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The Mediating Role of Personal Norms in the Relationship between Social Norms and Meat Consumption among Meat Consumers

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Abstract

Multiple studies have demonstrated that social norms have an influence on meat consumption. However, it has been suggested that, in order for social norms to have a long-lasting effect on meat consumption, these norms ought to be internalized into personal norms. Research on the indirect effect of social norms on meat consumption via personal norms is lacking. Furthermore, it is unknown whether injunctive or descriptive social norms have a larger influence on meat consumption. The present study therefore examined the relationship between injunctive and descriptive norms and meat consumption, and the mediating role of personal norms. An online survey was conducted among meat eaters and flexitarians (N = 119). First, the effects of injunctive and descriptive norms on meat consumption were analyzed. The results showed that only injunctive norms had an effect on meat consumption. Moreover, personal norms fully mediated the relationship between injunctive norms and meat consumption. There was no effect of descriptive norms on meat consumption, and no mediating effect of personal norms. Therefore, it is concluded that only injunctive norms are internalized into personal norms, and could therefore potentially have a long-lasting effect on meat consumption. To further examine the process of internalization, it is proposed to include guilt and group identification as variables in future research. Previous research suggests that injunctive norms are at least partially internalized through feelings of guilt, Furthermore, research has demonstrated that group identification moderates the influence of injunctive and descriptive norms on personal norms.

Keywords: injunctive norms, descriptive norms, personal norms, meat consumption

Contents

Introduction

The livestock industry is one of the most significant contributors to urgent environmental problems (Petrovic et al., 2015). For instance, meat production is responsible for generating approximately 14.5% of total greenhouse gas (GHG) emissions (Gerber et al., 2013). Other environmental effects associated with meat production are pollution through fossil fuel usage, water and land consumption, deforestation, and loss of biodiversity (Petrovic et al., 2015; Stoll-Kleemann & Schmidt, 2017). Furthermore, meat consumption contributes to risks of several health conditions such as coronary heart disease and type 2 diabetes (Tilman & Clark, 2014; Wang & Beydoun, 2009; van Dam et al., 2002).

Despite the many negative consequences of meat consumption, the global average per capita consumption of meat and the total amount of meat consumed are rising (Godfray et al., 2018). This is partly due to population growth and increasing average individual incomes. The concept of eating meat as the dominant source of protein has become deeply ingrained in many cultures, particularly in western societies (Sabaté & Soret, 2014). Meat is still highly valued by consumers due to its nutritional value and taste (Van Wezemael et al., 2014; Verbeke et al., 2010). Making a transition to a more sustainable diet could have a significant impact on both health and environmental factors. For instance, a 50% reduction in meat, dairy products, and eggs in the European Union would result in a 25% to 40% reduction in GHG emissions associated with food production (Westhoek et al., 2014). In recent years, there has been increasing awareness regarding the benefits of adapting a more sustainable diet (Schenk et al., 2018). In the Netherlands, many people do not eat meat every day. However, the total meat consumption has increased with 0.5% since 2017 (Dagevos et al., 2020). In order to develop strategies to reduce the consumption of meat, it is important to conduct research to gain more insight into what behavioral factors and motives influence meat consumption.

Several well-established behavioral models have been applied in order to understand one's intention to consume meat. According to the Theory of Planned Behavior (TPB; Ajzen, 1991), meat consumption intentions are influenced by attitudes, perceived behavioral control, and social norms. Social norms are "the (usually implicit) rules that exist within a social group for what are considered acceptable behaviors, values, and beliefs of the group members" (Aronson et al., 2005). Social norms are often divided into injunctive and descriptive norms (Smith et al., 2012). Injunctive norms reflect perceptions of what others approve or disapprove of. These norms provide information on what types of behavior are considered to be morally 'right' and 'wrong'. Descriptive norms represent how others do in fact behave in

certain situations. Thus, in contrast to injunctive norms, which specify what ought to be done, descriptive norms specify what is actually done.

Injunctive and descriptive norms are considered to represent separate sources of motivation and research has demonstrated that these two types of norms often lead to significantly different behavior patterns in the same setting (Reno et al., 1993). Injunctive norms motivate action through the social rewards and punishments associated with engaging, or not engaging, in certain behavior. One might be motivated to adhere to injunctive norms in order to reduce experienced social pressure and to receive social approval (Farrow et al., 2017). Descriptive norms motivate action by providing information about what behavior is appropriate and likely to be effective or adaptive in a particular context (Smith et al., 2012). By registering what most others are doing and by imitating their actions, one can save time and effort when deciding how to behave (Cialdini, 1990). Researchers have repeatedly found that the perception of what most others are doing influences individuals to behave similarly in a variety of contexts.

Several studies have found an association between injunctive and descriptive norms and meat consumption. Two studies have shown that meat consumption and the consumption of meat substitutes are related to the number of vegetarians in an individual's personal network, which is a descriptive norm (Lea & Worsley, 2001; Hoek et al., 2011). However, this association was not found by Richardson et al. (1993). Furthermore, a study by Schenk et al. (2018) showed that both injunctive and descriptive norms are direct determinants of meat avoidance. It is unknown whether injunctive or descriptive norms have a stronger influence on meat consumption, since research that compares the two norms are limited (Einhorn, 2020). Studies that have examined the difference between the two norms have led to contrasting results. In the study by Schenk et al. (2018), injunctive norms had a stronger influence on meat consumption compared to descriptive norms. However, in a study by Park and Sohn (2012), there was no difference in the effect of both types of norms on environmental behavior. Injunctive norms are theorized to have a greater influence on behavior than descriptive norms (Cialdini et al., 1991; Smith & Louis, 2008). The explanation provided is that injunctive norms are related to two goals: the goal of social approval and the goal of behavioral efficiency, while descriptive norms are only related to the latter. Injunctive norms provide information about what behaviors are approved of, and this type of behavior is usually seen as the most efficient as well. It is expected that, because injunctive norms provide two types of information (what behavior is approved of and what behavior is efficient and appropriate), these norms are more

relevant for an individual to attend to compared to descriptive norms, and therefore have a larger influence on behavior.

Meta-analyses have shown that social norm interventions are effective in encouraging pro-environmental behaviors (Abrahamse & Steg, 2013; Nisa et al., 2019). This effect has been demonstrated in the context of meat consumption as well. For instance, normative messages stating that "more and more people" are eating less meat could reduce meat consumption by emphasizing a shift towards reduced meat consumption (Sparkman & Walton, 2017). However, the effects of social norm interventions on pro-environmental behavior often appear to only have a short-term effect on behavior (Goldberg, 2020). Social norms are an external type of motivation, meaning that exposure to social norms might encourage one to conform publicly or to update one's perceptions about what is normative, but may not change one's private attitudes or behavior (Ryan & Deci, 2000). It has been suggested that social norms ought to be internalized into personal norms in order to create long-lasting effects on behavior. However, research to support internalization of social norms in the context of meat consumption is lacking.

Personal norms can be defined as experiences of feelings of moral obligation to engage in a certain behavior (Schwartz, 1977). According to the Value-Belief-Norm model (VBN; Stern, 2000) and the Norm Activation Model (NAM; Schwartz, 1977), personal norms directly influence behavior. One might feel morally obligated to limit one's meat consumption due to certain moral considerations such as animal rights, human rights issues, and concerns about the negative consequence of meat production for the environment (Zur & Klöckner, 2014). Several studies have suggested that moral considerations play a significant role in decisions to eat free range meat only, or to abstain from eating meat altogether (Berndsen & Pligt, 2005; Loughnan et al., 2010). Personal norms were also shown to be positively related to meat reduction intentions (Zur & Klöcker, 2014).

The internalization of social norms into personal norms has been described by several theoretical frameworks. The NAT states that personal norms are predicted by social norms, among other factors (Klöckner, 2013). Furthermore, according to the self-determination theory (SDT; Ryan & Deci, 2000), we are exposed to behavior requests from others which may or may not become internalized across our lifespan. Internalization refers to the process of accepting a value or regulation so that, eventually, these will naturally be displayed by the individual (Ryan & Deci, 2000). More specifically, internalization involves the processes by which individuals acquire attitudes, beliefs, or behavioral regulations from external sources and gradually

transform these external regulations into personal characteristics, values, or regulatory styles (Grolnick et al., 1997). According to the SDT, personal norms are related to internal behavioral motivation, and therefore have a more stable and enduring influence on behavior compared to social norms, which are related to external motivation. Another model that describes the process of internalization of social norms is the Gateway Belief Model (GBM). The GBM suggests a two-step process where updating people's perception of a norm (e.g. that meat production contributes to climate change) leads to subsequent (smaller) changes in private attitudes, which in turn predicts a change in behavior (van der Linden et al., 2015). The process suggested by the GBM is supported by a large body of experimental research (van der Linden et al., 2019; Goldberg, 2020).

Two processes have been theorized through which social norms form the basis of the formation of personal norms (Bamberg et al., 2007). The first process is related to feelings of guilt. Guilt is defined as a painful feeling of regret that is aroused when an individual causes, anticipates causing, or is associated with an aversive event (Ferguson & Stegge, 1998, p. 20). Research has demonstrated that a perceived discrepancy between one's own behavior and social norms could lead to feelings of guilt (Baumeister, 1998; Bamberg et al., 2007). It has been suggested that guilt is more strongly associated with conformity to injunctive norms compared to descriptive norms (Jacobson et al., 2020). Since injunctive norms convey the degree of approval for a behavior and are based on a group's moral rules, violating an injunctive norm represents a transgression against group standards, which stimulates feelings of guilt. Within the context of meat consumption, this means that not confirming to the group's moral rule of meat reduction or avoidance would cause feelings of guilt. Subsequently, these feelings of guilt result in experienced personal obligation (personal norm) to compensate for violating the moral rules provided by the group (Baumeister, 1998). A second mechanism through which social norms are internalized, is via the easily accessible information provided by these norms (Bamberg et al., 2007). As previously mentioned, descriptive norms provide decisional shortcuts to the identification of useful and appropriate behavior, by displaying how people actually behave in situations. These norms are therefore internalized in order to limit time and effort spend on deciding how to behave. However, much is still unknown about the potentially differential processes by which injunctive and descriptive norms stimulate conformity (Jacobson et al., 2011; Morris et al., 2015).

Previous studies have provided evidence to support the process of internalization of social norms into personal norms regarding pro-environmental behavior. For instance, two

meta-analyses done by Bamberg and Möser (2007) and Klöckner (2013) on pro-environmental behavior, showed that the strength of social norms as a predictor of behavioral intentions or actual behavior was mediated through personal norms. Other studies on pro-environmental behavior have shown that, when personal norms are accounted for, the direct effect of social norms on this type of behavior often disappears (Thøgersen, 2006; Bamberg et al., 2007; Bamberg & Möser, 2007; Klöckner & Blöbaum, 2010). However, some studies did not find this effect (e.g., Bamberg & Schmidt, 2003; Hunecke et al., 2001).

The objective of the current study is to investigate the internalization of social norms into personal norms in the context of meat consumption. As previously mentioned, research on the process of internalization regarding meat consumption is lacking. Scrutinizing this process will provide insight into whether perceived social norms can foster sufficient motivation to influence one's personal values and sense of obligation. Since the process of internalization is argued to be necessary to create sustainable patterns of behavior, examining this process will assess whether social norms can potentially create a sustainable pattern of meat reduction (Thøgersen, 2006; Goldberg, 2020). A secondary aim of this study is to investigate what type of social norm has a stronger influence on meat consumption. As previously mentioned, comparative research on the effect of injunctive and descriptive norms has led to opposing results. Knowledge on the influence of social norms via personal norms on meat consumption and the difference in impact between injunctive and descriptive norms can ultimately be utilized to develop interventions aimed at reducing meat consumption.

The present study attempts to answer two research questions. The first question is: What is the effect of injunctive and descriptive norms on meat consumption? Based on previously mentioned studies, it is expected that both types of social norms have an effect on meat consumption (Lea & Worsley, 2001; Hoek et al., 2011; Schenk et al., 2018) (H1). This means that both the number of people in one's social environment that reduces/avoids meat consumption (descriptive norm), as well as experienced social approval and social pressure to reduce meat consumption (injunctive norm) effects one's own meat consumption. Furthermore, it is expected that injunctive norms have a stronger effect on meat consumption compared to descriptive norms (Cialdini et al., 1991; Smith & Louis, 2008; Schenk et al., 2018). The second research question is: Do personal norms mediate the relationship between injunctive and descriptive norms and meat consumption? Based on previously mentioned studies (Thøgersen, 2006; Bamberg et al., 2007; Bamberg & Möser, 2007; Klöckner & Blöbaum, 2010), it is

expected that personal norms fully mediate the relationship between injunctive and descriptive norms and meat consumption (H2).

Methodology

Research design

The current study is a cross-sectional survey study in which quantitative data is collected. The dependent variables (DV) in this study are injunctive and descriptive social norms regarding meat consumption, the independent variable (IV) is meat consumption, and the mediating variable (MV) is personal norms regarding meat consumption. Additionally, the stages of behavior change by Bamberg (2013) were included as an exploratory factor. This was done with the objective to obtain a more detailed view of the sample and to measure whether there could be a difference in the process of internalization between individuals who are in different stages of the behavioral process of meat reduction. The survey was conducted online because online surveys are a low-cost, fast, and efficient method of obtaining large amounts of information from a large sample (Nayak & Narayan, 2019). Another advantage of online surveys is that they are less intrusive and suffer less from social desirability effects compared to face to face administration and self-administered paper and pencil surveys.

Participants

The target group in this study are Dutch consumers of 18 years and older who live in the Netherlands. A power analysis was performed with G* Power in order to determine the minimum sample size needed (Faul et al., 2007). A medium effect size of $f^2 = 0.15$, a Cronbach's alpha of $\alpha = .05$, and a desired power of .95 were used in the calculation. According to the power analysis, a minimum of 107 participants were needed. After the process of data collection, one participant was excluded due to missing values. The final sample size consisted of 119 participants. Age ranged from 18 to 64 years ($M = 30.64$, $SD = 12.68$). The sample consisted for 75.6% of women ($n = 90$), 21.8% of men ($n = 26$), 1.7% of participants with a different gender ($n = 2$), and 0.8% of participants who did not want to specify their gender ($n = 1$). Regarding diet, 55.5% of participants ($n = 66$) described themselves as flexitarians and 44.5% ($n = 53$) described themselves as meat eaters. The sample consisted mostly of highly educated individuals; 43.7% of the sample had obtained a bachelor's degree, master's degree, or doctoral degree and 26.1% were in the process of completing a university degree or a higher professional education (HBO) degree. Concerning the stages of behavior change, 15.1% of the

participants ($n = 18$) mentioned to be in phase 1, 16% ($n = 19$) mentioned to be in phase 2, 44.5% ($n = 53$) mentioned to be in phase 3, and 24.4% ($n = 29$) reported to be in phase 4.

Procedure

Participants were recruited exclusively online. The program 'Qualtrics' was used to develop the survey (Appendix A). The survey was distributed through various online channels, namely through Facebook, Instagram, WhatsApp, LinkedIn, and the SONA website of Utrecht University. Prerequisites for participation were being 18 years or older and consuming meat with dinner at least once a week. Since meat consumption was the outcome variable, it was of importance to only include participants that consume meat. These prerequisites were mentioned in the information letter. Before obtaining access to the survey, the participants needed to complete an informed consent form, in which voluntary participation and anonymity were emphasized. As an additional measure, the survey started with asking participants how they would identify themselves; as a meat eater, flexitarian (not eating meat with dinner at least once a week), vegetarian, or a vegan. Those who selected the vegetarian or vegan option were immediately excluded from the study. The survey measured demographic data, injunctive and descriptive social norms, personal norms, meat consumption, and the stages of behavior change. Psychology students at Utrecht University had the opportunity to receive 'proefpersoonuren' (PPU) as a compensation for participation. Students who wished to receive PPU's, were asked to fill in their email address and full name. These personal data were immediately deleted after distribution of the PPU's. The survey consisted of 12 items and on average it took five minutes to complete it. The process of data collection lasted approximately one month, from the end of March till the end of April 2021.

Measures

Demographic questions. Participants were asked questions regarding their age, gender, and level of education. They were also asked whether they would describe themselves as meat eaters, flexitarians, vegetarians or vegans.

Injunctive and descriptive social norms. Injunctive norms were measured with two items that each consist of five statements. The first item measures whether family, partner, friends, coworkers, and health experts think that one should reduce one's meat consumption (Povey et al., 2001) . The second injunctive norm item concerns the approval of family, partner, friends, coworkers, and health experts regarding one's (possible) decision to reduce or avoid meat

consumption (adopted from Schenk et., 2018). Both injunctive norm items were adapted to the context of meat consumption and scored on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The internal reliability of both items was $\alpha = .77$, which is considered to be acceptable (Tavakol & Dennick, 2011). The two injunctive norm items were combined into one scale. Descriptive norms were measured by asking participants to estimate how many people in their social environment limit their meat consumption or avoid eating meat. This item is derived from a study by Zur and Klöckner (2014). A higher score on all scales indicates stronger perceived injunctive and descriptive norms.

Personal norms. Personal norms were measured with a scale of five items adopted from a study by Steg et al. (2005) and modified to reflect feelings of moral obligation to reduce meat consumption. The items were scored on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An example of an item is "I feel guilty when I eat meat/if I would eat meat". A higher score on the personal norms scale indicates stronger personal norms to reduce meat. The internal reliability of this scale was good, with $\alpha = .87$ (Tavakol & Dennick, 2011).

Meat consumption. Meat consumption was measured with an item adopted from Dagevos and Voordouw (2013); "How many times a week do you eat meat with dinner?". This item was scored based on four categories ranging from 1 (1-2 times) to 4 (7 times). In the Netherlands, meat is most often consumed with dinner (73,3% of the total amount of meat consumed per day) (RIVM, 2020). It might therefore be easier to recall and estimate how many times one usually eats meat with dinner in a week compared to the total frequency of meat consumption per week, including other meals beside dinner.

Stages of behavior change. The stages of behavior change were measured as an additional variable in order to explore in what phase of the process of meat reduction the participants would place themselves. The model used in this study is developed by Bamberg (2013). This model combines assumptions from previous stage models of behavior change (Prochaska & DiClemente, 1994; Prochaska et al., 1992) with other behavior models from social psychology, such as the TPB (Ajzen, 1991) and the norm activation theory (NAT) (Schwartz & Howard, 1981). The stage model of self-regulated behavior change consists of four phases: the pre-decision stage, pre-action stage, action stage, and post-action stage (Bamberg, 2013). The item used in this research is derived from a study by Weibel et al. (2019). The participants were presented with four statements that represented the phases of behavior change; "I have never considered reducing my meat consumption" (phase 1); "I have considered reducing my meat

consumption, but I have not yet put this plan into practice" (phase 2); "I make sure I consume less meat occasionally. In the future it is my firm intention to do this on a regular basis" (phase 3); "I take consuming little or no meat for granted" (phase 4). Participants were asked to choose the statement they agreed with the most.

Statistical analyses

The data collected in this study was analyzed with the use of IBM SPSS version 26. Listwise deletion was used in order to deal with missing values. Prior to conducting the analyses, the assumptions for ordinal regressions were tested. First, the assumption of proportional odds was tested by examining the test for parallel lines, and viewing whether the significance of the chi-square statistic failed to reject the null hypothesis. Second, the assumption of multicollinearity was tested by calculating the variance inflation factor (VIF). The assumptions for multiple regression analysis could not be tested since the dependent variable was measured on an ordinal level. Outliers were checked with the use of the Mahalanobis distance and values above 20 were excluded from further analysis (Barnett & Lewis, 1978).

First, descriptive statistics were examined to get an overview of the data and the distribution of the participant's responses. In order to test whether injunctive and descriptive norms influence meat consumption (H1), ordinal regressions were performed. In order to test H2, two mediation analyses were performed, with injunctive and descriptive social norms as the IV's, meat consumption as the DV, and personal norms as the MV. The mediation analyses were executed with PROCESS macro model 4 (Hayes, 2017) within IBM SPSS. The direct and indirect effect of social norms on meat consumption via personal norms was determined with 5000 bootstrap samples and a 95% confidence interval.

Additionally, explorative analyses were performed based on the stage model of behavior change (Bamberg, 2013). These analyses consisted of multiple steps. First, the sample was divided into subgroups based on the four stages of behavior change. Second, mediation analyses were performed per subgroup with injunctive and descriptive social norms as the IV, meat consumption as the DP, and personal norms as the MV. Third, the mediation analyses were compared in order to scrutinize whether there is a difference in the process of internalization between the four stages.

Results

Prior to conducting the main analyses, the assumption of proportional odds and multicollinearity were tested. This assumption of proportional odds was tested by looking at

the test of parallel lines. Since the significance of the chi-square statistic was $p < .05$, the null hypothesis was rejected and the assumption of proportional odds did not hold. The assumption of multicollinearity was tested by calculating the VIF. Since the VIF values were below three, it was concluded that multicollinearity was not a problem (Hair et al., 2019).
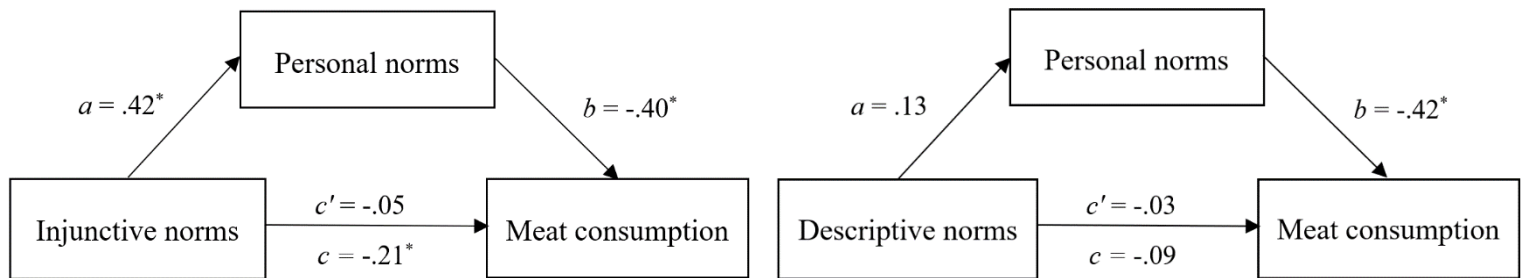
In order to test whether injunctive and descriptive norms have an effect on meat consumption (H1), ordinal regression analyses were performed. The results showed that injunctive norms had a significant effect on meat consumption, $b = -.66$, $p < .05$. However, descriptive norms did not have a significant effect on meat consumption, $b = -.01$, $p > .05$. Since only injunctive norms influenced meat consumption, the first hypothesis cannot be fully accepted.

To test the second hypothesis, mediation analyses were performed with personal norms as the mediating variable. The analyses showed a significant total effect of injunctive norms on meat consumption, $b = -.21$, CI [-.634, -.056], $p < .05$ (Figure 1). Injunctive norms explained 4.6% of the variance in meat consumption, $F(1, 117) = 5.59$, $p < .05$. The direct effect of injunctive norms on meat consumption was not significant, $b = -.05$, CI [-.372, .221], $p > .05$. Injunctive norms and personal norms explained 17.8% of the variance in meat consumption, $F(2, 116) = 12.56$, $p > .05$. Furthermore, the results showed a significant indirect effect of injunctive norms on meat consumption via personal norms, $b = -.17$, CI [-.262, -.081]. Since the effect of injunctive norms on meat consumption became insignificant after adding personal norms to the model, it can be concluded that personal norms fully mediated the relationship. This in line with H2. There was no significant total effect of descriptive norms on meat consumption, $b = -.09$, CI [-.016, .006], $p > .05$ (Figure 1). Additionally, the direct effect of descriptive norms on meat consumption was not significant, $b = -.03$, CI [-.012, .008], $p > .05$, and there was no significant indirect effect via personal norms, $b = -.05$, CI [-.154, .057], $p > .05$. These results are not in line with H2, meaning that H2 is only partially confirmed.

The explorative analyses performed in this study consisted of mediation analyses per stage of behavior change. There were no significant total, direct, and indirect effects of injunctive and descriptive norms via personal norms on meat consumption for all stages (Table 2). One plausible explanation for this result is the relatively small sample size per stage and the relatively large difference in the number of participants between the stages. This means that no well-founded statements can be made based on the explorative analyses.

Figure 1

Standardized regression coefficients displaying the relationship between injunctive and descriptive norms (X) and meat consumption (Y) mediated by personal norms (M). a = the direct effect of X on M, b = the direct effect of M on Y, c' = the direct effect of X on Y, c = the total effect of X op Y.

Table 2

The total, direct, and indirect effects of injunctive and descriptive norms on meat consumption via personal norms with a 95% confidence interval for stages 1 (n = 18), 2 (n = 19), 3 (n = 53), and 4 (n = 29).

	Total effect	Direct effect	Indirect effect	CI
Stage 1 (never considered meat reduction)				
Injunctive norms	.18	.34	-.16	(-.598, .115)
Descriptive norms	.40	.35	.05	(-.152, .273)
Stage 2 (has considered meat reduction but not applied yet)				
Injunctive norms	.06	-.0014	.07	(-.239. .438)
Descriptive norms	-.18	-.26	.08	(-.116, .458)
Stage 3 (reduces meat consumption occasionally)				
Injunctive norms	-.18	-.12	-.06	(-.142, .048)
Descriptive norms	-.14	.12	-.03	(-.105, .025)
Stage 4 (actively reduces meat consumption)				
Injunctive norm	-.17	-.14	-.03	(-.154, .102)
Descriptive norm	-.17	-.09	-.08	(-.205, .007)

Discussion

The current study attempted to answer two questions: 1) What is the effect of injunctive and descriptive social norms on meat consumption, and 2) Do personal norms mediate the relationship between social norms and meat consumption. The primary aim of this study was to investigate whether social norms influence meat consumption directly, or indirectly by being internalized into personal norms. A secondary aim was to assess whether injunctive or descriptive norms have a larger influence on meat consumption. As previously mentioned, studies that compare the two types of norms and studies that investigate the internalization of social norms in the context of meat consumption are lacking. To answer the two questions, an online survey was conducted among meat eaters and flexitarians.

The results showed that injunctive norms influenced meat consumption, which is according to the expectation (Hoek et al., 2011; Schenk et al., 2018). This means that greater experienced social pressure to reduce/avoid meat consumption and greater perceived social approval of one's meat reduction (flexitarians) or intention to reduce meat (meat eaters) is related to lower meat consumption. Furthermore, personal norms explained the relationship between injunctive norms and meat consumption. This is in line with what was expected based on Klöckner and Blöbaum (2010). This finding also confirms the assumption of the NAT (Schwartz, 1977) that social norms are an antecedent of personal norms. The results showed that the effect of injunctive norms on meat consumption disappeared after adding personal norms to the model, which is according to the expectation (Thøgersen, 2006; Bamberg et al., 2007; Bamberg & Möser, 2007; Klöckner & Blöbaum, 2010). The finding of a full mediation effect of personal norms indicates that exposure to injunctive norms do not motivate individuals to confirm to the norm only publicly in order to receive social approval or to meet the expectations of others; instead, these norms are entirely internalized and transformed into personal values and feelings of personal obligation to reduce meat consumption. This finding suggests that injunctive norms could have a stable, long-lasting influence on meat consumption due to being internalized into personal norms.

There was no direct effect of descriptive norms on meat consumption, which contradicts the expectation (Lea & Worsley, 2001; Hoek et al., 2011). Moreover, there was no indirect effect of descriptive norms via personal norms. This suggests that the number of people in one's social environment does not influence one's sense of personal obligation to reduce meat consumption. A lack of internalization of descriptive norms indicates that this type of norm does not have a long-lasting effect on meat consumption, since it is not transformed into deeply

ingrained personal values. The finding of a weaker effect of descriptive norms on meat consumption compared to injunctive norms is according to the expectation (Cialdini et al., 1991; Smith & Louis, 2008). A possible explanation for this finding is a difference in the way in which these two norms motivate behavior. As previously mentioned, it has been theorized that injunctive norms have a stronger influence, because injunctive norms are related to both the goal of obtaining social approval and the goal of behavioral efficiency (Cialdini et al., 1991; Smith & Louis, 2008). Descriptive norms are only related to the latter goal. The information provided by descriptive norms is mainly relevant if one feels uncertain about what type of behavior is appropriate (Schenk et al., 2018). If uncertainty about what behavior is appropriate is low, one does not have to rely on this information, which might be the case with meat consumption. Individuals might feel relatively confident with their choice regarding the consumption or avoidance of meat, causing information about meat consumption derived from the behavior of others to have little influence on one's own behavior (Schenk et al., 2018). However, research that supports the suggestion that individuals do not experience uncertainty about meat consumption is lacking.

The finding of a different effect of injunctive and descriptive norms on meat consumption could possibly be explained by the processes through which social norms are internalized. As previously mentioned, it has been theorized that social norms are internalized through feelings of guilt and through presenting easily accessible information (Bamberg et al., 2007). Research has demonstrated that guilt is more strongly associated with conformity to injunctive norms, since guilt is evoked when violating a group's moral rules (Jacobson et al., 2020). In contrast, descriptive norms are not known for evoking guilt, since these norms do not directly convey the moral status of behavior. Therefore, violating these norms is not necessarily a transgression against the moral rules held by a group. The internalization of injunctive norms demonstrated in this study suggest that injunctive norms might be internalized through guilt. Furthermore, it suggests that guilt plays a more important role in the internalization of social norms than the availability of information on how to behave, since there was no internalization of descriptive norms. However, based on the results of this study, no statements can be formed on the mechanism through which the internalization of injunctive norms occurred. It is therefore recommended to conduct further research on how social norms are internalized, since research on this is lacking (Jacobson et al., 2011; Morris et al., 2015). A proposal for future research is to include guilt as a variable. Based on the theory that exposure to an injunctive norm that contrasts one's behavior could evoke guilt, which results in the formation of personal norms, it

is a possibility that guilt plays a mediating role in the relationship between injunctive norms and personal norms. This effect has been demonstrated in a study by Bamberg and colleagues (2007) on the use of public transportation. Their study showed that guilt partially explained the relationship between social norms and personal norms. This finding suggests that guilt might play a mediating role in the internalization of social norms regarding pro-environmental behavior in general, including meat consumption.

To gain a more thorough understanding of the process of internalization, a second suggestion for future research is to explore the circumstances under which internalization is more or less likely to happen as well as factors that could possibly influence this process. A study by Bertoldo and Castroa (2016) showed that the influence of injunctive norms on personal norms was moderated by the extent to which individuals identify with a certain social group. In their study, injunctive norms predicted personal norms more strongly when participants were more identified with the social group that communicated those norms. Group identification appears to be mostly relevant regarding injunctive norms, because concerns about social (dis)approval become more meaningful the more an individual wishes to be part of the group that represents the norm. It is therefore recommended to include group identification as a variable in future research. To determine whether injunctive norms do in fact have a long-lasting effect on meat consumption, a third recommendation for future research is to measure the process of internalization over time. However, since very few studies have examined the long-term influence of social norm interventions on behavior, not much is known about how social norms should be communicated to have enduring effects (Goldberg, 2020). Therefore, research should be conducted with the aim of discovering methods for communicating social norms in ways that are more likely to have long-lasting effects on behavior.

The present study has several limitations. First, this study has a cross-sectional design, meaning that no statements can be made about causality (Field, 2013). Second, the sample is a convenience sample and does not adequately represent the Dutch population of meat consumers. Most participants were female, highly educated, and 71.4% of participants were 30 years or younger. Women are more likely to limit or avoid meat consumption than men (Sanchez-Sabate & Sabaté, 2019). Moreover, in the last few years, reducing or avoiding meat consumption by means of adopting a flexitarian, vegetarian or plant-based diet has become increasingly popular, especially amongst (highly educated) millennials (born approximately between 1980 and 2000) (Faber et al., 2019). Additionally, it has been suggested that younger individuals pay more attention and are more susceptible to social pressure from family, friends,

and social media compared to older individuals (Pelletier et al., 2014). This suggests that the process of internalization of social norms is possibly stronger among younger individuals, which could have skewed the results of the study. If the sample would include a higher number of older individuals, social norms would perhaps be a less important determinant of personal norms and the extent to which social norms are internalized would be lower. A second limitation of this study is that meat consumption was measured as an ordinal variable and the mediation analyses were performed with PROCESS in SPSS. According to Andrew Hayes, who has developed PROCESS, it is possible to use PROCESS with an ordinal outcome variable (Processmacro, 2021). However, this is not an entirely appropriate way of conducting statistical analyses since PROCESS uses ordinary least squares (OLS) regressions instead of ordinal regressions. Therefore, the results of the mediation analyses must be interpreted with caution.

The present study provides support for the internalization of social norms into personal norms in the context of meat consumption. However, this only applies to injunctive norms. This study also provides support for the assumption that injunctive norms have a stronger influence on behavior compared to descriptive norms. This study has both scientific and practical relevance. It contributes to knowledge on what types of social norms influence meat consumption, as well as how these norms influence meat consumption (directly or indirectly) and whether social norms are internalized into personal norms. Conducting research on the process of internalization of social norms is of great importance, since it has been suggested that social norms need to be internalized in order to create a deep and lasting change in behavior (Goldberg, 2020). To gain a better understanding of the process of internalization, factors that could potentially influence this process (e.g., guilt and group identification) need to be taken into consideration. Moreover, to investigate whether internalized social norms do in fact lead to long-term behavior change, longitudinal research needs to be conducted.

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Appendix A

Survey

1. <u>Wat is uw leeftijd?</u>

2. <u>Wat is uw geslacht</u>?
o   Man
o   Vrouw
o   Anders
o   Zeg ik liever niet

3. <u>Wat is het hoogste opleidingsniveau dat u heeft voltooid of de hoogste graad die u heeft behaald?</u>
o   Lager dan middelbareschooldiploma
o   Middelbareschooldiploma of vergelijkbaar
o   MBO
o   HBO of universiteit maar geen diploma
o   Bachelorgraad
o   Mastergraad
o   Kandidaats/PhD

4. <u>Hoe zou u uzelf het beste omschrijven? Als:</u>
o   Vleeseter
o   Flexitariër (u eet tenminste 1 dag in de week geen vlees)
o   Vegetariër (u eet helemaal geen vlees)
o   Veganist (u eet helemaal geen dierlijke producten)

5. <u>Hoe vaak eet u wekelijks vlees bij de avondmaaltijd?</u>
o   0 keer
o   1-2 keer
o   3-4 keer
o   5-6 keer
o   7 keer

6. <u>Geef aan welke stelling **het meest** bij u past:</u>
o   Ik heb nog nooit overwogen om minder vlees te eten.
o   Ik heb overwogen om minder vlees te eten, maar ik heb dit nog niet daadwerkelijk toegepast.
o   Ik zorg ervoor dat ik af en toe minder vlees eet. In de toekomst ben ik van plan regelmatig minder vlees te eten.
o   Het eten van minder/geen vlees is voor mij vanzelfsprekend.

7. <u>Geef aan in hoeverre u **het eens bent** met de volgende stellingen:</u>
   1. Mijn familie vindt dat ik minder/geen vlees moet eten
   2. Mijn partner vindt dat ik minder/geen vlees moet eten
   3. Mijn vrienden vinden dat ik minder/geen vlees moet eten
   4. Mijn collega's vinden dat ik minder/geen vlees moet eten

5.Mijn (huis)arts, diëtiste of andere gezondheidsexperts vinden dat ik minder/geen vlees moet eten

o   Helemaal mee oneens
o   Mee oneens
o   Neutraal
o   Mee eens
o   Helemaal mee eens

8.   <u>Geef aan in hoeverre u **het eens bent** met de volgende stellingen</u>
1. Mijn familie zou mijn keuze om bewust minder vlees te eten ondersteunen/Mijn familie ondersteunt mijn keuze om bewust minder vlees te eten.
2. Mijn partner zou mijn keuze om bewust minder vlees te eten ondersteunen / Mijn partner ondersteunt mijn keuze om bewust minder vlees te eten.
3. Mijn vrienden zouden mijn keuze om bewust minder vlees te eten ondersteunen / Mijn vrienden ondersteunen mijn keuze om bewust minder vlees te eten.
4. Mijn collega's zouden mijn keuze om bewust minder vlees te eten ondersteunen / Mijn collega's ondersteunen mijn keuze om bewust minder vlees te eten.
5. Mijn (huis)arts, diëtist of andere gezondheidsexperts zouden mijn keuze om bewust minder vlees te eten ondersteunen / ondersteunen mijn keuze om bewust minder vlees te eten.

o   Helemaal mee oneens
o   Mee oneens
o   Neutraal
o   Mee eens
o   Helemaal mee eens

9.   Hoeveel mensen in uw sociale omgeving (familie, vrienden, collega's) eten bewust minder/geen vlees? Geef een schatting van het aantal in getallen.

_____

10. <u>Geef aan in **hoeverre u het eens bent** met de volgende stellingen:</u>

1.   Op basis van mijn eigen principes voel ik een verplichting om minder/geen vlees te eten, ongeacht van wat andere mensen doen.
2.   Ik voel me schuldig wanneer ik vlees eet/zou eten.
3.   Ik vind mezelf een beter persoon als ik minder vlees zou eten/omdat ik minder/geen vlees eet.
4.   Wanneer ik boodschappen doe, voel ik een morele verplichting om alternatieven voor vlees (bijv. vleesvervangers, bonen/peulvruchten, noten en zaden etc.) te verkiezen boven vleesproducten.

o   Helemaal mee oneens
o   Mee oneens
o   Neutraal
o   Mee eens
o   Helemaal mee eens