, the result may suggest the novel targets or aspects of meat alternative markets such as prospect consumers, their lifestyle, and their perception towards meat alternatives.

To examine the cultural changes in society, in addition to the fixed cultural orientations (individualism and collectivism) of each society, the modernization effect should be considered as an important influencing factor. By adding the modernization effect in the model, the dynamic of culture would be investigated. This would create a clearer identification regarding the level of culture orientations in the society. Also, the model will be able to explain in which direction a society heading to. By understanding the progress of a society, the consumers' intention and behavior would be comprehended understood.

Regarding interaction terms between descriptive/injunctive norms and culture orientations, the statistical analysis shows that considering the norms separately (family, friends, or colleagues) would not significantly improve the prediction of the intention to consume meat alternative. By separating each norm or combine norms, the interaction effects between norm(s) and culture orientations are not different. Therefore, another theoretical implication of the interaction team is to combine descriptive norms of family, friend, and colleagues together as the independent unit of analysis, also for injunctive norms.

However, investigating the direct effects of each norm (family, friends, or colleagues) on intention can be separately analyzed, as the statistic result shown that not every norm is significant. Therefore, combining or separating norms in the model depends on the objective of each study whether to analyses the interaction terms or more interested on the direct effect of each norm itself.

12. Appendix

12.1 Questionnaires: Social influence on meat alternative consumption

Start of Block: Default Question Block

Q1 In order to explore eating behaviors, especially for meat alternatives, this questionnaire has been developed to gather information regarding the social factors influence on consumption. We value your honest and detailed responses. The questionnaire should take approximately 10 minutes to complete. Your responses are completely anonymous.

Page Break

Q2 Do you eat meat?

- Yes (1)
- No (2)

Page Break

End of Block: Default Question Block

Start of Block: Explanation

Q3 To clearly understand the questions, the term “meat alternatives, or known as meat replacers, meat substitutes, or meat analogs” is defined as a meatless food that has approximately the same taste, appearance, and texture of a related food made from other meat. The picture below shows a number of such products which look a lot like meat but are not. These are examples of meat alternatives



End of Block: Explanation

Start of Block: Norms



Q4 How much do you agree with these statements?

	Strongly agree (4)	Agree (5)	Somewhat agree (6)	Neither agree nor disagree (7)	Somewhat disagree (8)	Disagree (9)	Strongly disagree (10)
My family thinks I should eat meat alternatives. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends think I should eat meat alternatives. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My colleagues think I should eat meat alternatives. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q5 How much do you agree with these statements?

	Strongly agree (8)	Agree (9)	Somewhat agree (10)	Neither agree nor disagree (11)	Somewhat disagree (12)	Disagree (13)	Strongly disagree (14)
My family eats meat alternatives. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends eat meat alternatives. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My colleagues eat meat alternatives. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Norms

Start of Block: Intention & Behavior

Q6 How much do you agree with these statements?

	Strongly agree (8)	Agree (9)	Somewhat agree (10)	Neither agree nor disagree (11)	Somewhat disagree (12)	Disagree (13)	Strongly disagree (14)
I expect to eat meat alternatives in my meal within next month. (22)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will try to eat meat alternatives in my meal within next month. (24)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 How often do you not eat meat in your meal?

- Never (11)
- Once a week (12)
- 2-3 times a week (13)
- 4-6 times a week (14)
- Daily (15)

End of Block: Intention & Behavior

Start of Block: Individualistic/collectivistic personality



Q8 How much do you agree with these statements?

	Strongly agree (8)	Agree (9)	Somewhat agree (10)	Neither agree nor disagree (11)	Somewhat disagree (12)	Disagree (13)	Strongly disagree (14)
I'd rather depend on myself than others. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I rely on myself most of the time, I rarely rely on others. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often do my own thing. (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My personal identity, independent of others, is very important to me. (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important for me to do everything better than the others. (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Winning is everything. (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competition is the law of nature. (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When another person does better than I do, I get tense and aroused. (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q9 How much do you agree with these statements?

	Strongly agree (8)	Agree (9)	Somewhat agree (10)	Neither agree nor disagree (11)	Somewhat disagree (12)	Disagree (13)	Strongly disagree (14)
If a friend gets a prize, I would feel proud. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The well-being of my friends is important to me. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To me, pleasure is spending time with others. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel good when I cooperate with others. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parents and children must stay together as much as possible. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is my duty to take care of my family, even when I have to sacrifice what I want. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family members should stick together, no matter what sacrifices are required. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to me that I respect the decision made by my groups. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Individualistic/collectivistic personality

Start of Block: Attitudes towards meat alternatives



Q38 Eating meat is

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	good
harmful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	beneficial
unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	pleasant
unenjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	enjoyable
expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	cheap



Q43 Eating meat alternative is

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	good
harmful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	beneficial
unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	pleasant
unenjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	enjoyable
expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	cheap

Q12 What would be your reason(s) of eating meat alternatives?

Type here: (4) _____

End of Block: Attitudes towards meat alternatives

Start of Block: Background

Q13 Please specify your gender.

Male (1)

Female (2)



Q14 What is your age in years?

Page Break

Q15 What is the highest level of education you have completed?

Less than BSc degree (2)

BSc degree (4)

MSc degree (5)

Doctorate (7)

Other, please specify: (8) _____

Q42 What is your income per month? (EUR)

Type here: (4) _____

Page Break

Q17 Which one of the statements below best describes your living arrangements?

- Living alone (1)
 - Living with a partner (2)
 - Living with a parent(s)/relative(s) (3)
 - Sharing with friends, co-workers or classmates (5)
 - Others, please specify: (4) _____
-

Q16 Are there any children younger than 18 living in your household

- No (2)
 - Yes: please indicate age of the youngest (1) _____
-

Page Break

Q18 Which one of the statements below best describes your living area?

- Living in the city (1)
 - Living in the suburb (2)
 - Living in the a village or countryside (3)
 - Other, please specify (4) _____
-



Q56 In which country were you born?

▼ Afghanistan (1) ... Zimbabwe (1357)

Page Break

Q41 Thank you for completing the survey. Your answers are a valuable part of my thesis in the master program of Management, Economics and Consumer Studies at Wageningen University and Research

End of Block: Background

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