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Distribution channel preferences in the Dutch OTC-drugs market

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Abstract

This paper studies consumer preferences for AV-classified OTC-drugs distribution channels. Specifically, it studies the differences in consumer preferences for pharmacies, drugstores and grocery stores. The findings could serve as a basis for the development of channel specific marketing strategies for AV-classified OTC-drugs. To test which consumer' and store attributes influence consumer preferences a survey is developed and the results of this survey are analyzed. Using a logit model to analyze the answer patterns, the attributes, 'Age', 'Gender', 'Perceived price of painkillers', 'Perceived quality of painkillers', 'Variety of painkillers', 'The number of brands' and 'Distance to distribution channel' were found statistical significant. However, the attributes did not contribute significantly to each distribution channel. The consumers' preference depends on several factors that differ per channel. This paper provided insights in consumer segments and their preference for distribution channels to buy AV-classified OTC-drugs.

Keywords: *"Distribution", "Channel", "Preference", "OTC-Drugs", "Consumer"*

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Introduction

1.1 General introduction to the topic

The Dutch pharmaceutical market has changed dramatically over the years. In 1958, the law "Wet op de Geneesmiddelenenvoorziening" was introduced. This law pointed out the persons and organizations who were entitled to subscribe prescriptions for medicines and who were entitled to provide medicines. New in this law was the opportunity for persons with a drug-store permit, apart from the traditional subscribers and pharmacists, to provide self-care medicines. This resulted in more locations in which self-care medicines could be provided. In specific situations, even persons without a drug-store permit, could provide a limited selection of self-care medicines (Van Dijk, Van der Maat, Salimans, & Bouvy, 2010)

In August 2000, secretary of Volksgezondheid, Welzijn en Sport(VWZ), Borst has send a letter to the parliament in which she recommends making self-care medicines available to the market without specific permits. In other words: Supermarkets and groceries stores were, according to this recommendation, allowed to sell specific self-care medicines. She argued that the broader provision of these self-care medicines was better corresponding with the current social trends of a more critical and independent consumer, who want to choose which kind of medicine to use by themselves. She also argued that this would better correspond with the aspirations of the government, because the competition on service and price would increase if the recommendation would be implemented (Van Dijk, Van der Maat, Salimans, & Bouvy, 2010) (Tweede Kamer, Borst, 2000).

As a reaction to the recommendations, a united organization of drug-stores, Pharmacon, wrote a letter in which they counter the recommendations of open-availability of self-care medicines. They referred to other European countries in which the selling of these kinds of medicines mainly occurs in pharmacies and argue why the abolition of the current barriers for the selling of self-care medicines should not be continued in the Netherlands. They also referred to the suggested increase of price and service competition and argue that drug-stores already compete on price heavily and that in terms of service the competition should be regulated to make sure the safety of the consumer is guaranteed, due to good information provided by certified drug-store employees. A lack of good information provision could lead to health issues, due to wrong usage or using the wrong medicines, and this should be the priority according to Pharmacon (Van Dijk, Van der Maat, Salimans, & Bouvy, 2010).

The secretary of VWZ argued that she did not share Pharmacon's opinion about the potential health problems and the decreasing margins, due to the increased competition, and started working on improving the "wet op de Geneesmiddelenvoorziening"

On the first of July 2002, the mandatory counter for self-care medicines is abolished in the renewed law. This resulted in the opportunity for consumers to get self-care medicines without consulting a certified drug-store employee or a pharmacy employee. The Centraal Bureau Drogisterijbedrijven (CBD) had some critical notes about the change, but were mainly concerned about reduced interaction with consumers, in which consumers were advised about the self-care medication and in which the drug-stores had the change to increase the consumers' store loyalty by providing service.

The amendment of the law resulted in the theoretical introduction of several self-care medicines categories. In 2007, the new Law "Geneesmiddelenwet 2007" was introduced and the theoretical introduction of several kinds of medicines was implemented into four kinds of medicines:

1. Exclusively prescription (UR)
2. Exclusively pharmacy (UA)
3. Exclusively pharmacy and drug-store (UAD)
4. General Sales (AV)

The self-care medicines were categorized in the UA, UAD and UV categories. To sell the UA and UAD category self-care medicines, the seller must require specific conditions to be allowed to offer these products. The conditions a drug-store requires are more elaborated to assure the consumers' health and safety. The introduction of the UA and the UAD differs not significantly from the former law, but the categories are determined differently (Hoogervorst, 2007).

The AV-category is new and has led to a major change in consumer shopping behavior, because consumers no longer need to go to a pharmacy or drug-store to buy commonly used self-care medicines, such as paracetamol and ibuprofen. The only requirement the seller in the AV-category must adhere to is the need to sell products for a company as a profession, and to be registered in the trade-register.

The introduction of this category has led to a major rise of competitors for pharmacies and drug-stores in the self-care medicine market. The market share of pharmacies has declined from 15% in 2010 to 11,9% in 2016 and the market share of supermarkets and groceries increased from 9% in 2010 to 12,1% in 2016. This implies that supermarkets and grocery stores are taking market share from pharmacies and that drug-stores are not affected by the new regulation. The total market for self-care medicines increased from €677,7 million in 2010 to €719,0 million in 2016. This implies declining revenues for pharmacies for self-care medicines in this period (Neprofarm, 2017).

In the same period pharmacies had to cope with declining revenues in the UR-category. After implementing a changed health-care system in the Netherlands, to increase the rate of efficiency in health-care facilities and to reduce the cost of health-care, the revenues of pharmacies strongly declined

(Van de Ven, 2008). With these new regulations pharmacies should change their business model to stay profitable and to gain advantages of the changed business environment. This research will investigate the changed role of pharmacies in the changed business environment by comparing why consumers choose different distribution channels.

1.2 Specific introduction of the topic

Since 2009, regulatory reforms in Sweden, which are comparable to the Dutch reforms, have led to an increased number of pharmacies and non-pharmacy retailers which can sell specific OTC-drugs. As said in the previous section of this research, the Swedish regulatory reforms aim to increase the competition on price and service to reduce the total cost of the health-care system, which is about the same aim as the Dutch regulatory reforms. Due to the increased number of selling points, it is assumable competition will increase and as a result, revenues of pharmacies could decline. A Swedish study showed that pharmacies are still the preferred retailer for OTC-drugs in Sweden, but about 24% of OTC-drug purchases is done at non-pharmacy retailers. This study also investigated the reasons for choosing a pharmacy or a non-pharmacy retailer for OTC-drug purchases. Geographical proximity, product range, availability of trained staff and openings hours are, in range of order, the main reasons for choosing a pharmacy when buying an OTC-drug. For non-pharmacy retailers, geographical proximity, openings hours and easy accessibility, are the main reasons for choosing these stores (Håkonson, 2016).

Although the study population of the above-mentioned research is probably not representative for Dutch consumers, it could be used as a framework to investigate the Dutch customers' preferences for store types when buying OTC-drugs.

Brabers, Van Dijk and Bouvy (2013) for instance have shown that Dutch consumers find that certain types of OTC-drugs, which are classified as an AV-category OTC-drug, should be sold exclusively in pharmacies. This study also shows significant differences between customers' attitudes towards the selling of OTC-drugs at different consumer characteristics like age and level of education. Customers with a higher level of education were less restrictive in their preferences than people with a lower level education and younger people were less restrictive than older people in their preferences, but the major part of the study population preferred that OTC-drugs, in this study painkillers, should be available only in pharmacies. However, these findings interfere with the previously mentioned sales reports about the distribution of OTC-drugs, in which the major part of sales is done via drug-stores.

The goal of this research is to investigate the preferences of Dutch consumers when buying OTC-drugs. The increasing market share of the supermarkets and grocery stores and the decreasing market share of pharmacies in OTC-drugs sales, while the market share of drug-stores is stable, implies that consumers

are shifting from buying OTC-drugs in pharmacies to buying them in supermarkets. The regulatory reforms in Sweden have led to an increased market share for non-pharmacy retailers in OTC-drugs sales, which also implies a shift in consumer purchase behavior. However, the findings of Brabers et al. (2013) seem to imply that consumers find that OTC-drugs should be sold exclusively in pharmacies, while the market shares in both The Netherlands and Sweden implies that consumers are showing different buying behavior compared to their attitudes towards OTC-drugs availability (Brabers, Van Dijk, Bouvy, & De Jong, 2013) (Neprofarm, 2017).

This difference in shopping behavior and attitude towards availability has not been investigated yet. By investigating consumer' preferences for store types when buying OTC-drugs, the purchase behavior of Dutch consumers can be interpreted better. With a better understanding of the consumer' preferences and shopping behavior, the selling process of OTC-drugs can be optimized per distribution channel, which ultimately can reduce the total cost of the Dutch health-care system. In the following chapter the research questions will be stated and explained. The goal of this research is to gain a better understanding of what factors are influencing consumers' choice of distribution channel for buying AV-classified OTC-drugs.

1.3 Problem definition

1.3.1 Research question

The changes in market share of pharmacies, drug-stores and grocery-stores imply a shift in consumer preferences and confirm a shift in the decision-making process when buying OTC-drugs. This changing business environment has led to strongly declining revenues of pharmacies and the decreasing demand for OTC-drugs in pharmacies puts even more pressure on the revenues. Therefore, it is important for pharmacies to get a better understanding why consumers are changing their OTC-drugs shopping habits. Knowing the underlying reasons could help pharmacies to develop a new approach to maintain their current customers and to increase their customer base. The research question is stated as follows:

"What factors influence consumers' distribution channel choice of AV-classified OTC -drugs?"

Three sub-question will be introduced in the following chapter to divide the research in different parts. These sub-questions will provide a more structured overview of the research.

1.3.2 Sub questions

At first, consumer characteristics will be investigated to find possible trends in shopping behavior amongst consumers with different characteristics in terms of demographic profiles. Previous research has shown that consumer characteristics directly and indirectly affect the chosen distribution channel (Spiggle & Sewall, 1987 and Inman & Shankar, 2004). This results in the following sub question:

"What are the influences of consumer' characteristics on the choice of distribution channel?"

The consumers' psychological states, perceptions and attitudes are considered as a direct influencer of choice of distribution channel and preferred distribution channel. Psychological states are likely to undergo transitions during the decision making process of choice, in this research choosing a distribution channel (Spiggle & Sewall, 1987). Therefore, the next sub question will focus on consumers' psychological states, which includes the perceptions of store image, price, quality and service. Consumers' attitudes towards a product are influenced by various factors, including the matching of a product user image with the consumers' self-concept. Likewise, a consumer's attitude towards a store can be matched with the consumer's self-concept. This results in different consumer' perceptions in terms of the store's typical customer base (Sirgy, Grewal, & Mangleburg, 2000). Pharmacies, drug-stores and supermarkets use different marketing communication strategies, like pricing and branding strategies, and by comparing the consumers' perception of these marketing communications and the consumer's perception about the stores, specifically for AV-classified OTC-drugs, in combination with the insights about the influences of consumer characteristics, new insights can be added to the existing literature and a better understanding of the consumers' store perceptions. Closely related to the consumer's store perception is price perception. Some stores are perceived as more expensive than others, so the price perceptions of the different distribution channels could differ as well among the different consumer groups. Also, included in the second sub question are the earlier mentioned psychological states of attitudes and image. Therefore, the second sub-question is stated as follows

"What are the influences of the underlying factors of consumers' psychological states on the choice of distribution channel?"

Håkonson has mentioned that geographical proximity is the main reason for choosing a pharmacy when buying OTC-drugs (Håkonson, 2016). Because of the different and unique charactaristics of the Dutch OTC-drugs market this should be tested again. Based on the outcomes of the research of Brabers and the research of Håkonson, this should be tested in terms of channel preferences and in terms of shopping behavior. Closely related to geographical proximity is the rate of convenience when shopping for OTC-drugs. Doing groceries and at the same time buying the needed OTC-drugs in the same store or around the corner differs significantly from going to a shop just to buy OTC-drugs. Therefore, there is a reason to investigate the relation between convenience shopping and channel preferences and the relation between convenience shopping and shop patronage, because of the possible interference between

preferences and shop patronage: Previous research resulted in a general model for retail selection, which consists of the previous mentioned consumer characteristics, consumer psychological states but also retail outlet features (Spiggle & Sewall, 1987). Retail outlet features is divided in three specific determants: Distance and travel time, which are closely related to geographicl proximity, and assortment, which can be related to convenience shopping. The sub-question about retail outlet features is stated as follows:

"*What are the influences of retail outlet features on the choice of distribution channel?"*

1.4 Contribution

1.4.1 Theoretical contribution

This research concerns the distribution channel choice of Dutch consumers in the AV-classified OTC-drugs market. Spiggle (1987) combined previous research and stated a general model of retail selection, which includes the influences of consumer psychological states, consumer characteristics and retail outlet features. Retail managers could use this model to assess competitive effectiveness and to identify opportunities to improve their position in the consumers' choice process. Spiggle's model entails a high-involvement product which is comparable with the decision process when buying OTC-drugs (Akçura, Gönül, & Petrove, 2002). Therefore, the determinants of this model will be used to develop a OTC-drugs specific model. One of the proposed determinants are the consumer characteristics, which are determined as age, gender and education. Other research has shown that consumer characteristics are predictors of shopping behavior and, therefore, will be included in this research (Schoenbachler & Gordon, 2002). Furthermore, Schoenbachler and Gordon also proposed that the consumers' need for convenience will affect the distribution channel choice and therefore, the influence of retail outlet features is another major construct in this research.

The dependent variable in the model will be the choice of distribution channel and the independent variables will be the main factors mentioned by Spiggle (1987). The model contributes to existing literature by measuring the influence of variables across a single distribution channel for a specific product. This research does focus on which variables affect the preference for a distribution channel. It measures the differences between the possible impact of variables, such as the influence of perceived price, across three distribution channels, pharmacies, drug-stores and grocery stores. This research will add to the existing literature the influence of several variables, specifically for AV-classified OTC-drugs and test if earlier research is applicable for this specific market segment.

Also, this research will test if existing literature about the consumers' perceptions is applicable for AV-classified OTC-drugs and therefore creates a sector specific model. It can be expected that the relation between these perceptions differs across the channels, due to the differences in distribution channels. By identifying the different perceptions, the path for further research towards the reasons of the differences can be paved. Furthermore, this research will test if demographic factors have a significant

influence on shopping activities, in terms of choice of distribution channel, when shopping AV-classified OTC-drugs. It also tests if the influence of demographic factors differs among the three distribution channels. Finally, as mentioned by Håkonson (2016), geographic proximity (location), opening hours and product range (assortment), are the most important factors for choosing a specific channel in Sweden. This research will test if this is applicable for the Dutch AV-classified OTC-drugs market.

1.4.2 Managerial contributions

A better understanding of the consumer distribution channel choice could lead to the implication of new marketing strategies, like lowering prices or change opening hours, to address more or/and other consumers. It also provides more detailed information about the influence of consumers' characteristics across different distribution channels, which can be used to select a demographic profile to focus on which suits the distribution channel best. The research of Håkonson (2016) already provides some understanding of consumers' preferences, but due to a different market environment and different consumer characteristics, the managerial implications of the research cannot be taken into practice in the Dutch market yet.

Pharmacies, supermarkets and drugs-stores could also take advantage of the improved understanding of consumers. The knowledge of the impact of several distribution channel choice components makes it possible for managers of all mentioned distribution channels to improve the stores in a way they are more in tune with consumers' preferences. By comparing the impact of the components for each distribution channel new consumer segments could be reached by implementing marketing strategies which reach a larger group of consumers. For example, pharmacy channel managers could learn from the preferences of the growing group of consumers which are buying OTC-drugs at supermarkets and adapt the strategy to it.

1.5 Structure of the research

This research will start with a literature review on Spiggle's three determents and the components of the determents in Chapter 2. This literature review will result in several hypothesizes. Following, the methodology to obtain the data to reject or accept the hypotheses will be described in Chapter 3. The analysis of the data will be described in Chapter 4. In chapter 5 the findings will be presented. In Chapter 6 the conclusion of the research is elaborated followed by a discussion section.

2. Literature review

2.1 Introduction

In this chapter, the theories that will be used in this research to provide a theoretical framework about consumers' distribution channel choice will be elaborated in a funneled approach. The variables of the proposed model will be assigned to theories, which explain the variables more in-debt and which can be tested. These theories are used to gain a better understanding of the factors underlying consumers' choice of distribution channel in terms of consumers' characteristics, consumers' psychological states and retail outlet features as mentioned by Spiggle.

2.2 Household utility function & The theory of the allocation of time

Gary Becker has merged goods consumption with time use in the production of household utility in his 'A theory of the Allocation of Time'. New in this theory was the same approach towards consumption and leisure in terms of utility, instead of considering them as goods that separately provide utility. Becker also emphasized that there are various types of time use in the same way as there are many types of consumptions goods. He observed that various types of time and consumption combine into a single household objective function, with a single overall budget constraint (Becker, A Theory of The Allocation of Time, 1965).

Choosing a specific distribution channel is a consumer' utility optimization problem. Consumers will switch between channels when the utilities derived from using one channel for a specific purchase, including the costs of using that channel, outweigh the utilities the same purchase in an alternate channel. According to Becker (1965), these utilities include the utilities derived from shopping experiences, relative prices, the quantity purchased and the differentials in the time involved in the shopping process, maximized at a given income, wage rate, and available capital, assuming the wage rate as an opportunity cost of time (Becker, A Theory of The Allocation of Time, 1965).

This research assumes, in the extend of Beckers' theory of the allocation time, that consumers have different utilities for different distribution channels and they choose the channel with the highest utility. In the following sections, the three determinants of Spiggle's model (1987) will be explained more detailed and hypothesizes will be stated to test if earlier research is applicable for the specific AV classified OTC-drugs category.

2.3 Consumer characteristics theories

The consumer characteristics variable includes the components demographics, including age, gender and education. Consumers with different demographic profiles have heterogeneous shopping preferences (Baltas & Papastathopoulou, 2003). Prior research has shown that channel-category association have significant main and interaction effects with channel type and demographic factors. Dholakia (1999) showed that men are playing a significant role in shopping activities, but shopping for household groceries remains a gendered activity, which means that shopping for household groceries is done mostly by women. Also, consumers tend to be more critical of store attributes as education increases (Paulins & Geistfeld, 2003).

Furthermore, it is shown that people tend to congregate with people like themselves, people with a corresponding lifestyle, social rank, household composition, ethnicity and mobility (Goss & Jon, 1995). Also, it is found that consumers in different social classes buy other products, but also buy those products in other types of stores, which implies that stores have a fixed class identity (Miller, et al.). Martineau's research implies that when choosing a distribution channel, the consumer will shop at the channel where other people with the same characteristics will shop (Martineau, 1958). This research assumes that people are distributed equally in terms of spatial conditions, and therefore it is assumed that people in different demographic classes, in terms of lifestyle, social rank, etc., are living in the same areas.

The proposed model exists of the three determinants, mentioned by Spiggle (1987) and include multiple factors. After implementing the different consumer characteristic factors in the proposed model the following model appears:

$$Choice\ of\ Distribution\ Channel = C + \beta_1 Consumer\ Pyschological\ States + \beta_2\ Age + \beta_3\ Gender + \beta_4\ Education + \beta_5 Retail\ Outlet\ Features$$

Consumer characteristics, age and gender particularly, have been identified as important elements in shaping consumers' shopping behavior (Robolt & Drake, 1985 and Solomon, 2007). Age groups tent to have homogenous and distinctive norms and values, have its own subculture, and may share similar shopping, purchasing, and consumption orientations (Dias, 2003 and Seock & Sauls, 2008). Carpenter and Moore have shown that that age and education does not have a significant influence on store choice, for groceries, in the US market (Carpenter & Moore, 2006). Also, prior research has shown that the demographic profile of consumers who shop at large format stores, like supermarkets, differs from the profile of non-shoppers (Arnold, 1997). Mass merchandisers draw a younger, less affluent and more rural group of consumers with children compared with the grocery channel and the drug-store channel tent to attract less affluent, older group of consumers without children. It is shown that consumers who shop at drug-stores have different characteristics than the consumers that shop at the grocery-stores

(Inman & Shankar, 2004). Moreover, prior research has shown that elderly request help from a pharmacist more often than young adults (Sansgiry & Cady, 1996). Therefore, it can be expected that age has an effect on channel preferences. This results in the following hypothesis:

Hypothesis 1 *Age influences consumers' channel preference for buying AV-classified OTC drugs.*

Prior research has shown gender differences in consumer shopping behavior (Seock & Sauls, 2008). Research suggests that men and women tend to have different attitudinal and behavioral orientations in their buying behavior (Homburg & Giering, 2001). Females are more visually oriented and more intrinsically motivated than males in their shopping behavior (Holbrook, 1986). Males are more prone to information attainment and convenience seeking, whereas females are more prone to uniqueness and assortment seeking (Noble, Griffith, & Adjei, 2006). Furthermore, Campbell (1997) found that men tend to have need-driven shopping attitudes and are mainly motivated by the purchase of the product itself, whereas women tend to enjoy the shopping activity itself (Campbell, 1997). Also, males are more likely to stop patronizing a store due to long lines than females, which suggests that men are more time conscious than women and hence more likely to value convenience (Nelson, 2000). The attitudinal approach differs for men and women, as shown by Campbell (1997). Based on these gender differences, it is expected that gender influences channel preferences. To test if the outcomes of prior research are applicable for the specific OTC-drugs market the following hypothesis is stated:

Hypothesis 2 *Gender influences the consumers' channel preference for buying AV-classified OTC drugs.*

Earlier research has shown a significant influence of education level on store choice (Carpenter & Moore, 2006). However, the authors focus on the retail choice in het US grocery market and do not include drug-stores and pharmacies and more important, the retail choice in the OTC-drugs market. The most important finding, related to education level, is that as education level decreases, the likelihood of shopping in a supercenter increases, which implies that the probability that consumers will prefer to shop at the grocery channel, which includes large supermarkets like AH Xl, increases if the level of education is lower (Carpenter & Moore, 2006). Moreover, Håkonson (2016) has shown that higher-educated consumers bought their medication mainly at pharmacies and hospitals, where they received detailed medication information, and lower-educated consumers bought their medication from sources which provide less information, like grocery stores. The population of this research, the Nigerian adult population, differs from the Dutch population, but the findings of the research could imply that education level influences OTC-drug buying behavior. Nonetheless, it is expected that the higher the level of

education, the higher the need for detailed information provision, which results in the following hypothesis

Hypothesis 3 *Education level influences the consumers' channel preference for buying AV-classified OTC drugs.*

2.4 Consumer psychological states theories

The consumer psychological states variable includes the components price perception, quality perception and service perception. Prior research has shown that the perception of price is correlated with the perception of quality. The perceived price is related positively to the level of product quality (Lichtenstein, Ridgway, & Netemeyer, Price Perceptions and Consumer Shopping Behavior: A Field Study, 1993). Other research has shown that price perception has a stronger influence on customer value perceptions than quality perceptions and that price perceptions have a direct effect on the customers' satisfaction and purchase intentions (Varki & Colgate, 2001). Also shown is that perceived price has a negative effect on the perceived product value and the willingness to buy. However, perceived store image has a positive relation with the perceptions of quality, value and the willingness to buy (Dodds, Monroe, & Grewal, 1991). Perceived store image is related to perceived price and perceived quality and the perceived store image is related to the perceived service-level positively (Baker, Parasuraman, Grewal, & Voss, 2002). All before mentioned factors of consumer psychological states are correlated according to these prior researches. Notable are the findings that three factors are of significant relevance in the store selection process: Convenience & Merchandise Mix, Store atmospherics and Services (Ghosh & Kumar, 2010). Store atmospherics and services are components of the consumer psychological states variable and Convenience & Merchandise is a component of the Retail Outlet Features variable.

In this research, the assumption is made that all products are equal, but perceptions of products could differ among distribution channels. To investigate the differential perceptions of products several theories about how consumers evaluate products in terms of perception and how store choice depends on these evaluations are combined.

Environment cues causes consumers to evaluate stores, because of them believes that these cues offer reliable information about product related attributes, such as quality, price and overall shopping experience (Bitner, 1992) (Baker, Parasuraman, Grewal, & Voss, 2002). Other research supports the idea that information from environmental cues influences consumers' perceptions (Baumgarten & Hensel, 1987). According to Kotler (1973), the design of a store can serve as an important basis for consumers' evaluations of merchandise quality and the corresponding quality perceptions (Kotler,

1973). Moreover, Baker (2002) proved that as consumers' perceptions of store design cues become more favorable, customers will perceive merchandise quality to be higher.
In the extend of this finding, Baker has found that the higher consumers' monetary price perceptions, the lower their perceptions of merchandise value will be, so there is a negative relation between monetary price perceptions and the perception of merchandise value. Also, other findings are that store patronage intentions are significantly influenced by the consumers' perception of merchandise value and that consumers' perceptions of time/effort and psychic costs do not influence how consumers assess merchandise value, but strongly influence store patronage intentions (Baker, Parasuraman, Grewal, & Voss, 2002).

The proposed model includes the variable consumer psychological states, and as earlier mentioned, this variable includes the following components: price perception, quality perception and service perception. By applying these components in the proposed model the following model arises and the different components will be discussed more detailed in the following part:

$$Choice\ of\ Distribution\ Channel = \mathrm{C} + \beta_1\ Age + \beta_2\ Gender + \beta_3\ Education + \beta_4\ Price\ perception + \beta_5\ Quality\ perception + \beta_6\ Service\ perception + \beta_7 Retail\ Outlet\ Features$$

Price is, when seen purely as a monetary function, the amount of money that must be given up attaining a product, and therefore higher prices negatively affect purchase probability. Nonetheless, research has shown that that consumers perceive price more broadly than strictly as an outlay of economic resources (Lichtenstein, Ridgway, & Netemeyer, 1993). Price has both objective external properties and subjective internal representations that are derived from the perception of prices (Jacoby & Olson, 1977). This results into a value perception, which can be explained by the cost-benefit trade-off theory provided by Zeithaml (1988): a consumer's opinion about a product is based on the perception of the losses of utility and the gain of utility by obtaining the product (Zeithaml, Consumer Perception of Price, Quality and Value: A Means-End Model and Synthesis of Evidence, 1988). The value perception clearly consists of a 'get' component, positive, and a 'give' component, negative. The negative effect can be explained by Kahneman's prospect theory, which says that "losses loom larger than gains" (Kahneman, Daniel, & Tversky, 1979). Other research further explained why negative components has a stronger influence on customer satisfaction than positive components of the consumers' price perception (Anderson & Sullivan, 1993). Moreover, research has shown that negatively valenced information is more readily accessible from memory than positively valenced information and elicits a stronger consumer response (Mittal, Vikas, Jr, & Baldasare, 1998). The extrinsic cue of price has a negative valence, which results in more readily accessible negative price cues from memory. Therefore, it can be expected that the perceived price of a channel has an influence on channel preferences. Moreover, with the addition of

the assumption that all products are equal, but with the existence of different brands, and the above-mentioned research the following hypothesis is formulated:

Hypothesis 4 The perceived price of OTC-drugs in a channel influences the consumers' channel preference *for buying AV-classified OTC drugs.*

Closely related to price perception is the perception of quality. The price cue may be perceived positive due to the interference that the level of the price is related positively to the level of product quality (Erickson & Johansson, 1985). Consumers may perceive higher prices more favorable because they perceive the higher price as a cue for an increase in product quality (Lichtenstein, Bloch, & Black, 1988). Also, other research has shown that consumers who perceive price in this way prefer paying higher prices (Tellis & Gaeth, 1990). Furthermore, consumers generally have a set of prices that are acceptable to pay for a product (Monroe, 1979). People not only refrain from purchasing a product when they consider the price too high, but also may be suspicious of the quality of the product when the price is below what they consider acceptable (Cooper, 1969). Other cues that influence perceived quality are brand name and store name (Zeithaml, 1988). Prior research has shown that price and brand name have a significant effect on the perception of quality and that store name does not have a significant effect on perceived quality (Rao & Monroe, 1989). Also, it is found that brand names enhance the influence of price on perceived quality (Monroe & Krishnan, The Effect of Price on Subjective Product Evaluations, 1985). Furthermore, it is suggested that consumers are less likely to rely on the presence of a price-quality relationship for a product class and to rely more on the familiar information cues of brand and store name to assess the product's worth. This suggests that the strength of the price cue may be diminishing when other well-known cues, like brand name and store name, are available (Monroe & Grewal, 1991). Also, Baker (2002) has shown that the perceived value positively influences the consumers' channel preferences. Therefore, the following hypothesis is stated:

Hypothesis 5 The perceived quality of OTC-drugs in a channel *influences the consumers' channel preference for buying AV-classified OTC drugs.*

This research is focused on physical retail stores, and as a result the quality of the interactions between store employees and customers, known as interpersonal service quality, is an important factor. Prior research has shown that consumer' value perceptions are based on perceptions of product quality and price (Zeithaml, 1988). Other research proposed the addition that a store's environmental dimensions, like interpersonal service quality and shopping experience costs, can influence the consumers' store choice apart from the consumers' value perception (Baker, Parasuraman, Grewal, & Voss, 2002). Also, time and effort costs influence consumers' perceptions of what they give up when shopping, suggest

that time spent in store, looking or waiting for goods and services, has an economic value to consumers (Becker, A Theory of The Allocation of Time, 1965). Moreover, research has shown that interpersonal service quality is evaluated by consumers as well as merchandise quality (Mazursky & Jacoby, 1986). Interpersonal service quality includes customers being treated well and receiving prompt and personal attention from employees (Zeithaml, Berry, & Parasuraman, The Bahavioral Consequences of Service Quality, 1996). Also, the consumers' perception of service quality is influenced by environmental cues, like the scent or type of lightning in a store (Baumgarten & Hensel, 1987). Interpersonal service quality is significantly influencing the consumers' service quality perceptions and is also significantly influencing the consumers' store patronage intentions (Baker, Parasuraman, Grewal, & Voss, 2002). Therefore, it is expected that the service quality, which is limited to the interpersonal service quality, will influence the preferred distribution channel. This results in the following hypothesis:

$Hypothesis\ 6$ The perceived interpersonal service quality of a channel *influences the consumers' channel preference for buying AV-classified OTC drugs.*

With the introduction of hypotheses $5\ and\ 6$, the proposed model changed. The newly proposed model is stated as follows:

$$Choice\ of\ Distribution\ Channel = \mathrm{C} + \beta_1\ Age + \beta_2\ Gender + \beta_3\ Education + \beta_4\ Price\ perception + \beta_5\ Quality\ perception + \beta_6\ Service\ perception + \beta_7 Retail\ Outlet\ Features$$

2.5 Retail outlet features theories

The retail outlet variable includes the components assortment, opening hours and location. Prior research has shown that assortments are generally more important than retail prices in store-choice decisions, that there is more heterogeneity in response to assortment than to convenience or price and that there is a correlation in household-level responses to assortment and travel distance, which suggests that the less important assortment is the more important is convenience shopping (Paulings & Geistfeld, 2003).

Retail outlet features affect store choice and purchases (Berry, 1986). However, the importance of specific store features varies by store type, in this research by distribution channel, as well as by customer characteristics (Shim & Kotsiopulos, 1992). Moreover, the increasing amount of retail formats and retailers affects the consumers' distribution channel choice as well. Also, it is found that consumers tend to choose a variety of stores, but overall prefer to shop at specialty stores (Leszcyc & Timmermans, 2001). This research has also shown that the importance of store attributes to store preference varies by store type and that customer expectations of store attributes differ according to store type; customers do not expect an extensive service in discount stores, but do expect an extensive service in specialty stores.

Because of the expected differences in store attributes for the different distribution channels, it can be expected that consumers may expect a more extensive service in, for instance, the pharmacy channel than in the grocery channel. Additional research identified situational conditions, the reasons why consumers seek to buy products or services, as significant determinants of the importance of store attributes on store choice. Time constraints, gift buying versus personal shopping and the context of the shopping occasion all may affect the impact of store attributes on store preference (Kenhove, Wulf, & Waterschoot, 1999) (Paulings & Geistfeld, 2003). For convenience reasons, this research assumes that the consumers' situational conditions and the consumers' expectations of store attributes are identical for each type of distribution channel. As a result, the impact of the variable's components, assortment, opening hours and location, can be measured independently from the consumers' expectations of those components. By adding the components to the proposed model, the following model is developed:

$$Choice\ of\ Distribution\ Channel = \mathrm{C} + \beta_1\ Age + \beta_2\ Gender + \beta_3\ Education + \beta_4\ Price\ perception + \beta_5\ Quality\ perception + \beta_6\ Service\ perception + \beta_7\ Assortment + \beta_8\ Opening\ hours + \beta_9\ Location$$

Prior research suggests that because of the "law of retail gravitation" the probability of choosing a retail outlet is positively related to its size, but inversely related to its distance from the consumers' home (Huff, 1964). In addition, the size of a retailer is the product of the number of categories and the number of items within each category (Levy & Weitz, 2004). It is assumable that a grocery store carries more categories than a drug-store and that both grocery stores and drug-stores carry more categories than a pharmacy and therefore differ in size. However, multiple studies failed to find a positive relation between assortment size and category sales in grocery stores (Briesch, Fox, & Chintagunta, 2009). Also, by calculating assortment elasticities for grocery and non-grocery retailers it is found that assortment size positively affects the probability that shoppers choose a store (Fox, Montgomery, & Lodish, 2004). Moreover, Briesch (2009) has found that the number of brands in an assortment and the presence of a household's favorite brand increases the probability of choosing a store and that the number of SKU's per brand, the number of sizes per brand and the number of unique SKU's per category does not increase the probability of choosing a store. These results suggest that the total assortment size affect the choice of distribution channel positively, but within a category, in this research the OTC-drugs category, the number of brands and the consumers' brand preferences affect the channel choice more than het amount of unique SKU's. Therefore, the following hypothesizes are stated:

Hypothesis 7 The perceived retail size *influences the consumers' channel preference for buying AV-classified OTC drugs positively.*

Hypothesis 8 The perceived number of brands within the assortment category "OTC-drugs" *influences the consumers' channel preference for buying AV-classified OTC drugs positively.*

As mentioned earlier, it is shown that geographic proximity, opening hours and assortment are reported as the most important factors in channel choice (Håkonson, 2016). Moreover, opening hours have expanded over the years, and weekend shopping is becoming an alternative to consumers because regulatory influences have diminished (Grünhagen & Mittelstaedt, 2001). Historically, marketers have differentiated weekday opening hours from weekend opening hours (Barnes, 1984). However, this differentiation was made before the recreational aspects of shopping were recognized, so before it was recognized that consumers could gain utility from shopping experiences (Grove, Gentry, & Grünhagen, 2003). Now, it is shown that weekend shoppers tent to have a more recreational orientation towards shopping than weekday shoppers (Roy, 1994). Also, full-time workers are more likely to shop during early evenings and in weekends, assumingly due to weekday limitation because of work commitments (East, Willson, & Harris, 1994). So, Limitation of opening hours may affect the consumers' choice of distribution channel, due to several reasons. Moreover, prior research has shown that opening hours are an important factor in channel choice (Håkonson, 2016). Because OTC-drugs can be considered as a need driven purchase it can be assumed that weekday shoppers are more likely to be OTC-drugs shoppers. By having smaller limitations of opening hours, more full-time workers, who shop in the evening, can be reached and therefore the following hypothesis is stated:

Hypothesis 9 The perceived opening hours of a channel *influence the consumers' channel preference for buying AV-classified OT*

The last component of the retail features variable is the location component. First it is needed to clarify the concept of location and therefore the model of spatial competition, introduced by Hotelling is used. This model is formulated to choose an optimal location and price in a duopolistic economy for a retailer. Eventually, this will lead to a Nash-equilibrium and two firms located very close to each other (Hotelling, 1929). Moreover, other research has added a second dimension, the assumption that consumers are uniformly distributed over a convex set, meaning the further away from the store, the lower the consumer density, and the assumption that the consumers' transportation costs are a quadratic function of the distance between the consumer and the store (Tabuchi, 1994).

This research assumes that the store's location is related to the consumers' transportation costs and that the consumers' transportation costs are a quadratic function of the distance between the consumer and the store. As a result, location can be defined as the consumers' transportation costs. Therefore, it is expected that the further the consumers' location from a specific distribution channel, the higher a consumer's transportation costs. Higher transportation costs lower the total utility the consumer can

obtain from the purchase and therefore negatively influence the choice of distribution channel. The following hypothesizes are stated to support this expectation:

Hypothesis 10 The consumers' transportation costs influence the consumers' channel preference *for buying AV-classified OTC drugs.*

3. Methodology

After motivating and introducing the hypotheses, the hypotheses will be tested. This chapter will explain the methodology applied to answer the research questions, the way the data is gathered and the tools of data analysis.

3.1 Research Design

This research is based on a descriptive method of research. The aim of descriptive research is to describe the relationship between various aspects of a research question in detail. This method is used to portray the research question *"What factors influence consumers' distribution channel choice of AV-classified OTC -drugs?"*, and the sub-questions *"What are the influences of consumer' characteristics on the choice of distribution channel?", "What are the influences of the underlying factors of consumers' psychological states on the choice of distribution channel?"* and "*What are the influences of retail outlet features on the choice of distribution channel?"*. The research design is based on a structured questionnaire.

3.2 Research Instrument

To identify the factors that have an impact on the preferred distribution channel, a new questionnaire was designed with a focus on the three main variables mentioned by Spiggle, namely "Consumer demographics", "Consumer Psychological state of mind", and "Retail outlet Features".

3.2.1 Questionnaire

First, the questionnaire has been created in English. Since the questionnaire was held in The Netherlands, the questionnaire was administered in Dutch as well as in English, depending on the preferences of the questioned persons. To ensure translation equivalence, the questionnaire was translated from English to Dutch, and then back to English (Brislin, 1970). The translation is done by two friends with good English skills, both from the Netherlands.

The questionnaire is added in appendix X contains newly generated questions. The first section contains questions related to the demographic profile of the respondent namely: age, gender and education. The

second section contains question about the consumers' psychological state and the third sections contains questions about the consumers' perception of the Retail Outlet Features. The responses for the second and third section were measured on a five-point scale. Scaling is a procedure of assigning numbers to various attitudes and perceptions. The method this research uses is based on the Likert Scaling Technique (Likert, 1932). The Likert Scaling technique is based on a series of statements to which respondents respond using a scale of possible answers. This research' questionnaire includes the following possible answers: Strongly agree (5), agree (4), indifferent (3), disagree (2), strongly disagree (1). While designing the questionnaire, a cover letter was added, which included information about how to answer the questions.

3.2.2 Respondents

The sample size is 206 respondents and exists of men and women above the age of 16 up to the age of 100. This age level was chosen because it is assumable that people between these ages can visit stores by themselves. After creating age segments, two cases were identified in which no age information was available. As a result, these cases were removed from the sample, which results in a final sample size of 204

3.2.3 Data collection

During the period from 27 July 2017 to 14th of August 2017, respondents were approached in two ways; a link to the online questionnaire was spread through social media, such as Facebook, LinkedIn and WhatsApp, and by physical approaching people with the possibility to fill in the questionnaire on a IPad in the city of Leiden. This method of data collection was chosen to collect data from non-targeted respondents to avoid a biased sample, which would not be representative for the total population. During the data collection period, it became clear that the elderly, the respondents over 50 years, were not as responsive as the younger respondents via the social media channels. Therefore, the decision was made to collect data by a physical approach as well and to let these respondents fill in the questionnaire on a IPad.

3.3.1 Methods of Data Analysis

Binary logistic regression was used to analyze the data which was gathered from the questionnaire. Each channel is analyzed separately first to determine which variables have a significant influence on the consumers' preference for a channel. Apart from the logistic regression, the variables were checked for independence. For a more detailed explanation of the methods of data analysis refer to the following chapter.

4. Analysis

This chapter describes the method of data analysis used in this study. Data were analyzed to identify and describe the relationship between the consumers' preferred channel to buy AV-classified OTC-drugs and several independent variables. Data were obtained from a self-administered questionnaire, completed by 206 respondents.

4.1 Descriptive outcomes of analysis

Descriptive statistical analysis was used to identify frequencies and percentages to answer question Q2, Q3 and Q8 of the questionnaire. By analyzing Q2 it is found that 48,5% of respondents are male and corresponding, 51,5% are female.

Respondents were separated in age-groups to create consumer segments. The following age groups were created: '18 to 24', '25 – 34', '35 – 44', '45 – 54', 55 – 64' and '65 and over'.

Refer to table 2: "Age groups', for a detailed frequency and percentage analysis. Two age groups represent less then 10% of the sample, which could result in biased or non-significant results in the regression. In tables 'Table 3: Pharmacy preference frequency, 'Table 4: Drugstore preference frequency' and 'Table 5: Grocery preference frequency' the consumers' preference for distribution channel can be found. Most consumers prefer the drugstore-channel (100), and the least consumers prefer the grocery store channel (50).

Table 1: Frequency of Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	100	48,5	48,5	48,5
	Female	106	51,5	51,5	100,0
	Total	206	100,0	100,0	

Table 2: Age groups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	16 - 24	48	23,3	23,5	23,5
	25 - 34	61	29,6	29,9	53,4
	35 - 44	18	8,7	8,8	62,3
	45 - 54	40	19,4	19,6	81,9
	55 - 64	30	14,6	14,7	96,6
	65 and older	7	3,4	3,4	100,0
	Total	204	99,0	100,0	
Missing	System	2	1,0		
Total		206	100,0		

Table 3: Pharmacy preference frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most prefered	55	26,7	26,7	26,7
	2nd	75	36,4	36,4	63,1
	Least prefered	76	36,9	36,9	100,0
	Total	206	100,0	100,0	

Table 4: Drugstore preference frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most prefered	100	48,5	48,5	48,5
	2nd prefered	85	41,3	41,3	89,8
	least prefered	21	10,2	10,2	100,0
	Total	206	100,0	100,0	

Table 5: Grocery preference frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most prefered	50	24,3	24,3	24,3
	2nd prefered	46	22,3	22,3	46,6
	Least prefered	110	53,4	53,4	100,0
	Total	206	100,0	100,0	

4.2 Performing the analysis

4.2.1 Binary Logistic Regression

After generating the frequency tables, the data was adjusted to fit in the in a binary logistic regression model. For each preferred distribution channel a dummy variable was created to test the if the independent variables significantly influence the preference for one channel. Therefore, three new variables measured on an ordinal scale emerged, namely: PreferPharmacy, PreferDrugstore and PreferGrocery. These were used separately as the dependent variable in the binary logistic regression. The other variables, corresponding with Q1, Q2, Q3, Q4, Q5 and Q6 of the questionnaire were used as the independent variables. The independent variables, except for gender, were measured on an ordinal scale. Nunnally suggests treating a variable as continuous if it has at least 11 distinct values (Nunnally, 1994). Because this survey uses 5 distinct values, it is chosen to use an ordinal scale.
Gender is measured on a nominal scale. After adjusting the data, the binary logistic regression was performed and analyzed.

4.2.2 Binary logistic regression with remaining variables

After performing of the regression, the following procedures were performed. If an iteration problem occurred, the iteration history table was reviewed, by creating a frequency table based on the variables with changing parameters at the maximum amount of iterations, to define which variables were causing the iteration problem. Afterwards, the responses that were causing the iteration problem were deleted and the regression was performed again. When another iteration problem occurred, the same procedure was performed until no iteration problem occurred any more.

Thereafter, in cases the total influence of a variable did not have a significant influence on the dependent variable the variable was removed from the regression model. Following, another binary logistic regression was performed with the remaining variables. In cases the variables did still have a significant influence on the dependent variable, the preference for distribution channel, no further analysis was performed. In cases the variables did not have a significant influence, the variables were checked for independency with all variables included in the first performed binary regression.

4.2.3. Test for independency

The variables that did not have a significant influence in the second regression were checked for independency with all variables. When significant dependency occurred, the size of this dependency was checked using the Cramer's V statistic. Depending on the outcome of the Cramer's V statistics, but also on the Wald statistics, variables with a strong association with the remaining variables in the model are added to the model. Refer to the analysis per distribution channel for an extensive explanation whether a variable is added to the model when it is dependent of another variable in the model. In this research, a maximum of three variables, based on mentioned statistics, is added to the second regression model to check if the variables, which did not have a significant effect in the second regression, are dependent of the variables which were removed from the first regression model. When the maximum of three variables were added and the variable still did not have a significant influence on the dependent variable in the second regression, it is assumed that the individual influence of variables that were removed from the first regression on the variables in the second regression is negligible. Therefore, these variables are assumed to be independent for the interpretation of the results. When the dependent variable became significant through adding the variables the new regression-model was tested using the Chi-Square-test. In case of a significant improvement of the model, the added variable stayed in the regression model. When no significant improvement of the regression model occurred, the variable was deleted.

4.3 Analysis per channel

4.3.1 Preferences for the Pharmacy channel

In this section, the analysis for the pharmacy channel is performed as described in chapter 4.2.1, chapter 4.2.2 and chapter 4.2.3. The relevant data output is shown in *appendix 8.2.1 Analysis of Pharmacy as preferred channel*.

The analysis started by performing a binary logistic regression in which all the relevant pharmacy channel variables were included. The outcomes of the regression are shown in *appendix 8.2.1.1*. It is shown that an iteration problem occurred. To solve this problem the iteration history was reviewed and the following categorical variables were determined as causes of the problem:

- *Educ(1)*
- *PharmaQuality(1)*
- *PharmaPrice(1)*
- *PharmaPainVary(1)*
- *PharmaPainQual(1)*

Frequency tables for the above-mentioned variables were created to determine if outliers were causing the very large S.E. and as a result the iteration problem. The frequency tables are shown in *appendix 8.2.1.2.* If the frequency percentage was equal or lower than 2 percent, the parameters were removed from the outcomes. This resulted in a sample size of 196 for the pharmacy channel.

In the next step, another binary logistic regression was performed. The outcomes of the regression are shown in *appendix 8.2.1.3.* No iteration problems occurred after adjusting the data.

The variables that were not significant were determined and removed from the regression. By removing the variables that were not significant, the dependency of the variables that were significant could be tested. This study does not focus on the relation between variables, but on the impact of the individual variables. Therefore, the significant variables were determined and another logistic regression was performed with the following significant variables:

- *AgeGroups*
- *PharmaPainVary*
- *PharmaPainPrice*
- *PharmaPainQual*
- *PharmaDistance*

The outcomes of the regression are shown in *appendix 8.2.1.4.* In the newly created regression, AgeGroups was no longer a significant variable. Therefore, this variable was tested for independency. The outcomes of the independency test are shown in *appendix 8.2.1.5* and show that AgeGroups has a significant correlation with Gender and Education. Following is the interpretation of Cramers' V in which the guidelines stated by Cohen were used to determine the magnitude of the effect size (Cohen, 1988, p. 25 and 79), According to these guidelines both Gender and Education have a small to medium

effect size. A small effect size or greater could indicate a meaningful difference according to Cohen and therefore, both variables were added separately to the binary logistic regression in block 2 to test if the model would become a better model by adding the variables. The outcomes of this test are shown in *appendix 8.2.1.6.* Both variables were not improving the model significantly and therefore, the variables were not added to the final regression model.

By not adding these variables, the variable AgeGroups was still not significant. To test if the variable AgeGroups had a significant influence on the model, it was removed from block 1 and added in block 2. The outcomes of this test are shown in *appendix 8.2.1.6*. AgeGroups had a significant influence on the model and therefore the variable is added to the final regression model.

The final regression is shown in *appendix 8.2.1.7.* The interpretation of the values will be discussed in Chapter 5.

4.3.2 Preference for the drugstore channel

In this section, the analysis for the drugstore channel is performed as described as in chapter 4.2.1, chapter 4.2.2 and chapter 4.2.3. The relevant data output is shown in *appendix 8.2.2 Analysis of drugstore as preferred channel*.

The analysis started by performing a binary logistic regression in which all the relevant drugstore channel variables were included. The outcomes of the regression are shown in *appendix 8.2.1.2.* It is shown that an iteration problem occurred. To solve this problem the iteration history was reviewed and the following categorical variables were determined as causes of the problem:

- DrugQual(1)
- DrugPainVary(1)
- DrugOpening(1)
- Educ(1)

Frequency tables for the above-mentioned variables were created to determine if outliers were causing the very large S.E. and as a result the iteration problem. The frequency tables are shown in *appendix 8.2.2.2.* If the frequency percentage was equal or lower than 2 percent, the parameters were removed from the outcomes. This resulted in a sample size of 197 for the drugstore channel.

In the next step, another binary logistic regression was performed. The outcomes of the regression are shown in *appendix 8.2.2.3.* No iteration problems occurred after adjusting the data. Following, the significant variables were determined and another logistic regression was performed with the following significant variables:

- Gender
- DrugBrand
- DrugPainQual
- DrugOpening

The outcomes of the regression are shown in *appendix 8.2.2.4*. In the newly created regression, DrugBrand, DrugPainQual and DrugOpening, were no longer significant variables. Therefore, these variables ware tested for independency. The outcomes of the independency tests are shown in *appendix 8.2.2.5*. The variables were significant dependent of a high number of variables. Therefore, it is chosen to present the outcomes of the test in a summarized overview with the Chi-Square and Cramers' V Values of the variables with a significant correlation. Based on the interpretation of Cramers' V, in which the guidelines stated by Cohen were used to determine the magnitude of the effect size (Cohen, 1988, p. 25 and 79), three variables were chosen to be tested for significant contribution to the model.

1. DrugPainVary
2. DrugQual
3. DrugWhenever

According to Cohen's guidelines these variables have a medium effect size. A small effect size or greater could indicate a meaningful difference according to Cohen and therefore, these variables were added separately to the binary logistic regression in block 2 to test if the model would become a better model by adding the variables. The outcomes of this test are shown in *appendix 8.2.2.6.* The variables were not improving the model significantly and therefore, the variables were not added to the final regression model.

By not adding these variables, the variables DrugBrand, DrugPainQual and DrugOpening were still not significant. To test if these variables had a significant influence on the model, they were removed from block 1 and added in block 2 separately. The outcomes of this test are shown in *appendix 8.2.2.7*. DrugPainQual had a significant influence on the model and therefore the variable is added to the final regression model. Afterwards, this procedure is repeated with Gender and DrugPainQual in block 1 and the other variables in block 2, however no significant contribution to the model occurred.

By not adding the variables DrugBrand and Drugopening and by adding DrugPainQual, the final regression is shown in *appendix 8.2.2.8*. The interpretation of the values will be discussed in Chapter 5.

4.3.3 Preference for the Grocery channel

In this section, the analysis for the drugstore channel is performed as described as in chapter 4.2.1, chapter 4.2.2 and chapter 4.2.3. The relevant data output is shown in appendix *8.2.3 Analysis of grocery store as preferred channel*.

The analysis started by performing a binary logistic regression in which all the relevant grocery store channel variables were included. The outcomes of the regression are shown in appendix *8.2.3.2.* Note that for GrocePainPrice, GroceAttention and GroceQuestion the reference group is the first, instead of last group. It is shown that an iteration problem occurred. To solve this problem the iteration history was reviewed and the following categorical variables were determined as causes of the problem:

- Educ(1)
- GrocePainPrice(4)

- GroceAttention(4)
- GroceQuestion(1) (2)
- GroceWhenever(2)
- GroceLot(2)

Frequency tables for the above-mentioned variables were created to determine if outliers were causing the very large S.E. and as a result the iteration problem. The frequency tables are shown in appendix *8.2.3.2.* The parameters of the variables that were causing iteration problems were removed If the frequency percentage was equal or lower than 2 percent. As an exception the parameters of GrocePainPrice(4) and GroceWhenever(2) were removed. Despite a frequency percentage of over 2 percent it is chosen to delete the parameters because the caused SE by these parameters is unacceptably high. This resulted in a sample size of 181 for the grocery store channel.

In the next step, another binary logistic regression was performed. The outcomes of the regression are shown in appendix *8.2.3.3.* No iteration problems occurred after adjusting the data. Following, the significant variables were determined and another logistic regression was performed with the following significant variables:

- Gender
- AgeGroup
- GroceBrand

The outcomes of the regression are shown in *appendix 8.2.3.4.* In the newly created regression, AgeGroups was no longer a significant variable. Therefore, this variable was tested for independency. The outcomes of the independency test are shown in table *8.2.3.5* and show that AgeGroups has a significant correlation with Education, GrocePrice, GrocePainVary, GrocePainPrice and GroceLot. Following is the interpretation of Cramers' V in which the guidelines stated by Cohen were used to determine the magnitude of the effect size (Cohen, 1988, p. 25 and 79). According to these guidelines Education has medium effect size and the other variables a small to medium effect size. A small effect size or greater could indicate a meaningful difference according to Cohen and therefore, the variables with the highest Chi-Square and Cramers' V, Educ, GrocePrice and GroceLot, were added separately to the binary logistic regression in block 2 to test if these variables contribute significantly to the model. The outcomes of this test are shown in appendix *8.2.3.6.* All variables were not improving the model significantly and therefore, the variables were not added to the final regression model.

By not adding these variables, the variable Age Groups was still not significant. To test if this variable had a significant contribution to the model, it was removed from block 1 and added in block 2 separately. The outcomes of this test are shown in appendix *8.2.3.7.* GroceBrand had a significant influence on the model and therefore the variable is added to the final regression model. Afterwards, this procedure is repeated with Gender and DrugPainQual in block 1 and the other variables in block 2, however no significant contribution to the model occurred. AgeGroups did not have a significant contribution to the

model and therefore the variable is not added to the final regression model. The final regression is shown in appendix *8.2.4.8*. The interpretation of the values will be discussed in Chapter 5.

5. Results

This chapter describes the results and the interpretation of the analysis performed in chapter four. The hypothesizes as stated in chapter two are tested for the expected effects in corresponding order. The reported values are extracted from the final regression model for each of the distribution channels. If the variable corresponding with the hypothesis was not part of the final regression model, a "N.A" is stated in the results table, which stands for "Not Applicable". As a result, values stated as "N.A" are interpreted as not significant and therefore the hypothesis is rejected. The interpretation of other values stated in the results tables are discussed in the section of the related hypothesis.

5.1 Results per Hypothesis

5.1.1 Results Hypothesis 1

The results of the analysis of hypothesis 1 are different among the distribution channels. The results are shown in *table 6: Results of analyzing Hypothesis* 1. The results for the drugstore and grocery channel are "N.A", meaning that no significant effect of age occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final model for these channels. Therefore, the hypothesis is rejected for the drugstore and Grocery store channel.

No significant effect of age occurs for the AgeGroup variable in the pharmacy channel. However, in chapter 4 it is shown that the variable AgeGroups does improve the model for the pharmacy channel significantly and therefore, the separate categories need to be interpreted. AgeGroup(2), AgeGroup(3) and AgeGroup(4) have a significant effect and therefore the Exp(B) can be interpreted. The reference group in the analysis of the variable was the last group, which is the age group 65 years and older. Therefore, the results are interpreted as the odds that other age groups prefer the pharmacy channel versus the odds that a person in the age group of 65 and older prefers the pharmacy channel. As a result, the odds that someone in the age groups of 25-34, AgeGroup(2), prefers the pharmacy channel is 0,131 as large as the odds that someone in the age group of 65 and older prefers the pharmacy channel. Meaning that the odds that someone in the age group of 25 to 34 prefers the pharmacy channel is 86,9% ((0,131 - 1) x 100%) smaller than someone in age group of 65 and older. The same method of analysis is applied for AgeGroup(3) and AgeGroup(4), which results in 95,1%(AgeGroup(3)) and 86%(AgeGroup(4)) smaller odds that someone in these age groups prefers the pharmacy channel than someone in the age group of 65 and older. The results are interpreted as an indication of the differences between the age groups and hypothesis 1 is not rejected for the pharmacy channel. Note that the age group of 65 and older exist of only 7 people and that the variable 'AgeGroup' is not significant. Differences between age groups exists significantly, but due to the small number of people in the age group 65 and older, the results could be biased.

Table 6: Results of analyzing Hypothesis 1

Hypothesis 1	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
Age influences consumers' channel preference for buying AV-classified OTC drugs.	*AgeGroups*	0,068		N.A	N.A	N.A	N.A
	AgeGroups(1)	0,254	0,334	N.A	N.A	N.A	N.A
	AgeGroups(2)	0,033	0,131	N.A	N.A	N.A	N.A
	AgeGroups(3)	0,017	0,049	N.A	N.A	N.A	N.A
	AgeGroups(4)	0,043	0,14	N.A	N.A	N.A	N.A
	AgeGroups(5)	0,218	0,296	N.A	N.A	N.A	N.A

5.1.2 Results Hypothesis 2

The results of the analysis of hypothesis 2 are different among the distribution channels. The results are shown in *table 7: Results of analyzing Hypothesis* 2. The results for the pharmacy channel are "N.A", meaning that no significant effect of gender occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final model for this channel. Therefore, the hypothesis is rejected for the pharmacy channel.

The reference group in the analysis of the variable was the last group, which is the male as gender. Therefore, the results are interpreted as the odds that female prefer the drugstore and grocery channel versus the odds that a male prefers these channels. As a result, the odds that a female prefer the drugstore channel is 2,773 as large as the odds that a male prefers the drugstore channel. Meaning that the odds that a female prefers the drugstore channel is 177,3% ((2,773 - 1) x 100%) bigger than the odds a male prefers the drugstore channel.

The odds that a female prefers the grocery channel is 0,36 as large as the odds that a male prefers the grocery channel. Meaning that the odds that a female prefers the grocery store channel is 64% ((0,36 - 1) x 100%) smaller than the odds a male prefers the grocery store channel. Because of the significant effects of gender on preference for distribution channel for the drugstore and grocery store channel, hypothesis 2 is not rejected.

Table 7: Results of analyzing Hypothesis 2

Hypothesis 2	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
Gender influences the consumers' channel preference for buying AV-classified OTC drugs.	*Gender(1)*	N.A	N.A	0,002	2,773	0,008	0,36

5.1.3 Results Hypothesis 3

The results of the analysis of hypothesis 3 are the same among the distribution channels. The results are shown in *table 8: Results of analyzing Hypothesis* 3. The results for all channels are "N.A", meaning that no significant effect of education levels occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final regression model. Therefore, the hypothesis is rejected for the pharmacy, drugstore and grocery store channel.

Table 8: Results of analyzing Hypothesis 3

Hypothesis 3	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
Education level influences the consumers' channel preference for buying AV-classified OTC drugs.	*Educ*	N.A	N.A	N.A	N.A	N.A	N.A
	Educ(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Educ(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Educ(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Educ(4)	N.A	N.A	N.A	N.A	N.A	N.A

5.1.4 Results Hypothesis 4

The results of the analysis of hypothesis 4 are different among the distribution channels. The results are shown in *table 9: Results of analyzing Hypothesis* 4. The results for the drugstore and grocery store channel are "N.A", meaning that no significant effect of price, for both the overall perception of price as the perception of price of pain killers, occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final model for these channels. Therefore, the hypothesis is rejected for the drugstore and the grocery store channel.

Furthermore, the results for the overall perception of price for the pharmacy channel are "N.A" in the final model. Therefore, the hypothesis is rejected, purely focused on overall price level perception. However, the perception of price of painkillers in the pharmacy channel has a significant effect and therefore, the separate categories need to be interpreted.

The reference group in the analysis of the variable was the group that 'strongly agrees' with the theorem *"The price of painkillers is high in pharmacies"*.

Therefore, the results are interpreted as the odds that 'other opinions' prefer the pharmacy channel versus the odds that the group that 'strongly agrees' with the theorem prefers the pharmacy channel. Although, no significant effects occur for the other categories which causes that the results of these categories cannot be interpreted and so, the hypothesis can be rejected.

However, by adjusting the reference group for the PharmaPainPrice variable to the group that 'strongly disagrees', a significant effect occurs for the PharmaPainPrice(1) variable. This variable represents the

group that 'somewhat disagrees' with the theorem. Refer to *appendix 8.2.1.9* for the results of the analysis.

Therefore, the results are interpreted as the odds that someone who 'somewhat disagrees' with the theorem, *"The price of painkillers is high in pharmacies",* prefers the pharmacy channel versus the odds that someone who 'strongly disagrees' the theorem prefers the pharmacy channels. As a result, the odds that someone who 'somewhat disagrees' the theorem prefers the pharmacy channel is 0,21 times as large as the odds that someone who 'strongly disagrees' with the theorem. Meaning that the odds this group prefers the pharmacy channel is 79% smaller than the odds the reference group prefers the pharmacy channel. Because of the significant effects of perceived price of painkillers on preference for pharmacy channel hypothesis 4 is not rejected, purely focused on perceived price of painkillers.

Note that the reference group only exists of 5 people, which represent less than 3% of total subjects. Therefore, the results are interpreted as an indication of the differences between the perception of price of painkillers for the pharmacy channel. Differences between price perception of painkillers exists significantly, but due to the small number of people who strongly disagree the theorem that pharmacies offer painkillers at a high price the results could be biased.

Table 9: Results of analyzing Hypothesis 4

Hypothesis 4	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
The perceived price of OTC-drugs in a channel influences the consumers' channel preference for buying AV-classified OTC drugs.	*Price*	N.A	N.A	N.A	N.A	N.A	N.A
	Price(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Price(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Price(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Price(4)	N.A	N.A	N.A	N.A	N.A	N.A
	PainPrice	0,022		N.A	N.A	N.A	N.A
	PainPrice(1)	0,079	10,179	N.A	N.A	N.A	N.A
	PainPrice(2)	0,097	0,235	N.A	N.A	N.A	N.A
	PainPrice(3)	0,084	2,574	N.A	N.A	N.A	N.A
	PainPrice(4)	0,299	1,77	N.A	N.A	N.A	N.A

5.1.5 Results of Hypothesis 5

The results of the analysis of hypothesis 5 are different among the distribution channels. The results are shown in *table 10: Results of analyzing Hypothesis* 4. The results for all channels are "N.A", for the overall perception of quality. Meaning that no significant effect of overall quality perception occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final model for these channels. Therefore, the hypothesis is rejected for all channels regarding the overall perception of quality.

Regarding the results of the perceived quality of painkillers significant effects occur for the pharmacy and drugstore channel. The effect of the perceived quality of painkillers is "N.A" for the grocery channel. Therefore, hypothesis 5 is rejected for the grocery channel.
Significant effects occur for the perceived quality of painkillers in the pharmacy and the drugstore channel. Although, in the results for the pharmacy channel the 'strongly disagree' on the theorem *'The quality of the painkillers offered in pharmacies is high'* is removed to solve iteration problems. The reference group in the analysis of the variable was the group that 'strongly agrees' with the theorem.
For the pharmacy channel, the results are interpreted as the odds that someone who 'neither agrees nor disagrees', which is the equivalent of PharmaPainQual(2), the theorem prefer the pharmacy channel versus the odds that someone who 'strongly agrees' the theorem prefers the pharmacy channel. As a result, the odds that someone who 'neither agrees nor disagrees' the theorem prefers the pharmacy channel is 0,18 as large as the odds that someone who 'strongly agrees, the theorem prefers the pharmacy channel. Meaning that the odds that someone who 'neither agrees nor disagrees' the theorem prefers the pharmacy channel is 82% smaller than someone who 'strongly agrees' the theorem. Because of the significant effects of perceived quality of painkillers on preference for pharmacy channel hypothesis 5 is not rejected, purely focused on perceived quality of painkillers.

No significant effect of perceived quality of painkiller occurs for the DrugPainQual variable in the drugstore channel. However, in chapter 4 it is shown that the variable DrugPainQual does improve the model for the drugstore channel significantly and therefore, the separate categories need to be interpreted.
For the drugstore channel, the results are interpreted as the odds that someone who 'somewhat disagrees', DrugPainQual(2) or someone who 'neither agrees nor disagrees', DrugPainQual(3) or someone who 'somewhat agrees', DrugPainQual(4), the theorem prefers the drugstore channel versus the odds that someone who 'strongly agrees' the theorem prefers the drugstore channel. As a result, the odds that someone who 'somewhat disagrees' the theorem prefers the pharmacy channel is 0,231 as large as the odds that someone who 'strongly agrees, the theorem prefers the pharmacy channel. Meaning that the odds that someone who 'somewhat disagree' the theorem prefers the pharmacy channel is 76,9% smaller than someone who 'strongly agrees' the theorem. Likewise, the odds that someone who 'neither agrees nor disagrees' are 75,2% smaller and the odds that someone who 'somewhat agree' are 63,2% smaller. Because of the significant effects of perceived quality of painkillers on preference for drugstore channel hypothesis 5 is not rejected, purely focused on perceived quality of painkillers.

Table 10: Results of analyzing Hypothesis 5

Hypothesis 5	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
The perceived quality of OTC-drugs in a channel influences the consumers' channel preference for buying AV-classified OTC drugs	*Quality*	N.A	N.A	N.A	N.A	N.A	N.A
	Quality(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Quality(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Quality(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Quality(4)	N.A	N.A	N.A	N.A	N.A	N.A
	PainQuality	0,024		0,061		N.A	N.A
	PainQuality(1)	0,821	1,347	0,12	0,229	N.A	N.A
	PainQuality(2)	0,004	0,18	0,029	0,231	N.A	N.A
	PainQuality(3)	0,198	0,526	0,004	0,248	N.A	N.A
	PainQuality(4)	N.A	N.A	0,048	0,365	N.A	N.A

5.1.6 Results of Hypothesis 6

The results of the analysis of hypothesis 6 are the same among the distribution channels. The results are shown in *table 11: Results of analyzing Hypothesis* 6. The results for all channels are "N.A", meaning that no significant effect of perceived interpersonal service occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final regression model. Therefore, the hypothesis is rejected for the pharmacy, drugstore and grocery store channel.

Table 11: Results of analyzing Hypothesis 6

Hypothesis 6	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
The perceived interpersonal service quality of a channel influences the consumers' channel preference for buying AV-classified OTC drugs.	Attention	N.A	N.A	N.A	N.A	N.A	N.A
	Attention(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Attention(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Attention(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Attention(4)	N.A	N.A	N.A	N.A	N.A	N.A
	Question	N.A	N.A	N.A	N.A	N.A	N.A
	Question(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Question(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Question(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Question(4)	N.A	N.A	N.A	N.A	N.A	N.A

5.1.7 Results of Hypothesis 7

The results of the analysis of hypothesis 7 are different among the distribution channels. The results are shown in *table 12: Results of analyzing Hypothesis* 7. The results for the drugstore and grocery store channel are "N.A", meaning that no significant effect of retail size, for both the overall perception of assortment variety as the perception of assortment variety of pain killers, occurs in the consumers'

channel preference for buying AV-classified OTC-drugs in the final model for these channels. Therefore, the hypothesis is rejected for the drugstore and the grocery store channel.

Furthermore, the results for the overall perception of assortment variety for the pharmacy channel are "N.A" in the final model. Therefore, the hypothesis is rejected, purely focused on overall perception of assortment variety. However, the perception of perceived variety of painkillers in the pharmacy channel has a significant effect and therefore, the separate categories need to be interpreted.

The reference group in the analysis of the variable was the group that 'strongly agrees' with the theorem *"Pharmacies stores offer a wide variety of painkillers"*. The variable 'strongly disagree' is removed to solve iteration problems.

The results are interpreted as the odds that someone who 'somewhat disagrees', which is the equivalent of PharmaPainVary(1), the theorem prefer the pharmacy channel versus the odds that someone who 'strongly agrees' the theorem prefers the pharmacy channel. As a result, the odds that someone who 'somewhat disagrees' the theorem prefers the pharmacy channel is 11,224 as large as the odds that someone who 'strongly agrees, the theorem prefers the pharmacy channel. Meaning that the odds that someone who 'somewhat disagrees' the theorem prefers the pharmacy channel is 1022,4% larger than someone who 'strongly agrees' the theorem. Because of the significant effects of perceived quality of painkillers on preference for pharmacy channel hypothesis 7 is not rejected, purely focused on perceived assortment variety of painkillers.

Table 12: Results of analyzing Hypothesis 7

Hypothesis 7	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
The perceived retail size influences the consumers' channel preference for buying AV-classified OTC drugs positively.	Variety	N.A	N.A	N.A	N.A	N.A	N.A
	Variety(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Variety(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Variety(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Variety(4)	N.A	N.A	N.A	N.A	N.A	N.A
	PainVary	0,032		N.A	N.A	N.A	N.A
	PainVary(1)	0,004	11,224	N.A	N.A	N.A	N.A
	PainVary(2)	0,348	1,645	N.A	N.A	N.A	N.A
	PainVary(3)	0,96	0,975	N.A	N.A	N.A	N.A
	PainVary(4)	N.A	N.A	N.A	N.A	N.A	N.A

5.1.8 Results of Hypothesis 8

The results of the analysis of hypothesis 8 are different among the distribution channels. The results are shown in *table 13: Results of analyzing Hypothesis* 8. The results for the grocery and drugstore store channel are "N.A", meaning that no significant effect of perceived number of painkiller brands occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final model for these channels. Therefore, the hypothesis is rejected for the pharmacy and the drugstore channel.

No significant effect of the perceived number of painkiller brands in the grocery store channel occurs. However, in chapter 4 it is shown that the variable GroceBrand does improve the model for the grocery store channel significantly and therefore, the separate categories need to be interpreted.

The reference group in the analysis of the variable was the group that 'strongly agrees' with the theorem *"Grocery stores offer the painkiller brands I prefer"*.

The results are interpreted as the odds that someone who 'somewhat disagrees', which is the equivalent of GroceBrand(2), the theorem prefer the grocery store channel versus the odds that someone who 'strongly agrees' the theorem prefers the grocery store channel. As a result, the odds that someone who 'somewhat disagrees' the theorem prefers the grocery store channel is 0,21 as large as the odds that someone who 'strongly agrees, the theorem prefers the grocery store channel. Meaning that the odds that someone who 'somewhat disagrees' the theorem prefers the grocery store channel is 79% smaller than someone who 'strongly agrees' the theorem. Because of the significant effects of perceived number of painkiller brands on preference for grocery store channel hypothesis 7 is not rejected.

Table 13: Results of analyzing Hypothesis 8

Hypothesis 8	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
The perceived number of brands within the assortment category "OTC-drugs" influences the consumers' channel preference for buying AV-classified OTC drugs positively	Brand	N.A	N.A	N.A	N.A	0,056	
	Brand(1)	N.A	N.A	N.A	N.A	0,162	0,329
	Brand(2)	N.A	N.A	N.A	N.A	0,016	0,21
	Brand(3)	N.A	N.A	N.A	N.A	0,224	0,491
	Brand(4)	N.A	N.A	N.A	N.A	0,813	0,874

5.1.9 Results of Hypothesis 9

The results of the analysis of hypothesis 6 are the same among the distribution channels. The results are shown in *table 14: Results of analyzing Hypothesis* 9. The results for all channels are "N.A", meaning that no significant effect of perceived opening hours occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final regression model. Therefore, the hypothesis is rejected for the pharmacy, drugstore and grocery store channel.

Table 14: Results of analyzing Hypothesis 9

Hypothesis 9	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
The perceived opening hours of a channel influence the consumers' channel preference for buying AV-classified OTC.	Opening	N.A	N.A	N.A	N.A	N.A	N.A
	Opening(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Opening(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Opening(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Opening(4)	N.A	N.A	N.A	N.A	N.A	N.A
	Whenever	N.A	N.A	N.A	N.A	N.A	N.A
	Whenever(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Whenever(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Whenever(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Whenever(4)	N.A	N.A	N.A	N.A	N.A	N.A

5.1.10 Result of Hypothesis 10

The results of the analysis of hypothesis 10 are different among the distribution channels. The results are shown in *table 15: Results of analyzing Hypothesis* 10. The results for the drugstore and grocery store channel are "N.A", meaning that no significant effect of transportation costs, for both the overall perception of distance as the perception of the number of stores in the neighborhood, occurs in the consumers' channel preference for buying AV-classified OTC-drugs in the final model for these channels. Therefore, the hypothesis is rejected for the drugstore and the grocery store channel.

Furthermore, the results for the perception of number of stores in neighborhood for the pharmacy channel are "N.A" in the final model. Therefore, the hypothesis is rejected, purely focused on perception of number of stores. However, the perception of distance in the pharmacy channel has a significant effect and therefore, the separate categories need to be interpreted.

The reference group in the analysis of the variable was the group that 'strongly agrees' with the theorem *"I need to cover long distances to reach a pharmacy"*.

Therefore, the results are interpreted as the odds that 'other opinions' prefer the pharmacy channel versus the odds that the group that 'strongly agrees' with the theorem prefers the pharmacy channel. Although, no significant effects occur for the other categories which causes that the results of these categories cannot be interpreted and so, the hypothesis is rejected.

However, by adjusting the reference group for the PharmaDistance variable to the group that 'strongly disagrees', a significant effect occurs for the PharmaDistance(1), PharmaDistance(2) and PharmaDistance(3) variable. Refer to *appendix 8.2.1.9* for the results of the analysis.

The results are interpreted as the odds that someone who 'somewhat disagrees', PharmaDistance(1) or someone who 'neither agrees nor disagrees', PharmaDistance(2) or someone who 'somewhat agrees', PharmaDistance(3), the theorem prefers the pharmacy channel versus the odds that someone who 'strongly disagrees' the theorem prefers the pharmacy channel. As a result, the odds that someone who

'somewhat disagrees' the theorem prefers the pharmacy channel is 0,377 as large as the odds that someone who 'strongly disagrees' the theorem prefers the pharmacy channel. Meaning that the odds that someone who 'somewhat disagrees' the theorem, *"I need to cover long distances to reach a pharmacy",* prefers the pharmacy channel is 62,3% smaller than someone who 'strongly disagrees' the theorem. Likewise, the odds that someone who 'neither agrees nor disagrees' are 93,2% smaller and the odds that someone who 'somewhat agree' are 79,9% smaller. Because of the significant effects of perceived distance on preference for pharmacy channel hypothesis 10 is not rejected, based on the perceived distance to a pharmacy.

Table 15: Results of analyzing Hypothesis 10

Hypothesis 10	Variable	Pharmacy Channel		Drugstore Channel		Grocery Channel	
		Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)
The consumers' transportation costs influence the consumers' channel preference for buying AV-classified OTC drugs.	Distance	0,021		N.A	N.A	N.A	N.A
	Distance(1)	0,436	2,117	N.A	N.A	N.A	N.A
	Distance(2)	0,824	0,799	N.A	N.A	N.A	N.A
	Distance(3)	0,177	0,136	N.A	N.A	N.A	N.A
	Distance(4)	0,459	0,429	N.A	N.A	N.A	N.A
	Lot	N.A	N.A	N.A	N.A	N.A	N.A
	Lot(1)	N.A	N.A	N.A	N.A	N.A	N.A
	Lot(2)	N.A	N.A	N.A	N.A	N.A	N.A
	Lot(3)	N.A	N.A	N.A	N.A	N.A	N.A
	Lot(4)	N.A	N.A	N.A	N.A	N.A	N.A

5.2 Overview

Hypothesis	Variable	Pharmacy Channel	Drugstore Channel	Grocery Channel
Age influences consumers' channel preference for buying AV-classified OTC drugs.	*Agegroup*	Not Rejected	Rejected	Rejected
Gender influences the consumers' channel preference for buying AV-classified OTC drugs.	Gender	Rejected	Not Rejected	Not Rejected
Education level influences the consumers' channel preference for buying AV-classified OTC drugs.	Education	Rejected	Rejected	Rejected
The perceived price of OTC-drugs in a channel influences the consumers' channel preference for buying AV-classified OTC drugs	Price	Rejected	Rejected	Rejected
	Price Painkiller	Not Rejected	Rejected	Rejected
The perceived quality of OTC-drugs in a channel influences the consumers' channel preference for buying AV-classified OTC drugs	Quality	Rejected	Rejected	Rejected
	Quality Painkiller	Not Rejected	Not Rejected	Rejected
The perceived interpersonal service quality of a channel influences the consumers' channel preference for buying AV-classified OTC drugs.	Attention	Rejected	Rejected	Rejected
	Questions	Rejected	Rejected	Rejected
The perceived retail size influences the consumers' channel preference for buying AV-classified OTC drugs positively.	Variety	Rejected	Rejected	Rejected
	Variety painkiller	Not Rejected	Rejected	Rejected
The perceived number of brands within the assortment category "OTC-drugs" influences the consumers' channel preference for buying AV-classified OTC drugs positively	Brand	Rejected	Rejected	Not Rejected
The perceived opening hours of a channel influence the consumers' channel preference for buying AV-classified OTC.	Opening hours	Rejected	Rejected	Rejected
	Whenever	Rejected	Rejected	Rejected
The consumers' transportation costs influence the consumers' channel preference for buying AV-classified OTC drugs.	Distance	Not Rejected	Rejected	Rejected
	Lot	Rejected	Rejected	Rejected

6. General Conclusions & Discussion

6.1 Introduction

In this chapter, the main findings regarding the research questions are summarized and general conclusions based on the findings of the studies presented in this thesis are described. This chapter concludes with the limitations of this thesis and suggestions for further research are presented.

6.2 Research Questions

This research focused on the consumers' preferences for AV-classified OTC-drugs distribution channels. The research question of the research is stated as follows: *"What factors influence consumers' distribution channel choice of AV-classified OTC -drugs?"* The research question is separated is different sub-questions. The general conclusion is based on the outcomes of these sub-questions.

6.2.1 Consumer characteristics

Consumer characteristics were investigated to find possible trends in shopping behavior amongst consumers with different characteristics in terms of demographic profiles. The corresponding sub-question was stated as follows: *"What are the influences of consumer' characteristics on the choice of distribution channel?"*. The variables, *'Age', 'Gender'* and *'Education'* were used to answer this question. The results show that the influence of consumer characteristics differs among the distribution channels. Age influences the preferences for the pharmacy channel, but not for the drugstore and the grocery store channel. The results roughly indicate that the higher the consumers' age, the higher the odds they prefer the pharmacy channel over the other channels.

Gender influences the preferences for the drugstore and the grocery store channel, but not for the pharmacy channel. The results indicate that the odds that a female prefers the drugstore channel are higher than the odds a male prefers the drugstore channel. Moreover, the results also indicate that the odds a male prefers the grocery store channel are higher than the odds a female prefers this channel.

The results show that education level does not significantly influence the consumer' preference for distribution channel. Therefore, it can be concluded that the influence of consumer' characteristics is limited to age and gender and that the influence of age and gender differs per distribution channel.

6.2.2 Consumer psychological states

Consumer psychological states were investigated to find possible trends in shopping behavior amongst consumers with different perceptions and attitudes towards the distribution channels. The corresponding sub-question was stated as follows: *"What are the influences of the underlying factors of consumers' psychological states on the choice of distribution channel?"* The variables, *'price', 'price of painkillers', 'quality', 'quality of painkillers', 'attention'* and *'question'* were used to answer this question. The

results show that the influence of consumer psychological states differ among the distribution channels. The perception of overall price and overall quality does not significantly influence the consumers' preference for distribution channel. Also, the perception of interpersonal service quality, stated by the variables 'attention' and 'question' does not significantly influence the consumers' preference for distribution channel.

However, the perception of price of painkillers does influence the consumers' preference for the pharmacy and the drugstore channel. The results indicate that the perceived price of painkillers influences the consumers' preference for the pharmacy channel in a way that, if the perceived price of painkillers is high, the odds consumers prefer the pharmacy channel are lower than when the perceived price is not high. However, the results are based on a small sample size and could be biased.

The results also indicate that the perceived quality of painkillers influence the consumers' preference for the pharmacy and drugstore channel. When the perceived quality of painkillers is high, the odds that consumers prefer the pharmacy or drugstore channel is higher than when the perceived quality is not perceived as high. Therefore, it can be concluded that the influence of consumers' psychological states is limited to the perceived price of painkillers and the perceived quality of painkillers and that the influence differs per distribution channel.

6.2.3 Retail outlet features

Retail outlet features were investigated to find possible trends in shopping behavior amongst consumers with different perceptions of the retail outlet features of the distribution channels.

The corresponding sub-question was stated as follows: "*What are the influences of retail outlet features on the choice of distribution channel?"*

The variables, *'Variety', 'Variety of painkillers', 'Brand', 'Opening Hours', 'Whenever', 'Distance'* and *'Lot of stores'* were used to answer this question. The results show that the influence of the consumers' perceived retail outlet features differ among the distribution channels. The perception of '*Variety', 'Opening Hours', 'Whenever'* and *'Lot of stores'* do not significantly influence the consumers' preference for distribution channel.

However, the perception of variety of painkillers does influence the consumers' preference for the pharmacy channel. The results indicate that the odds that consumers prefer the pharmacy channel get higher if the perceived variety of painkillers is lower.

Also, the perception of the number of brand does influence the consumers' preference for the grocery store channel. The results indicate that if the grocery store has the brands the consumer prefers, the odds that consumers prefer this channel increases.

Last, the perception of the distance to the store does influence the consumers' preference for the pharmacy channel. The results indicate that if the perceived distance decreases, the odds that consumers prefer the pharmacy channel increase.

Summarized, it is concluded that the perceived variety of painkillers and the perceived distance to cover are influencing the consumer's preference for the pharmacy channel. The number of brands the consumer prefer, does influence the consumers' preference for the grocery store channel.

6.3 General conclusion

It is concluded that the consumers' preference for distribution channel is influenced by several factors. The factors that influence the consumers' distribution channel choice of AV-classified OTC-drugs are:

- Age
- Gender
- Perceived price of painkillers
- Perceived quality of painkillers
- Variety of painkillers
- The number of brands
- Distance to distribution channel

However, the factors that influence the consumers' preference differ per distribution channel. The consumers' preference depends on several factors that differs per channel. This research provided insights in consumer segments and their preference for distribution channels to buy AV-classified OTC-drugs.

6.4 Limitations of the study

This research focused on the consumers' preferences for AV-classified OTC-drugs distribution channels. Because of the amount of different types of OTC-drugs, this research only investigated the consumers' choice of distribution channel for painkillers, like Paracetamol and Ibuprofen. Therefore, the outcomes of this research can't be used without additional research, when applying to other types of OTC-drug. The research focused on the Dutch consumer market and will therefore not be applicable in other countries due to differences in regulation and differences in consumer behavior. A determined number of variables is used, which excludes other variables that could have influence on the consumers' choice of distribution channel. Variables like the consumers' level of knowledge of OTC drugs, mode of transportation and one-stop shopping behavior could influence the channel choice, but are not part of the retail selection constructs in general provided by Spiggle (1987) and by adding these variables it is needed to assign them to one of the three main constructs of the model. Therefore, this research used a limited set of variables to measure the effect of those variables more precisely. Three types of distribution channels are used in this research and each store within a channel is assumed to be homogenous. The emerging internet channel is for example not explored due to the nature of the channel; consumers can't physically enter stores in this channel, which excludes variables, like the perception of interpersonal service level and location.

6.5 Recommendations for further research

This research compared the consumers' preferences for one distribution channel versus two other, merged, distribution channels. To gain better understanding in the differences in consumer preference between two specific channels, future research could compare the channels separately, i.e.: compare the pharmacy channel with the drugstore channel.

Furthermore, the results show that specific categories of variables are statistical significant despite that the variable itself is not statistical significant. Future research in those variables, could lead to more specific results. Also, the number of consumers that prefer the pharmacy channel with an age of over 65 years is limited. Despite the limited group size, this group has an impact on the results of the research. Future research could target this age group specifically to determine if the results of this research are valid.

This research explored the consumers' psychological states towards several attributes like, for example, price and distance. However, the exact price and distance are not investigated. Performing a likewise research with variables that are measured in a rate scale, instead of variables that are ordinal, could provide insight in the differences between the perceived attributes and the actual attributes.

6.6 Managerial implications

This study has shown that several variables influence the consumers' preference for specific distribution channels for AV-classified OTC-drugs. It is shown that the odds that consumers prefer the pharmacy channel increase as age rises, as the perceived variety of painkillers decreases and as the perceived distance to a pharmacy decreases. The managerial implication of these results, purely based on AV-classified OTC-drugs, are widespread. Managers could develop new marketing strategies in which the results are implemented or choose to focus on other market segments. An example of a strategy in which the results are implemented could be the introduction of mobile pharmacies, to decrease the perceived distance, with a limited assortment of painkillers, to decrease the perceived variety. These mobile pharmacies could focus on areas in which the average age is high to reach the more elderly consumers, whose odds are higher to prefer the pharmacy channel.

However, as mentioned in the introduction of the study, the increasing market share of the supermarkets and grocery stores and the decreasing market share of pharmacies in OTC-drugs sales, while the market share of drug-stores is stable, implies that consumers are shifting from buying OTC-drugs in pharmacies to buying them in supermarkets. Therefore, another managerial implication could be the implementation of a strategy for pharmacies which is more comparable with grocery stores strategies. This study has shown that the odds that consumers prefer the grocery store channel increases as the consumer is a man, the grocery store has the brands the consumer prefers and as the distance decreases. To implement these results in a strategy for the pharmacy channel, managers could conduct a market research to study the

brands preferred by males, and afterwards introduce the brands in the pharmacy. Choosing different locations for pharmacies could also be a strategy. By opening pharmacies close to grocery stores, the perceived distance to the pharmacy and grocery channel should be equal and could level the transportation costs for the grocery and pharmacy channel and make consumers indifferent for the distribution channels in terms of perceived distance. However, this research has not shown a direct relation between the perceived distance to the pharmacy and the perceived distance to the grocery store on the channel preferences and therefore further research is required to study the possible results of the implementation of this strategy.

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8. Appendix

8.1 Questionnaire

Dear respondent,

Thank you for participating in this survey, which will take 4-5 minutes of your time. Please read all the instructions carefully. There are no right or wrong answers. When answering a question, simply think about how you feel at that moment and report your honest opinion. Please select the language you prefer on top of this page.
The answers will only be used for academic purposes and will be processed anonymously. Please click next to proceed.
Best regards,

Jaap Bogerd

Q1 Gender

- ○ Male (1)
- ○ Female (2)

Q2 Age

_____

Q3 What is your highest level of education you have completed?

- ○ No high school degree (1)
- ○ High school graduate (2)
- ○ Community College (MBO) (3)
- ○ University of Applied Science (HBO) (4)
- ○ University (WO) (5)

The following questions contain the term painkillers. This includes Aspirin, Diclofenac, Ibuprofen, Naproxen, and Paracetamol.

Q4 To what extent do you agree with the following statements regarding your perception about pharmacies?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Pharmacies offer a wide variety of products (1)	○	○	○	○	○
The products offered in pharmacies are high quality products (2)	○	○	○	○	○
The price of the offered products is high in pharmacies (3)	○	○	○	○	○
Pharmacies offer the painkiller brands I prefer (4)	○	○	○	○	○
Pharmacies offer a wide variety of painkillers (5)	○	○	○	○	○
The price of painkillers is high in pharmacies (6)	○	○	○	○	○
The quality of the painkillers offered in pharmacies is high (7)	○	○	○	○	○
I always receive personal attention if needed (8)	○	○	○	○	○
My questions are answered properly (9)	○	○	○	○	○
Pharmacies are proper stores to buy painkillers (10)	○	○	○	○	○
The opening hours of pharmacies are sufficient (11)	○	○	○	○	○
I need to cover long distances to reach a pharmacy (12)	○	○	○	○	○
I can go to a pharmacy whenever I want (13)	○	○	○	○	○
There are a lot of pharmacies in the area where I live (14)	○	○	○	○	○

Q5 To what extent do you agree with the following statements regarding your perception about drug-stores, like Kruidvat, Etos and Trekpleister?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Drug-stores offer a wide variety of products (1)	○	○	○	○	○
The products offered in drug-stores are high quality products (2)	○	○	○	○	○
The price of the offered products is high in drug stores (3)	○	○	○	○	○
Drug-stores offer the painkiller brands I prefer (4)	○	○	○	○	○
Drug stores offer a wide variety of painkillers (5)	○	○	○	○	○
The price of painkillers is high in drug stores (6)	○	○	○	○	○
The quality of the painkillers offered in drug stores is high (7)	○	○	○	○	○
I always receive personal attention if needed (8)	○	○	○	○	○
My questions are answered properly (9)	○	○	○	○	○
Drug-stores are proper stores to buy painkillers (10)	○	○	○	○	○
The opening hours of drug-stores are sufficient (11)	○	○	○	○	○
I need to cover long distances to reach a drug-store (12)	○	○	○	○	○
I can go to a drug-store whenever I want (13)	○	○	○	○	○
There are a lot of drug-stores in the area where I live (14)	○	○	○	○	○

Q6 To what extent do you agree with the following statements regarding your perception about grocery stores, like Albert Heijn, Jumbo and Hoogvliet?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Grocery stores offer a wide variety of products (1)	○	○	○	○	○
The products offered in grocery stores are high quality products (2)	○	○	○	○	○
The price of the offered products is high in grocery stores (3)	○	○	○	○	○
Grocery stores offer the painkiller brands I prefer (4)	○	○	○	○	○
Grocery stores offer a wide variety of painkillers (5)	○	○	○	○	○
The price of painkillers is high in grocery stores (6)	○	○	○	○	○
The quality of the painkillers offered in grocery stores is high (7)	○	○	○	○	○
I always receive personal attention if needed (8)	○	○	○	○	○
My questions are answered properly (9)	○	○	○	○	○
Grocery stores are proper stores to buy painkillers (10)	○	○	○	○	○
The opening hours of grocery stores are sufficient (11)	○	○	○	○	○
I need to cover long distances to reach a grocery store (12)	○	○	○	○	○
I can go to a grocery store whenever I want (13)	○	○	○	○	○
There are a lot of grocery stores in the area where I live (14)	○	○	○	○	○

Q7 To what extent do you agree with the following statements about your purchase behavior?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Price influences the products I buy (1)	○	○	○	○	○
Product quality influences the products I buy (2)	○	○	○	○	○
Service quality influences the products I buy (3)	○	○	○	○	○
The time I need to reach a store influences the choice where to shop (4)	○	○	○	○	○
A store's assortment influences where I shop (5)	○	○	○	○	○
I prefer to buy the same brands (6)	○	○	○	○	○
I prefer to choose between several brands (7)	○	○	○	○	○

Q8 Please rank the store-types in such an order that the store type you prefer to buy painkillers is on 1 (on top) and the store type you least prefer is on 3 (at the bottom)

_____ Pharmacies (1)
_____ Drug-stores (2)
_____ Grocery-stores (3)

Q9 Please drag the following store attributes in a way that the attribute you find most important is on top and the attribute you find the least important at the bottom.

_____ Price (1)
_____ Quality (2)
_____ Service (3)
_____ Image (4)
_____ Assortment (5)
_____ Opening Hours (6)
_____ Travel time (7)

8.2.1 Analysis of Pharmacy as preferred channel

Table 8.2.1.1 Binary Logistic regression with all variables

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	118,593[a]	,443	,643

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Gender(1)	-1,200	,672	3,188	1	,074	,301	,081	1,124
AgeGroups			11,877	5	,037			
AgeGroups(1)	-2,340	2,241	1,091	1	,296	,096	,001	7,782
AgeGroups(2)	-3,854	2,206	3,051	1	,081	,021	,000	1,601
AgeGroups(3)	-6,291	2,704	5,413	1	,020	,002	,000	,371
AgeGroups(4)	-3,928	2,123	3,425	1	,064	,020	,000	1,261
AgeGroups(5)	-2,498	2,102	1,413	1	,235	,082	,001	5,059
Educ			2,950	4	,566			
Educ(1)	-16,450	40192,970	,000	1	1,000	,000	,000	.
Educ(2)	1,226	1,030	1,415	1	,234	3,406	,452	25,654
Educ(3)	-,418	1,024	,167	1	,683	,658	,089	4,893
Educ(4)	,520	,862	,364	1	,546	1,682	,311	9,113
PharmaVariety			4,493	4	,343			
PharmaVariety(1)	-7,934	4,620	2,949	1	,086	,000	,000	3,068
PharmaVariety(2)	,440	2,517	,031	1	,861	1,553	,011	215,679
PharmaVariety(3)	-1,399	1,111	1,587	1	,208	,247	,028	2,177
PharmaVariety(4)	-,027	,761	,001	1	,972	,973	,219	4,323
PharmaQuality			5,103	4	,277			
PharmaQuality(1)	-12,673	40192,970	,000	1	1,000	,000	,000	.
PharmaQuality(2)	-3,828	3,677	1,084	1	,298	,022	,000	29,363
PharmaQuality(3)	2,040	1,137	3,219	1	,073	7,690	,828	71,406
PharmaQuality(4)	-,194	,858	,051	1	,821	,824	,153	4,430
PharmaPrice			6,425	4	,170			
PharmaPrice(1)	-24,553	14269,963	,000	1	,999	,000	,000	.
PharmaPrice(2)	3,195	1,567	4,160	1	,041	24,421	1,133	526,497
PharmaPrice(3)	2,117	1,228	2,970	1	,085	8,308	,748	92,283

	PharmaPrice(4)	2,611	1,178	4,918	1	,027	13,617	1,354	136,903
	PharmaBrand			1,530	4	,821			
	PharmaBrand(1)	,497	2,742	,033	1	,856	1,643	,008	354,670
	PharmaBrand(2)	-,671	1,781	,142	1	,706	,511	,016	16,779
	PharmaBrand(3)	,823	,904	,828	1	,363	2,277	,387	13,391
	PharmaBrand(4)	,531	1,044	,258	1	,611	1,700	,220	13,153
	PharmaPainVary			12,437	4	,014			
	PharmaPainVary(1)	-2,285	40192,971	,000	1	1,000	,102	,000	.
	PharmaPainVary(2)	5,567	1,700	10,726	1	,001	261,526	9,349	7315,721
	PharmaPainVary(3)	2,351	1,075	4,788	1	,029	10,500	1,278	86,270
	PharmaPainVary(4)	,394	,940	,176	1	,675	1,483	,235	9,365
	PharmaPainPrice			9,992	4	,041			
	PharmaPainPrice(1)	,440	1,851	,057	1	,812	1,553	,041	58,395
	PharmaPainPrice(2)	-5,253	1,866	7,923	1	,005	,005	,000	,203
	PharmaPainPrice(3)	-1,165	1,116	1,089	1	,297	,312	,035	2,780
	PharmaPainPrice(4)	-1,409	1,141	1,526	1	,217	,244	,026	2,286
	PharmaPainQual			10,496	4	,033			
	PharmaPainQual(1)	48,421	26215,661	,000	1	,999	106894230701895600 0000,000	,000	.
	PharmaPainQual(2)	4,284	2,787	2,363	1	,124	72,506	,308	17076,430
	PharmaPainQual(3)	-2,819	1,125	6,280	1	,012	,060	,007	,541
	PharmaPainQual(4)	-,430	,798	,291	1	,590	,650	,136	3,105
	PharmaAttention			1,971	4	,741			
	PharmaAttention(1)	1,957	3,667	,285	1	,593	7,081	,005	9359,276
	PharmaAttention(2)	1,211	1,575	,592	1	,442	3,357	,153	73,517
	PharmaAttention(3)	1,543	1,223	1,591	1	,207	4,678	,425	51,450
	PharmaAttention(4)	,213	,837	,065	1	,799	1,237	,240	6,378
	PharmaQuestion			5,039	4	,283			
	PharmaQuestion(1)	-1,449	3,483	,173	1	,677	,235	,000	216,684
	PharmaQuestion(2)	-6,642	3,875	2,937	1	,087	,001	,000	2,596
	PharmaQuestion(3)	-2,979	1,593	3,499	1	,061	,051	,002	1,153
	PharmaQuestion(4)	-1,876	1,005	3,489	1	,062	,153	,021	1,097
	PharmaOpening			5,441	4	,245			
	PharmaOpening(1)	-1,171	1,549	,572	1	,450	,310	,015	6,454
	PharmaOpening(2)	-1,793	1,101	2,650	1	,104	,166	,019	1,442
	PharmaOpening(3)	-2,721	1,273	4,569	1	,033	,066	,005	,798
	PharmaOpening(4)	-,746	,940	,630	1	,427	,474	,075	2,992

	PharmaDistance			11,933	4	,018			
	PharmaDistance(1)	2,057	1,377	2,231	1	,135	7,821	,526	116,265
	PharmaDistance(2)	2,034	1,522	1,785	1	,182	7,641	,387	150,958
	PharmaDistance(3)	-2,751	1,904	2,088	1	,148	,064	,002	2,667
	PharmaDistance(4)	,207	1,936	,011	1	,915	1,230	,028	54,676
	PharmaWhenever			7,517	4	,111			
	PharmaWhenever(1)	-1,226	1,549	,627	1	,429	,293	,014	6,110
	PharmaWhenever(2)	-1,210	1,222	,980	1	,322	,298	,027	3,271
	PharmaWhenever(3)	,330	1,110	,088	1	,766	1,391	,158	12,238
	PharmaWhenever(4)	-2,449	1,171	4,377	1	,036	,086	,009	,857
	PharmaLot			5,399	4	,249			
	PharmaLot(1)	3,579	2,106	2,888	1	,089	35,826	,578	2221,038
	PharmaLot(2)	1,198	1,255	,912	1	,340	3,314	,283	38,746
	PharmaLot(3)	-,347	,952	,133	1	,715	,707	,109	4,564
	PharmaLot(4)	1,394	,909	2,355	1	,125	4,033	,679	23,940
	Constant	1,855	2,243	,684	1	,408	6,389		

a. Variable(s) entered on step 1: Gender, AgeGroups, Educ, PharmaVariety, PharmaQuality, PharmaPrice, PharmaBrand, PharmaPainVary, PharmaPainPrice, PharmaPainQual, PharmaAttention, PharmaQuestion, PharmaOpening, PharmaDistance, PharmaWhenever, PharmaLot.

8.2.1.2 Frequency Tables

What is your highest level of education you have completed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No high school degree	1	,5	,5	,5
	High school graduate	28	13,7	13,7	14,2
	Community College (MBO)	47	23,0	23,0	37,3
	University of Applied Science (HBO)	57	27,9	27,9	65,2
	University (WO)	71	34,8	34,8	100,0
	Total	204	100,0	100,0	

Pharmacies offer high quality products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	,5	,5	,5
	Somewhat disagree	7	3,4	3,4	3,9
	Neither agree nor disagree	31	15,2	15,2	19,1
	Somewhat agree	85	41,7	41,7	60,8
	Strongly agree	80	39,2	39,2	100,0
	Total	204	100,0	100,0	

Pharmacies offer products at a high price

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	2,0	2,0	2,0
	Somewhat disagree	16	7,8	7,8	9,8
	Neither agree nor disagree	46	22,5	22,5	32,4
	Somewhat agree	81	39,7	39,7	72,1
	Strongly agree	57	27,9	27,9	100,0
	Total	204	100,0	100,0	

Pharmacies offer a wide variety of painkillers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	,5	,5	,5
	Somewhat disagree	16	7,8	7,8	8,3
	Neither agree nor disagree	50	24,5	24,5	32,8
	Somewhat agree	62	30,4	30,4	63,2
	Strongly agree	75	36,8	36,8	100,0
	Total	204	100,0	100,0	

Pharmacies offer high quality painkillers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1,0	1,0	1,0
	Somewhat disagree	7	3,4	3,4	4,4
	Neither agree nor disagree	70	34,3	34,3	38,7
	Somewhat agree	73	35,8	35,8	74,5
	Strongly agree	52	25,5	25,5	100,0
	Total	204	100,0	100,0	

table 8.2.1.3 Binary logistic regression after adjustment for iteration problems

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	118,593[a]	,430	,624

a. Estimation terminated at iteration number 8 because parameter estimates changed by less than ,001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Gender(1)	-1,200	,672	3,188	1	,074	,301	,081	1,124
	AgeGroups			11,877	5	,037			
	AgeGroups(1)	-2,340	2,241	1,091	1	,296	,096	,001	7,782

	AgeGroups(2)	-3,854	2,206	3,051	1	,081	,021	,000	1,601
	AgeGroups(3)	-6,291	2,704	5,413	1	,020	,002	,000	,371
	AgeGroups(4)	-3,928	2,123	3,425	1	,064	,020	,000	1,261
	AgeGroups(5)	-2,498	2,102	1,413	1	,235	,082	,001	5,059
	Educ			2,950	3	,399			
	Educ(1)	1,226	1,030	1,415	1	,234	3,406	,452	25,654
	Educ(2)	-,418	1,024	,167	1	,683	,658	,089	4,893
	Educ(3)	,520	,862	,364	1	,546	1,682	,311	9,113
	PharmaVariety			4,493	4	,343			
	PharmaVariety(1)	-7,934	4,620	2,949	1	,086	,000	,000	3,068
	PharmaVariety(2)	,440	2,517	,031	1	,861	1,553	,011	215,679
	PharmaVariety(3)	-1,399	1,111	1,587	1	,208	,247	,028	2,177
	PharmaVariety(4)	-,027	,761	,001	1	,972	,973	,219	4,323
	PharmaQuality			5,103	3	,164			
	PharmaQuality(1)	-3,828	3,677	1,084	1	,298	,022	,000	29,363
	PharmaQuality(2)	2,040	1,137	3,219	1	,073	7,690	,828	71,406
	PharmaQuality(3)	-,194	,858	,051	1	,821	,824	,153	4,430
	PharmaPrice			6,425	3	,093			
	PharmaPrice(1)	3,195	1,567	4,160	1	,041	24,421	1,133	526,497
	PharmaPrice(2)	2,117	1,228	2,970	1	,085	8,308	,748	92,283
	PharmaPrice(3)	2,611	1,178	4,918	1	,027	13,617	1,354	136,903
	PharmaBrand			1,530	4	,821			
	PharmaBrand(1)	,497	2,742	,033	1	,856	1,643	,008	354,670
	PharmaBrand(2)	-,671	1,781	,142	1	,706	,511	,016	16,779
	PharmaBrand(3)	,823	,904	,828	1	,363	2,277	,387	13,391
	PharmaBrand(4)	,531	1,044	,258	1	,611	1,700	,220	13,153
	PharmaPainVary			12,437	3	,006			
	PharmaPainVary(1)	5,567	1,700	10,726	1	,001	261,526	9,349	7315,721
	PharmaPainVary(2)	2,351	1,075	4,788	1	,029	10,500	1,278	86,270
	PharmaPainVary(3)	,394	,940	,176	1	,675	1,483	,235	9,365
	PharmaPainPrice			9,992	4	,041			
	PharmaPainPrice(1)	,440	1,851	,057	1	,812	1,553	,041	58,395
	PharmaPainPrice(2)	-5,253	1,866	7,923	1	,005	,005	,000	,203
	PharmaPainPrice(3)	-1,165	1,116	1,089	1	,297	,312	,035	2,780
	PharmaPainPrice(4)	-1,409	1,141	1,526	1	,217	,244	,026	2,286
	PharmaPainQual			10,496	3	,015			
	PharmaPainQual(1)	4,284	2,787	2,363	1	,124	72,506	,308	17076,430
	PharmaPainQual(2)	-2,819	1,125	6,280	1	,012	,060	,007	,541

	PharmaPainQual(3)	-,430	,798	,291	1	,590	,650	,136	3,105
	PharmaAttention			1,971	4	,741			
	PharmaAttention(1)	1,957	3,667	,285	1	,593	7,081	,005	9359,276
	PharmaAttention(2)	1,211	1,575	,592	1	,442	3,357	,153	73,517
	PharmaAttention(3)	1,543	1,223	1,591	1	,207	4,678	,425	51,450
	PharmaAttention(4)	,213	,837	,065	1	,799	1,237	,240	6,378
	PharmaQuestion			5,039	4	,283			
	PharmaQuestion(1)	-1,449	3,483	,173	1	,677	,235	,000	216,684
	PharmaQuestion(2)	-6,642	3,875	2,937	1	,087	,001	,000	2,596
	PharmaQuestion(3)	-2,979	1,593	3,499	1	,061	,051	,002	1,153
	PharmaQuestion(4)	-1,876	1,005	3,489	1	,062	,153	,021	1,097
	PharmaOpening			5,441	4	,245			
	PharmaOpening(1)	-1,171	1,549	,572	1	,450	,310	,015	6,454
	PharmaOpening(2)	-1,793	1,101	2,650	1	,104	,166	,019	1,442
	PharmaOpening(3)	-2,721	1,273	4,569	1	,033	,066	,005	,798
	PharmaOpening(4)	-,746	,940	,630	1	,427	,474	,075	2,992
	PharmaDistance			11,933	4	,018			
	PharmaDistance(1)	2,057	1,377	2,231	1	,135	7,821	,526	116,265
	PharmaDistance(2)	2,034	1,522	1,785	1	,182	7,641	,387	150,958
	PharmaDistance(3)	-2,751	1,904	2,088	1	,148	,064	,002	2,667
	PharmaDistance(4)	,207	1,936	,011	1	,915	1,230	,028	54,676
	PharmaWhenever			7,517	4	,111			
	PharmaWhenever(1)	-1,226	1,549	,627	1	,429	,293	,014	6,110
	PharmaWhenever(2)	-1,210	1,222	,980	1	,322	,298	,027	3,271
	PharmaWhenever(3)	,330	1,110	,088	1	,766	1,391	,158	12,238
	PharmaWhenever(4)	-2,449	1,171	4,377	1	,036	,086	,009	,857
	PharmaLot			5,399	4	,249			
	PharmaLot(1)	3,579	2,106	2,888	1	,089	35,826	,578	2221,038
	PharmaLot(2)	1,198	1,255	,912	1	,340	3,314	,283	38,746
	PharmaLot(3)	-,347	,952	,133	1	,715	,707	,109	4,564
	PharmaLot(4)	1,394	,909	2,355	1	,125	4,033	,679	23,940
	Constant	1,855	2,243	,684	1	,408	6,389		

a. Variable(s) entered on step 1: Gender, AgeGroups, Educ, PharmaVariety, PharmaQuality, PharmaPrice, PharmaBrand, PharmaPainVary, PharmaPainPrice, PharmaPainQual, PharmaAttention, PharmaQuestion, PharmaOpening, PharmaDistance, PharmaWhenever, PharmaLot.

table 8.2.1.4 Binary logistic regression with significant variables.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	AgeGroups			10,283	5	,068			
	AgeGroups(1)	-1,097	,961	1,303	1	,254	,334	,051	2,196
	AgeGroups(2)	-2,032	,956	4,521	1	,033	,131	,020	,853
	AgeGroups(3)	-3,008	1,261	5,694	1	,017	,049	,004	,584
	AgeGroups(4)	-1,969	,973	4,093	1	,043	,140	,021	,940
	AgeGroups(5)	-1,218	,989	1,516	1	,218	,296	,043	2,056
	PharmaPainVary			8,838	3	,032			
	PharmaPainVary(1)	2,418	,838	8,318	1	,004	11,224	2,170	58,052
	PharmaPainVary(2)	,498	,531	,881	1	,348	1,645	,582	4,655
	PharmaPainVary(3)	-,025	,496	,003	1	,960	,975	,369	2,578
	PharmaPainPrice			11,470	4	,022			
	PharmaPainPrice(1)	2,320	1,321	3,085	1	,079	10,179	,764	135,593
	PharmaPainPrice(2)	-1,449	,873	2,753	1	,097	,235	,042	1,300
	PharmaPainPrice(3)	,945	,548	2,980	1	,084	2,574	,880	7,528
	PharmaPainPrice(4)	,571	,550	1,078	1	,299	1,770	,602	5,202
	PharmaPainQual			9,397	3	,024			
	PharmaPainQual(1)	,298	1,312	,051	1	,821	1,347	,103	17,639
	PharmaPainQual(2)	-1,715	,590	8,436	1	,004	,180	,057	,573
	PharmaPainQual(3)	-,643	,499	1,658	1	,198	,526	,198	1,399
	PharmaDistance			11,550	4	,021			
	PharmaDistance(1)	,750	,962	,608	1	,436	2,117	,321	13,952
	PharmaDistance(2)	-,224	1,006	,050	1	,824	,799	,111	5,739
	PharmaDistance(3)	-1,992	1,477	1,819	1	,177	,136	,008	2,467
	PharmaDistance(4)	-,846	1,142	,549	1	,459	,429	,046	4,026
	Constant	,454	1,111	,167	1	,683	1,575		

a. Variable(s) entered on step 1: AgeGroups, PharmaPainVary, PharmaPainPrice, PharmaPainQual, PharmaDistance.

8.2.1.5 Test for independency

Age groups * Gender

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	46,918[a]	15	,000
Likelihood Ratio	49,386	15	,000
Linear-by-Linear Association	17,451	1	,000
N of Valid Cases	196		

a. 8 cells (33,3%) have expected count less than 5. The minimum expected count is ,96.

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Phi	,489			,000
	Cramer's V	,282			,000
Interval by Interval	Pearson's R	-,299	,069	-4,367	,000[c]
Ordinal by Ordinal	Spearman Correlation	-,304	,071	-4,443	,000[c]
N of Valid Cases		196			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Age groups * What is your highest level of education you have completed?

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	22,297[a]	20	,325
Likelihood Ratio	23,542	20	,263
Linear-by-Linear Association	,079	1	,778
N of Valid Cases	196		

a. 17 cells (56,7%) have expected count less than 5. The minimum expected count is ,18.

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Phi	,337			,325
	Cramer's V	,169			,325
Interval by Interval	Pearson's R	,020	,070	,281	,779[c]
Ordinal by Ordinal	Spearman Correlation	,034	,073	,480	,632[c]
N of Valid Cases		196			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Table 8.2.1.6 Binary logistic regression block 2 testing

Education

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2,683	3	,443
	Block	2,683	3	,443
	Model	52,109	22	,000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	176,688[a]	,233	,339

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.

Gender

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1,760	1	,185
	Block	1,760	1	,185
	Model	51,186	20	,000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	177,611[a]	,230	,334

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.

AgeGroups

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	11,488	5	,043
	Block	11,488	5	,043
	Model	49,426	19	,000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	179,370[a]	,223	,324

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.

8.2.1.8 Final Binary Logistic Regression model

Categorical Variables Codings

		Frequency	Parameter coding (1)	(2)	(3)	(4)	(5)
Age groups	16 - 24	47	1,000	,000	,000	,000	,000
	25 - 34	59	,000	1,000	,000	,000	,000
	35 - 44	17	,000	,000	1,000	,000	,000
	45 - 54	39	,000	,000	,000	1,000	,000
	55 - 64	27	,000	,000	,000	,000	1,000
	65 and older	7	,000	,000	,000	,000	,000
Pharmacies - I need to cover long distances to reach a pharmacy	Strongly disagree	98	1,000	,000	,000	,000	
	Somewhat disagree	50	,000	1,000	,000	,000	
	Neither agree nor disagree	19	,000	,000	1,000	,000	
	Somewhat agree	20	,000	,000	,000	1,000	
	Strongly agree	9	,000	,000	,000	,000	
Pharmacies offer painkillers at a high price	Strongly disagree	5	1,000	,000	,000	,000	
	Somewhat disagree	19	,000	1,000	,000	,000	
	Neither agree nor disagree	64	,000	,000	1,000	,000	
	Somewhat agree	54	,000	,000	,000	1,000	
	Strongly agree	54	,000	,000	,000	,000	
Pharmacies offer high quality painkillers	Somewhat disagree	6	1,000	,000	,000		
	Neither agree nor disagree	69	,000	1,000	,000		
	Somewhat agree	71	,000	,000	1,000		
	Strongly agree	50	,000	,000	,000		
Pharmacies offer a wide variety of painkillers	Somewhat disagree	14	1,000	,000	,000		
	Neither agree nor disagree	49	,000	1,000	,000		
	Somewhat agree	61	,000	,000	1,000		
	Strongly agree	72	,000	,000	,000		

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	179,370[a]	,223	,324

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	AgeGroups			10,283	5	,068			
	AgeGroups(1)	-1,097	,961	1,303	1	,254	,334	,051	2,196
	AgeGroups(2)	-2,032	,956	4,521	1	,033	,131	,020	,853
	AgeGroups(3)	-3,008	1,261	5,694	1	,017	,049	,004	,584
	AgeGroups(4)	-1,969	,973	4,093	1	,043	,140	,021	,940
	AgeGroups(5)	-1,218	,989	1,516	1	,218	,296	,043	2,056
	PharmaPainVary			8,838	3	,032			
	PharmaPainVary(1)	2,418	,838	8,318	1	,004	11,224	2,170	58,052
	PharmaPainVary(2)	,498	,531	,881	1	,348	1,645	,582	4,655
	PharmaPainVary(3)	-,025	,496	,003	1	,960	,975	,369	2,578
	PharmaPainPrice			11,470	4	,022			
	PharmaPainPrice(1)	2,320	1,321	3,085	1	,079	10,179	,764	135,593
	PharmaPainPrice(2)	-1,449	,873	2,753	1	,097	,235	,042	1,300
	PharmaPainPrice(3)	,945	,548	2,980	1	,084	2,574	,880	7,528
	PharmaPainPrice(4)	,571	,550	1,078	1	,299	1,770	,602	5,202
	PharmaPainQual			9,397	3	,024			
	PharmaPainQual(1)	,298	1,312	,051	1	,821	1,347	,103	17,639
	PharmaPainQual(2)	-1,715	,590	8,436	1	,004	,180	,057	,573
	PharmaPainQual(3)	-,643	,499	1,658	1	,198	,526	,198	1,399
	PharmaDistance			11,550	4	,021			
	PharmaDistance(1)	,750	,962	,608	1	,436	2,117	,321	13,952
	PharmaDistance(2)	-,224	1,006	,050	1	,824	,799	,111	5,739
	PharmaDistance(3)	-1,992	1,477	1,819	1	,177	,136	,008	2,467
	PharmaDistance(4)	-,846	1,142	,549	1	,459	,429	,046	4,026
	Constant	,454	1,111	,167	1	,683	1,575		

a. Variable(s) entered on step 1: AgeGroups, PharmaPainVary, PharmaPainPrice, PharmaPainQual, PharmaDistance.

8.2.1.9 Final Binary Logistic Regression model with changed reference group

Categorical Variables Codings

			Parameter coding				
		Frequency	(1)	(2)	(3)	(4)	(5)
Age groups	16 - 24	47	1,000	,000	,000	,000	,000
	25 - 34	59	,000	1,000	,000	,000	,000
	35 - 44	17	,000	,000	1,000	,000	,000
	45 - 54	39	,000	,000	,000	1,000	,000
	55 - 64	27	,000	,000	,000	,000	1,000
	65 and older	7	,000	,000	,000	,000	,000
Pharmacies - I need to cover long distances to reach a pharmacy	Strongly disagree	98	,000	,000	,000	,000	
	Somewhat disagree	50	1,000	,000	,000	,000	
	Neither agree nor disagree	19	,000	1,000	,000	,000	
	Somewhat agree	20	,000	,000	1,000	,000	
	Strongly agree	9	,000	,000	,000	1,000	
Pharmacies offer painkillers at a high price	Strongly disagree	5	,000	,000	,000	,000	
	Somewhat disagree	19	1,000	,000	,000	,000	
	Neither agree nor disagree	64	,000	1,000	,000	,000	
	Somewhat agree	54	,000	,000	1,000	,000	
	Strongly agree	54	,000	,000	,000	1,000	
Pharmacies offer high quality painkillers	Somewhat disagree	6	1,000	,000	,000		
	Neither agree nor disagree	69	,000	1,000	,000		
	Somewhat agree	71	,000	,000	1,000		
	Strongly agree	50	,000	,000	,000		
Pharmacies offer a wide variety of painkillers	Somewhat disagree	14	1,000	,000	,000		
	Neither agree nor disagree	49	,000	1,000	,000		
	Somewhat agree	61	,000	,000	1,000		
	Strongly agree	72	,000	,000	,000		

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	AgeGroups			10,283	5	,068	
	AgeGroups(1)	-1,097	,961	1,303	1	,254	,334
	AgeGroups(2)	-2,032	,956	4,521	1	,033	,131
	AgeGroups(3)	-3,008	1,261	5,694	1	,017	,049
	AgeGroups(4)	-1,969	,973	4,093	1	,043	,140
	AgeGroups(5)	-1,218	,989	1,516	1	,218	,296
	PharmaPainVary			8,838	3	,032	
	PharmaPainVary(1)	2,418	,838	8,318	1	,004	11,224
	PharmaPainVary(2)	,498	,531	,881	1	,348	1,645
	PharmaPainVary(3)	-,025	,496	,003	1	,960	,975
	PharmaPainPrice			11,470	4	,022	
	PharmaPainPrice(1)	-3,769	1,495	6,353	1	,012	,023
	PharmaPainPrice(2)	-1,375	1,339	1,055	1	,304	,253
	PharmaPainPrice(3)	-1,749	1,333	1,723	1	,189	,174
	PharmaPainPrice(4)	-2,320	1,321	3,085	1	,079	,098
	PharmaPainQual			9,397	3	,024	
	PharmaPainQual(1)	,298	1,312	,051	1	,821	1,347
	PharmaPainQual(2)	-1,715	,590	8,436	1	,004	,180
	PharmaPainQual(3)	-,643	,499	1,658	1	,198	,526
	PharmaDistance			11,550	4	,021	
	PharmaDistance(1)	-,974	,479	4,136	1	,042	,377
	PharmaDistance(2)	-2,742	1,144	5,742	1	,017	,064
	PharmaDistance(3)	-1,597	,751	4,523	1	,033	,203
	PharmaDistance(4)	-,750	,962	,608	1	,436	,472
	Constant	3,525	1,552	5,155	1	,023	33,941

a. Variable(s) entered on step 1: AgeGroups, PharmaPainVary, PharmaPainPrice, PharmaPainQual, PharmaDistance.

8.2.2 Analysis of Drugstore as preferred channel

Table 8.2.2.1 Binary Logistic regression with all variables

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	182,728[a]	,371	,494

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Gender(1)	1,780	,544	10,712	1	,001	5,927	2,042	17,204
	AgeGroups			10,546	5	,061			
	AgeGroups(1)	2,949	2,019	2,132	1	,144	19,082	,364	998,999
	AgeGroups(2)	4,530	2,091	4,695	1	,030	92,786	1,541	5587,019
	AgeGroups(3)	2,995	2,131	1,976	1	,160	19,993	,307	1302,310
	AgeGroups(4)	3,519	2,039	2,979	1	,084	33,752	,621	1835,187
	AgeGroups(5)	3,799	2,075	3,352	1	,067	44,662	,765	2606,828
	Educ			1,804	4	,772			
	Educ(1)	-21,051	40192,970	,000	1	1,000	,000	,000	.
	Educ(2)	,646	,782	,681	1	,409	1,907	,412	8,840
	Educ(3)	,060	,668	,008	1	,928	1,062	,287	3,931
	Educ(4)	-,418	,610	,471	1	,493	,658	,199	2,174
	DrugVariety			3,483	4	,481			
	DrugVariety(1)	3,242	2,450	1,751	1	,186	25,585	,210	3113,227
	DrugVariety(2)	1,154	,995	1,347	1	,246	3,172	,452	22,279
	DrugVariety(3)	-,810	1,231	,434	1	,510	,445	,040	4,960
	DrugVariety(4)	,352	,521	,456	1	,499	1,422	,512	3,944
	DrugQuality			3,128	3	,372			
	DrugQuality(1)	,697	,909	,589	1	,443	2,009	,338	11,930
	DrugQuality(2)	,027	,796	,001	1	,973	1,027	,216	4,886
	DrugQuality(3)	-,550	,746	,544	1	,461	,577	,134	2,491
	DrugPrice			5,813	4	,214			
	DrugPrice(1)	-2,271	1,502	2,286	1	,131	,103	,005	1,960
	DrugPrice(2)	-2,380	1,442	2,723	1	,099	,093	,005	1,563
	DrugPrice(3)	-1,728	1,403	1,517	1	,218	,178	,011	2,778

	DrugPrice(4)	-3,118	1,494	4,355	1	,037	,044	,002	,827
	DrugBrand			13,867	4	,008			
	DrugBrand(1)	-1,242	2,942	,178	1	,673	,289	,001	92,111
	DrugBrand(2)	-2,487	1,404	3,140	1	,076	,083	,005	1,302
	DrugBrand(3)	,608	,816	,554	1	,457	1,836	,371	9,093
	DrugBrand(4)	1,592	,658	5,856	1	,016	4,912	1,353	17,832
	DrugPainVary			1,699	3	,637			
	DrugPainVary(1)	-1,092	1,014	1,159	1	,282	,336	,046	2,450
	DrugPainVary(2)	,060	,837	,005	1	,943	1,062	,206	5,474
	DrugPainVary(3)	-,025	,642	,002	1	,969	,975	,277	3,429
	DrugPainPrice			5,898	4	,207			
	DrugPainPrice(1)	3,440	1,684	4,170	1	,041	31,172	1,148	846,145
	DrugPainPrice(2)	4,012	1,662	5,823	1	,016	55,231	2,124	1436,386
	DrugPainPrice(3)	3,702	1,611	5,284	1	,022	40,548	1,726	952,835
	DrugPainPrice(4)	3,403	1,723	3,902	1	,048	30,057	1,027	879,763
	DrugPainQual			13,482	4	,009			
	DrugPainQual(1)	-1,458	1,592	,838	1	,360	,233	,010	5,276
	DrugPainQual(2)	-2,022	1,164	3,019	1	,082	,132	,014	1,295
	DrugPainQual(3)	-3,481	,973	12,789	1	,000	,031	,005	,207
	DrugPainQual(4)	-2,867	,913	9,854	1	,002	,057	,009	,341
	DrugAttention			4,120	4	,390			
	DrugAttention(1)	1,052	1,536	,469	1	,493	2,863	,141	58,049
	DrugAttention(2)	,163	1,276	,016	1	,898	1,177	,097	14,346
	DrugAttention(3)	-,753	1,274	,350	1	,554	,471	,039	5,720
	DrugAttention(4)	,426	1,265	,113	1	,736	1,531	,128	18,252
	DrugQestion			2,351	4	,672			
	DrugQestion(1)	-,722	1,621	,198	1	,656	,486	,020	11,651
	DrugQestion(2)	-,237	1,305	,033	1	,856	,789	,061	10,190
	DrugQestion(3)	,589	1,355	,189	1	,664	1,803	,127	25,659
	DrugQestion(4)	-,298	1,377	,047	1	,829	,743	,050	11,038
	DrugOpening			8,854	3	,031			
	DrugOpening(1)	-2,841	1,220	5,424	1	,020	,058	,005	,638
	DrugOpening(2)	-,727	,918	,626	1	,429	,484	,080	2,925
	DrugOpening(3)	,627	,535	1,371	1	,242	1,872	,655	5,344
	DrugDistance			9,149	4	,057			
	DrugDistance(1)	-,212	,953	,050	1	,824	,809	,125	5,236
	DrugDistance(2)	-,506	1,089	,216	1	,642	,603	,071	5,093
	DrugDistance(3)	2,386	1,323	3,251	1	,071	10,868	,812	145,392

	DrugDistance(4)	,026	1,321	,000	1	,984	1,026	,077	13,656
	DrugWhenever			7,245	4	,124			
	DrugWhenever(1)	2,609	1,583	2,717	1	,099	13,584	,610	302,245
	DrugWhenever(2)	1,087	,964	1,270	1	,260	2,965	,448	19,630
	DrugWhenever(3)	2,535	1,014	6,249	1	,012	12,620	1,729	92,117
	DrugWhenever(4)	,702	,647	1,176	1	,278	2,018	,567	7,178
	DrugLot			7,489	4	,112			
	DrugLot(1)	-3,933	1,931	4,147	1	,042	,020	,000	,863
	DrugLot(2)	-,504	1,073	,221	1	,639	,604	,074	4,947
	DrugLot(3)	-2,119	1,127	3,534	1	,060	,120	,013	1,095
	DrugLot(4)	-,992	,573	3,004	1	,083	,371	,121	1,139
	Constant	-4,142	2,500	2,746	1	,097	,016		

a. Variable(s) entered on step 1: Gender, AgeGroups, Educ, DrugVariety, DrugQuality, DrugPrice, DrugBrand, DrugPainVary, DrugPainPrice, DrugPainQual, DrugAttention, DrugQestion, DrugOpening, DrugDistance, DrugWhenever, DrugLot.

8.2.2.2 Frequency Tables

Drugstores offer high quality products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1,0	1,0	1,0
	Somewhat disagree	23	11,3	11,3	12,3
	Neither agree nor disagree	55	27,0	27,0	39,2
	Somewhat agree	85	41,7	41,7	80,9
	Strongly agree	39	19,1	19,1	100,0
	Total	204	100,0	100,0	

Drugstores offer a wide variety of painkillers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1,0	1,0	1,0
	Somewhat disagree	25	12,3	12,3	13,2
	Neither agree nor disagree	35	17,2	17,2	30,4
	Somewhat agree	91	44,6	44,6	75,0
	Strongly agree	51	25,0	25,0	100,0
	Total	204	100,0	100,0	

Drugstores offer a wide variety of painkillers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1,0	1,0	1,0
	Somewhat disagree	25	12,3	12,3	13,2
	Neither agree nor disagree	35	17,2	17,2	30,4
	Somewhat agree	91	44,6	44,6	75,0
	Strongly agree	51	25,0	25,0	100,0
	Total	204	100,0	100,0	

What is your highest level of education you have completed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No high school degree	1	,5	,5	,5
	High school graduate	28	13,7	13,7	14,2
	Community College (MBO)	47	23,0	23,0	37,3
	University of Applied Science (HBO)	57	27,9	27,9	65,2
	University (WO)	71	34,8	34,8	100,0
	Total	204	100,0	100,0	

8.2.2.3 Binary logistic regression after adjustment for iteration problems

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Gender(1)	1,780	,544	10,712	1	,001	5,927	2,042	17,204
	AgeGroups			10,546	5	,061			
	AgeGroups(1)	2,949	2,019	2,132	1	,144	19,082	,364	998,999
	AgeGroups(2)	4,530	2,091	4,695	1	,030	92,786	1,541	5587,019
	AgeGroups(3)	2,995	2,131	1,976	1	,160	19,993	,307	1302,310
	AgeGroups(4)	3,519	2,039	2,979	1	,084	33,752	,621	1835,187
	AgeGroups(5)	3,799	2,075	3,352	1	,067	44,662	,765	2606,828
	Educ			1,804	3	,614			
	Educ(1)	,646	,782	,681	1	,409	1,907	,412	8,840
	Educ(2)	,060	,668	,008	1	,928	1,062	,287	3,931
	Educ(3)	-,418	,610	,471	1	,493	,658	,199	2,174
	DrugVariety			3,483	4	,481			

	DrugVariety(1)	3,242	2,450	1,751	1	,186	25,585	,210	3113,227
	DrugVariety(2)	1,154	,995	1,347	1	,246	3,172	,452	22,279
	DrugVariety(3)	-,810	1,231	,434	1	,510	,445	,040	4,960
	DrugVariety(4)	,352	,521	,456	1	,499	1,422	,512	3,944
	DrugQuality			3,128	3	,372			
	DrugQuality(1)	,697	,909	,589	1	,443	2,009	,338	11,930
	DrugQuality(2)	,027	,796	,001	1	,973	1,027	,216	4,886
	DrugQuality(3)	-,550	,746	,544	1	,461	,577	,134	2,491
	DrugPrice			5,813	4	,214			
	DrugPrice(1)	-2,271	1,502	2,286	1	,131	,103	,005	1,960
	DrugPrice(2)	-2,380	1,442	2,723	1	,099	,093	,005	1,563
	DrugPrice(3)	-1,728	1,403	1,517	1	,218	,178	,011	2,778
	DrugPrice(4)	-3,118	1,494	4,355	1	,037	,044	,002	,827
	DrugBrand			13,867	4	,008			
	DrugBrand(1)	-1,242	2,942	,178	1	,673	,289	,001	92,111
	DrugBrand(2)	-2,487	1,404	3,140	1	,076	,083	,005	1,302
	DrugBrand(3)	,608	,816	,554	1	,457	1,836	,371	9,093
	DrugBrand(4)	1,592	,658	5,856	1	,016	4,912	1,353	17,832
	DrugPainVary			1,699	3	,637			
	DrugPainVary(1)	-1,092	1,014	1,159	1	,282	,336	,046	2,450
	DrugPainVary(2)	,060	,837	,005	1	,943	1,062	,206	5,474
	DrugPainVary(3)	-,025	,642	,002	1	,969	,975	,277	3,429
	DrugPainPrice			5,898	4	,207			
	DrugPainPrice(1)	3,440	1,684	4,170	1	,041	31,172	1,148	846,145
	DrugPainPrice(2)	4,012	1,662	5,823	1	,016	55,231	2,124	1436,386
	DrugPainPrice(3)	3,702	1,611	5,284	1	,022	40,548	1,726	952,835
	DrugPainPrice(4)	3,403	1,723	3,902	1	,048	30,057	1,027	879,763
	DrugPainQual			13,482	4	,009			
	DrugPainQual(1)	-1,458	1,592	,838	1	,360	,233	,010	5,276
	DrugPainQual(2)	-2,022	1,164	3,019	1	,082	,132	,014	1,295
	DrugPainQual(3)	-3,481	,973	12,789	1	,000	,031	,005	,207
	DrugPainQual(4)	-2,867	,913	9,854	1	,002	,057	,009	,341
	DrugAttention			4,120	4	,390			
	DrugAttention(1)	1,052	1,536	,469	1	,493	2,863	,141	58,049
	DrugAttention(2)	,163	1,276	,016	1	,898	1,177	,097	14,346
	DrugAttention(3)	-,753	1,274	,350	1	,554	,471	,039	5,720
	DrugAttention(4)	,426	1,265	,113	1	,736	1,531	,128	18,252
	DrugQestion			2,351	4	,672			

	DrugQestion(1)	-,722	1,621	,198	1	,656	,486	,020	11,651
	DrugQestion(2)	-,237	1,305	,033	1	,856	,789	,061	10,190
	DrugQestion(3)	,589	1,355	,189	1	,664	1,803	,127	25,659
	DrugQestion(4)	-,298	1,377	,047	1	,829	,743	,050	11,038
	DrugOpening			8,854	3	,031			
	DrugOpening(1)	-2,841	1,220	5,424	1	,020	,058	,005	,638
	DrugOpening(2)	-,727	,918	,626	1	,429	,484	,080	2,925
	DrugOpening(3)	,627	,535	1,371	1	,242	1,872	,655	5,344
	DrugDistance			9,149	4	,057			
	DrugDistance(1)	-,212	,953	,050	1	,824	,809	,125	5,236
	DrugDistance(2)	-,506	1,089	,216	1	,642	,603	,071	5,093
	DrugDistance(3)	2,386	1,323	3,251	1	,071	10,868	,812	145,392
	DrugDistance(4)	,026	1,321	,000	1	,984	1,026	,077	13,656
	DrugWhenever			7,245	4	,124			
	DrugWhenever(1)	2,609	1,583	2,717	1	,099	13,584	,610	302,245
	DrugWhenever(2)	1,087	,964	1,270	1	,260	2,965	,448	19,630
	DrugWhenever(3)	2,535	1,014	6,249	1	,012	12,620	1,729	92,117
	DrugWhenever(4)	,702	,647	1,176	1	,278	2,018	,567	7,178
	DrugLot			7,489	4	,112			
	DrugLot(1)	-3,933	1,931	4,147	1	,042	,020	,000	,863
	DrugLot(2)	-,504	1,073	,221	1	,639	,604	,074	4,947
	DrugLot(3)	-2,119	1,127	3,534	1	,060	,120	,013	1,095
	DrugLot(4)	-,992	,573	3,004	1	,083	,371	,121	1,139
	Constant	-4,142	2,500	2,746	1	,097	,016		

a. Variable(s) entered on step 1: Gender, AgeGroups, Educ, DrugVariety, DrugQuality, DrugPrice, DrugBrand, DrugPainVary, DrugPainPrice, DrugPainQual, DrugAttention, DrugQestion, DrugOpening, DrugDistance, DrugWhenever, DrugLot.

8.2.2.4 Binary logistic regression with significant variables.

Variables in the Equation

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Gender(1)	1,020	,333	9,400	1	,002	2,773	1,445	5,324
	DrugBrand			6,327	4	,176			
	DrugBrand(1)	-,953	1,333	,511	1	,475	,386	,028	5,260
	DrugBrand(2)	-1,273	,888	2,056	1	,152	,280	,049	1,595
	DrugBrand(3)	-,007	,502	,000	1	,989	,993	,372	2,654
	DrugBrand(4)	,507	,417	1,482	1	,223	1,661	,734	3,758
	DrugPainQual			8,128	4	,087			

	DrugPainQual(1)	-1,226	1,002	1,496	1	,221	,294	,041	2,092
	DrugPainQual(2)	-1,463	,765	3,659	1	,056	,232	,052	1,037
	DrugPainQual(3)	-1,581	,556	8,092	1	,004	,206	,069	,612
	DrugPainQual(4)	-1,283	,562	5,205	1	,023	,277	,092	,835
	DrugOpening			5,540	3	,136			
	DrugOpening(1)	-,971	,788	1,517	1	,218	,379	,081	1,776
	DrugOpening(2)	-,193	,542	,127	1	,721	,824	,285	2,384
	DrugOpening(3)	,509	,356	2,037	1	,154	1,663	,827	3,344
	Constant	,471	,485	,943	1	,331	1,601		

a. Variable(s) entered on step 1: Gender, DrugBrand, DrugPainQual, DrugOpening.

8.2.2.5 Test for independency

Variable to test	Test with	Chi-Square	Cramers' V
Drug Brand	Gender	10,670	0,233
	DrugVary	45,168	0,239
	DrugQual	41,874	0,266
	DrugPainVary	72,629	0,351
	DrugPainPrice	29,693	0,194
	DrugPainQual	59,961	0,276
	DrugAttention	26,555	0,184
	DrugOpening	30,782	0,228
	DrugWhenever	30,411	0,196
	DrugLot	40,169	0,226
DrugPainQual	Education	25,757	0,209
	DrugVary	27,547	0,187
	DrugQual	73,411	0,352
	DrugPrice	34,349	0,209
	DrugPainVary	59,894	0,318
	DrugPainPrice	46,437	0,243
	DrugAttention	44,765	0,238
	DrugQuestion	40,226	0,226
	DrugDistance	27,029	0,185
	DrugLot	47,949	0,247
	DrugBrand	59,961	0,276
DrugOpening	DrugVary	26,135	0,210
	DrugPainVary	18,743	0,178
	DrugPainPrice	25,443	0,207
	DrugDistance	27,088	0,214
	DrugWhenever	84,381	0,378
	DrugLot	47,222	0,283
	DrugBrand	30,782	0,228

Table 8.2.2.6 Binary logistic regression block 2 testing

DrugPainVary

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	7,418	6	,284
	Block	7,418	6	,284
	Model	40,734	18	,002

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	232,320[a]	,187	,249

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

DrugQual

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	6,592	3	,086
	Block	6,592	3	,086
	Model	39,908	15	,000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	233,146[a]	,183	,245

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

DrugWhenever

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3,170	4	,530
	Block	3,170	4	,530
	Model	36,486	16	,002

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	236,568[a]	,169	,225

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

8.2.2.7 Binary logistic regression block 2 testing of significant variables

DrugBrand

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8,671	4	,070
	Block	8,671	4	,070
	Model	19,024	5	,002

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	254,030[a]	,092	,123

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

DrugPainQual

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	9,905	4	,042
	Block	9,905	4	,042
	Model	20,259	5	,001

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	252,795[a]	,098	,130

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

DrugOpening

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4,823	3	,185
	Block	4,823	3	,185
	Model	15,176	4	,004

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	257,878[a]	,074	,099

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

8.2.2.8 Final Binary Logistic Regression model

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	197	100,0
	Missing Cases	0	,0
	Total	197	100,0
Unselected Cases		0	,0
Total		197	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
Prefer other then Drugstore	0
Prefer Drugstore	1

Categorical Variables Codings

		Frequency	Parameter coding (1)	(2)	(3)	(4)
Drugstores offer high quality painkillers	Strongly disagree	6	1,000	,000	,000	,000
	Somewhat disagree	17	,000	1,000	,000	,000
	Neither agree nor disagree	87	,000	,000	1,000	,000
	Somewhat agree	58	,000	,000	,000	1,000
	Strongly agree	29	,000	,000	,000	,000
Gender	Female	100	1,000			
	Male	97	,000			

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Gender(1)	1,049	,310	11,487	1	,001	2,855	1,556	5,237
	DrugPainQual			9,000	4	,061			
	DrugPainQual(1)	-1,475	,950	2,414	1	,120	,229	,036	1,471
	DrugPainQual(2)	-1,466	,670	4,784	1	,029	,231	,062	,859
	DrugPainQual(3)	-1,395	,485	8,282	1	,004	,248	,096	,641
	DrugPainQual(4)	-1,007	,510	3,903	1	,048	,365	,134	,992
	Constant	,593	,435	1,855	1	,173	1,809		

a. Variable(s) entered on step 1: Gender, DrugPainQual.

8.2.3 Analysis of Grocery Store as preferred channel

8.2.3.1 Binary Logistic regression with all variables

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Gender(1)	-2,100	,759	7,667	1	,006	,122	,028	,541
	AgeGroups			11,296	5	,046			
	AgeGroups(1)	-,590	1,869	,100	1	,752	,554	,014	21,616
	AgeGroups(2)	,537	1,777	,091	1	,762	1,711	,053	55,730
	AgeGroups(3)	2,573	1,852	1,930	1	,165	13,108	,348	494,246
	AgeGroups(4)	2,404	1,766	1,852	1	,174	11,063	,347	352,494
	AgeGroups(5)	,262	2,008	,017	1	,896	1,299	,025	66,568
	Educ			6,198	4	,185			
	Educ(1)	27,481	40192,970	,000	1	,999	860588544481,937	,000	.
	Educ(2)	,046	1,079	,002	1	,966	1,048	,126	8,686
	Educ(3)	-1,186	,964	1,513	1	,219	,305	,046	2,021
	Educ(4)	1,229	,793	2,402	1	,121	3,416	,723	16,153
	GroceVariety			4,600	4	,331			
	GroceVariety(1)	,144	1,662	,007	1	,931	1,155	,044	30,008
	GroceVariety(2)	-,932	1,448	,414	1	,520	,394	,023	6,730
	GroceVariety(3)	1,939	1,334	2,113	1	,146	6,949	,509	94,874
	GroceVariety(4)	-,854	,810	1,111	1	,292	,426	,087	2,083
	GroceQuality			2,236	4	,692			
	GroceQuality(1)	-,712	2,083	,117	1	,733	,491	,008	29,102
	GroceQuality(2)	-,328	1,733	,036	1	,850	,721	,024	21,521
	GroceQuality(3)	1,167	1,207	,934	1	,334	3,212	,301	34,231
	GroceQuality(4)	,232	,987	,055	1	,814	1,261	,182	8,722
	GrocePrice			7,698	4	,103			
	GrocePrice(1)	-5,338	2,475	4,651	1	,031	,005	,000	,614
	GrocePrice(2)	-2,824	2,022	1,950	1	,163	,059	,001	3,126
	GrocePrice(3)	-2,997	1,926	2,420	1	,120	,050	,001	2,179
	GrocePrice(4)	-1,403	1,972	,506	1	,477	,246	,005	11,726
	GroceBrand			11,237	4	,024			
	GroceBrand(1)	1,214	1,796	,457	1	,499	3,368	,100	113,893
	GroceBrand(2)	-2,837	1,397	4,121	1	,042	,059	,004	,907
	GroceBrand(3)	-1,697	1,423	1,423	1	,233	,183	,011	2,979
	GroceBrand(4)	,495	1,334	,138	1	,710	1,641	,120	22,402
	GrocePainVary			6,105	4	,191			

	GrocePainVary(1)	-5,036	2,311	4,748	1	,029	,007	,000	,603
	GrocePainVary(2)	-3,328	1,949	2,914	1	,088	,036	,001	1,637
	GrocePainVary(3)	-3,267	2,170	2,266	1	,132	,038	,001	2,682
	GrocePainVary(4)	-2,227	2,126	1,096	1	,295	,108	,002	6,967
	GrocePainPrice			5,455	4	,244			
	GrocePainPrice(1)	-2,529	1,214	4,342	1	,037	,080	,007	,861
	GrocePainPrice(2)	-2,742	1,192	5,285	1	,022	,064	,006	,667
	GrocePainPrice(3)	-2,460	1,400	3,089	1	,079	,085	,006	1,328
	GrocePainPrice(4)	-25,165	12510,410	,000	1	,998	,000	,000	.
	GrocePainQual			3,502	4	,478			
	GrocePainQual(1)	-1,619	2,850	,322	1	,570	,198	,001	52,873
	GrocePainQual(2)	1,678	2,000	,704	1	,401	5,357	,106	269,875
	GrocePainQual(3)	2,015	1,900	1,125	1	,289	7,499	,181	310,561
	GrocePainQual(4)	2,624	1,817	2,085	1	,149	13,790	,392	485,625
	GroceAttention			3,316	4	,506			
	GroceAttention(1)	-,624	1,063	,345	1	,557	,536	,067	4,303
	GroceAttention(2)	1,732	1,493	1,346	1	,246	5,654	,303	105,519
	GroceAttention(3)	1,063	2,059	,267	1	,606	2,896	,051	163,721
	GroceAttention(4)	38,313	42094,954	,000	1	,999	43561787875833224,000	,000	.
	GroceQuestion			4,267	4	,371			
	GroceQuestion(1)	1,233	,982	1,577	1	,209	3,432	,501	23,513
	GroceQuestion(2)	-,925	1,452	,406	1	,524	,397	,023	6,829
	GroceQuestion(3)	-1,385	2,056	,454	1	,501	,250	,004	14,083
	GroceQuestion(4)	-20,373	23140,036	,000	1	,999	,000	,000	.
	GroceOpening			1,442	4	,837			
	GroceOpening(1)	29,707	40192,970	,000	1	,999	7971333681028,489	,000	.
	GroceOpening(2)	-22,470	40192,970	,000	1	1,000	,000	,000	.
	GroceOpening(3)	-,231	2,570	,008	1	,929	,794	,005	122,234
	GroceOpening(4)	,921	,818	1,269	1	,260	2,512	,506	12,476
	GroceDistance			5,028	4	,284			
	GroceDistance(1)	-,421	1,487	,080	1	,777	,656	,036	12,101
	GroceDistance(2)	1,392	1,733	,645	1	,422	4,021	,135	120,041
	GroceDistance(3)	-1,592	2,855	,311	1	,577	,203	,001	54,763
	GroceDistance(4)	1,394	2,002	,485	1	,486	4,032	,080	203,999
	GroceWhenever			5,494	4	,240			
	GroceWhenever(1)	6,975	2,979	5,482	1	,019	1069,211	3,115	366960,688

	GroceWhenever(2)	-22,332	10705,465	,000	1	,998	,000	,000	.
	GroceWhenever(3)	-,439	1,979	,049	1	,824	,645	,013	31,201
	GroceWhenever(4)	-,331	,820	,163	1	,687	,718	,144	3,585
	GroceLot			,164	4	,997			
	GroceLot(1)	,869	2,338	,138	1	,710	2,384	,024	233,184
	GroceLot(2)	-26,017	22232,716	,000	1	,999	,000	,000	.
	GroceLot(3)	-,015	2,195	,000	1	,995	,985	,013	72,824
	GroceLot(4)	,145	,828	,031	1	,861	1,156	,228	5,862
	Constant	4,725	3,282	2,073	1	,150	112,712		

a. Variable(s) entered on step 1: Gender, AgeGroups, Educ, GroceVariety, GroceQuality, GrocePrice, GroceBrand, GrocePainVary, GrocePainPrice, GrocePainQual, GroceAttention, GroceQuestion, GroceOpening, GroceDistance, GroceWhenever, GroceLot.

8.2.3.2 Frequency Tables

What is your highest level of education you have completed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No high school degree	1	,5	,5	,5
	High school graduate	28	13,7	13,7	14,2
	Community College (MBO)	47	23,0	23,0	37,3
	University of Applied Science (HBO)	57	27,9	27,9	65,2
	University (WO)	71	34,8	34,8	100,0
	Total	204	100,0	100,0	

Grocecries offer painkillers at a high price

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	23	11,3	11,3	11,3
	Somewhat disagree	60	29,4	29,4	40,7
	Neither agree nor disagree	82	40,2	40,2	80,9
	Somewhat agree	31	15,2	15,2	96,1
	Strongly agree	8	3,9	3,9	100,0
	Total	204	100,0	100,0	

Groceries - I always receive personal attention if needed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	115	56,4	56,4	56,4
	Somewhat disagree	48	23,5	23,5	79,9
	Neither agree nor disagree	33	16,2	16,2	96,1
	Somewhat agree	7	3,4	3,4	99,5
	Strongly agree	1	,5	,5	100,0
	Total	204	100,0	100,0	

Groceries - The opening hours of groceries are sufficient

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	,5	,5	,5
	Somewhat disagree	1	,5	,5	1,0
	Neither agree nor disagree	8	3,9	3,9	4,9
	Somewhat agree	45	22,1	22,1	27,0
	Strongly agree	149	73,0	73,0	100,0
	Total	204	100,0	100,0	

Groceries - I can go to a grocery whenever I want

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	2,0	2,0	2,0
	Somewhat disagree	9	4,4	4,4	6,4
	Neither agree nor disagree	9	4,4	4,4	10,8
	Somewhat agree	61	29,9	29,9	40,7
	Strongly agree	121	59,3	59,3	100,0
	Total	204	100,0	100,0	

Groceries - Ther are a lot of groceries in the area where I live

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	6	2,9	2,9	2,9
	Somewhat disagree	2	1,0	1,0	3,9
	Neither agree nor disagree	14	6,9	6,9	10,8
	Somewhat agree	49	24,0	24,0	34,8
	Strongly agree	133	65,2	65,2	100,0
	Total	204	100,0	100,0	

8.2.3.3 Binary logistic regression after adjustment for iteration problems

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Gender(1)	-2,100	,759	7,667	1	,006	,122	,028	,541
	AgeGroups			11,296	5	,046			
	AgeGroups(1)	-,590	1,869	,100	1	,752	,554	,014	21,616
	AgeGroups(2)	,537	1,777	,091	1	,762	1,711	,053	55,730
	AgeGroups(3)	2,573	1,852	1,930	1	,165	13,108	,348	494,246
	AgeGroups(4)	2,404	1,766	1,852	1	,174	11,063	,347	352,494
	AgeGroups(5)	,262	2,008	,017	1	,896	1,299	,025	66,568
	Educ			6,198	3	,102			
	Educ(1)	,046	1,079	,002	1	,966	1,048	,126	8,686
	Educ(2)	-1,186	,964	1,513	1	,219	,305	,046	2,021
	Educ(3)	1,229	,793	2,402	1	,121	3,416	,723	16,153
	GroceVariety			4,600	4	,331			
	GroceVariety(1)	,144	1,662	,007	1	,931	1,155	,044	30,008
	GroceVariety(2)	-,932	1,448	,414	1	,520	,394	,023	6,730
	GroceVariety(3)	1,939	1,334	2,113	1	,146	6,949	,509	94,874
	GroceVariety(4)	-,854	,810	1,111	1	,292	,426	,087	2,083
	GroceQuality			2,236	4	,692			
	GroceQuality(1)	-,712	2,083	,117	1	,733	,491	,008	29,102
	GroceQuality(2)	-,328	1,733	,036	1	,850	,721	,024	21,521
	GroceQuality(3)	1,167	1,207	,934	1	,334	3,212	,301	34,231
	GroceQuality(4)	,232	,987	,055	1	,814	1,261	,182	8,722
	GrocePrice			7,698	4	,103			
	GrocePrice(1)	-5,338	2,475	4,651	1	,031	,005	,000	,614

	GrocePrice(2)	-2,824	2,022	1,950	1	,163	,059	,001	3,126
	GrocePrice(3)	-2,997	1,926	2,420	1	,120	,050	,001	2,179
	GrocePrice(4)	-1,403	1,972	,506	1	,477	,246	,005	11,726
	GroceBrand			11,237	4	,024			
	GroceBrand(1)	1,214	1,796	,457	1	,499	3,368	,100	113,893
	GroceBrand(2)	-2,837	1,397	4,121	1	,042	,059	,004	,907
	GroceBrand(3)	-1,697	1,423	1,423	1	,233	,183	,011	2,979
	GroceBrand(4)	,495	1,334	,138	1	,710	1,641	,120	22,402
	GrocePainVary			6,105	4	,191			
	GrocePainVary(1)	-5,036	2,311	4,748	1	,029	,007	,000	,603
	GrocePainVary(2)	-3,328	1,949	2,914	1	,088	,036	,001	1,637
	GrocePainVary(3)	-3,267	2,170	2,266	1	,132	,038	,001	2,682
	GrocePainVary(4)	-2,227	2,126	1,096	1	,295	,108	,002	6,967
	GrocePainPrice			5,455	3	,141			
	GrocePainPrice(1)	-2,529	1,214	4,342	1	,037	,080	,007	,861
	GrocePainPrice(2)	-2,742	1,192	5,285	1	,022	,064	,006	,667
	GrocePainPrice(3)	-2,460	1,400	3,089	1	,079	,085	,006	1,328
	GrocePainQual			3,502	4	,478			
	GrocePainQual(1)	-1,619	2,850	,322	1	,570	,198	,001	52,873
	GrocePainQual(2)	1,678	2,000	,704	1	,401	5,357	,106	269,875
	GrocePainQual(3)	2,015	1,900	1,125	1	,289	7,499	,181	310,561
	GrocePainQual(4)	2,624	1,817	2,085	1	,149	13,790	,392	485,625
	GroceAttention			3,316	3	,345			
	GroceAttention(1)	-,624	1,063	,345	1	,557	,536	,067	4,303
	GroceAttention(2)	1,732	1,493	1,346	1	,246	5,654	,303	105,519
	GroceAttention(3)	1,063	2,059	,267	1	,606	2,896	,051	163,721
	GroceQuestion			4,267	3	,234			
	GroceQuestion(1)	1,233	,982	1,577	1	,209	3,432	,501	23,513
	GroceQuestion(2)	-,925	1,452	,406	1	,524	,397	,023	6,829
	GroceQuestion(3)	-1,385	2,056	,454	1	,501	,250	,004	14,083
	GroceOpening			1,442	2	,486			
	GroceOpening(1)	-,231	2,570	,008	1	,929	,794	,005	122,234
	GroceOpening(2)	,921	,818	1,269	1	,260	2,512	,506	12,476
	GroceDistance			5,028	4	,284			
	GroceDistance(1)	-,421	1,487	,080	1	,777	,656	,036	12,101
	GroceDistance(2)	1,392	1,733	,645	1	,422	4,021	,135	120,041

	GroceDistance(3)	-1,592	2,855	,311	1	,577	,203	,001	54,763
	GroceDistance(4)	1,394	2,002	,485	1	,486	4,032	,080	203,999
	GroceWhenever			5,494	3	,139			
	GroceWhenever(1)	6,975	2,979	5,482	1	,019	1069,211	3,115	366960,689
	GroceWhenever(2)	-,439	1,979	,049	1	,824	,645	,013	31,201
	GroceWhenever(3)	-,331	,820	,163	1	,687	,718	,144	3,585
	GroceLot			,164	3	,983			
	GroceLot(1)	,869	2,338	,138	1	,710	2,384	,024	233,184
	GroceLot(2)	-,015	2,195	,000	1	,995	,985	,013	72,824
	GroceLot(3)	,145	,828	,031	1	,861	1,156	,228	5,862
	Constant	4,725	3,282	2,073	1	,150	112,712		

a. Variable(s) entered on step 1: Gender, AgeGroups, Educ, GroceVariety, GroceQuality, GrocePrice, GroceBrand, GrocePainVary, GrocePainPrice, GrocePainQual, GroceAttention, GroceQuestion, GroceOpening, GroceDistance, GroceWhenever, GroceLot.

8.2.3.4 Binary logistic regression with significant variables.

Variables in the Equation

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Gender(1)	-1,012	,407	6,182	1	,013	,364	,164	,807
	AgeGroups			9,844	5	,080			
	AgeGroups(1)	-,758	,999	,576	1	,448	,469	,066	3,322
	AgeGroups(2)	-,082	,949	,008	1	,931	,921	,143	5,921
	AgeGroups(3)	1,412	1,069	1,745	1	,186	4,103	,505	33,324
	AgeGroups(4)	,501	,993	,254	1	,614	1,650	,236	11,544
	AgeGroups(5)	-,149	1,069	,020	1	,889	,861	,106	6,999
	GroceBrand			11,423	4	,022			
	GroceBrand(1)	-1,218	,845	2,076	1	,150	,296	,056	1,551
	GroceBrand(2)	-1,681	,695	5,849	1	,016	,186	,048	,727
	GroceBrand(3)	-,575	,624	,849	1	,357	,563	,166	1,911
	GroceBrand(4)	,173	,624	,077	1	,782	1,189	,350	4,043
	Constant	-,112	,971	,013	1	,908	,894		

a. Variable(s) entered on step 1: Gender, AgeGroups, GroceBrand.

8.2.3.5 Test for independency

Age groups * What is your highest level of education you have completed?

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	51,517[a]	15	,000
Likelihood Ratio	55,037	15	,000
Linear-by-Linear Association	16,157	1	,000
N of Valid Cases	181		

a. 8 cells (33,3%) have expected count less than 5. The minimum expected count is ,80.

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Phi	,534			,000
	Cramer's V	,308			,000
Interval by Interval	Pearson's R	-,300	,074	-4,201	,000[c]
Ordinal by Ordinal	Spearman Correlation	-,310	,075	-4,359	,000[c]
N of Valid Cases		181			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Age groups * Groceries offer products at a high price

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	43,080[a]	20	,002
Likelihood Ratio	44,701	20	,001
Linear-by-Linear Association	7,660	1	,006
N of Valid Cases	181		

a. 16 cells (53,3%) have expected count less than 5. The minimum expected count is ,17.

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Phi	,488			,002
	Cramer's V	,244			,002
Interval by Interval	Pearson's R	,206	,072	2,821	,005[c]
Ordinal by Ordinal	Spearman Correlation	,221	,073	3,031	,003[c]
N of Valid Cases		181			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Age groups * Groceries offer a wide variety of painkiller

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	35,481[a]	20	,018
Likelihood Ratio	33,003	20	,034
Linear-by-Linear Association	4,001	1	,045
N of Valid Cases	181		

a. 14 cells (46,7%) have expected count less than 5. The minimum expected count is ,27.

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Phi	,443			,018
	Cramer's V	,221			,018
Interval by Interval	Pearson's R	-,149	,077	-2,017	,045[c]
Ordinal by Ordinal	Spearman Correlation	-,162	,075	-2,202	,029[c]
N of Valid Cases		181			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Age groups * Grocecries offer painkillers at a high price

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26,619[a]	15	,032
Likelihood Ratio	26,799	15	,030
Linear-by-Linear Association	12,251	1	,000
N of Valid Cases	181		

a. 10 cells (41,7%) have expected count less than 5. The minimum expected count is ,73.

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Phi	,383			,032
	Cramer's V	,221			,032
Interval by Interval	Pearson's R	,261	,073	3,616	,000[c]
Ordinal by Ordinal	Spearman Correlation	,245	,073	3,379	,001[c]
N of Valid Cases		181			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Age groups * Groceries - There are a lot of groceries in the area where I live

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	33,661[a]	15	,004
Likelihood Ratio	34,188	15	,003
Linear-by-Linear Association	2,382	1	,123
N of Valid Cases	181		

a. 15 cells (62,5%) have expected count less than 5. The minimum expected count is ,17.

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Phi	,431			,004
	Cramer's V	,249			,004
Interval by Interval	Pearson's R	-,115	,081	-1,549	,123[c]
Ordinal by Ordinal	Spearman Correlation	-,047	,078	-,633	,528[c]
N of Valid Cases		181			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

8.2.3.6 Binary logistic regression block 2 testing

Education

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2,834	3	,418
	Block	2,834	3	,418
	Model	32,873	13	,002

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	170,141[a]	,166	,246

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

GrocePrice

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3,194	4	,526
	Block	3,194	4	,526
	Model	33,233	14	,003

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	169,781[a]	,168	,249

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

GroceLot

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4,158	3	,245
	Block	4,158	3	,245
	Model	34,197	13	,001

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	168,817[a]	,172	,255

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

8.2.3.7 Binary logistic regression block 2 testing of significant variables

AgeGroups

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	10,497	5	,062
	Block	10,497	5	,062
	Model	30,039	10	,001

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	172,975[a]	,153	,227

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

8.2.3.8 Final Binary Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	181	100,0
	Missing Cases	0	,0
	Total	181	100,0
Unselected Cases		0	,0
Total		181	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
Prefer other then Grocery	0
Prefer Grocery	1

Categorical Variables Codings

		Frequency	Parameter coding (1)	(2)	(3)	(4)
Groceres offer the painkiller brands I prefer	Strongly disagree	21	1,000	,000	,000	,000
	Somewhat disagree	51	,000	1,000	,000	,000
	Neither agree nor disagree	45	,000	,000	1,000	,000
	Somewhat agree	44	,000	,000	,000	1,000
	Strongly agree	20	,000	,000	,000	,000
Gender	Female	92	1,000			
	Male	89	,000			

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Gender(1)	-1,021	,383	7,108	1	,008	,360	,170	,763
	GroceBrand			9,195	4	,056			
	GroceBrand(1)	-1,110	,794	1,957	1	,162	,329	,070	1,561
	GroceBrand(2)	-1,559	,644	5,852	1	,016	,210	,060	,744
	GroceBrand(3)	-,710	,585	1,476	1	,224	,491	,156	1,546
	GroceBrand(4)	-,135	,570	,056	1	,813	,874	,286	2,672
	Constant	,026	,494	,003	1	,958	1,026		

a. Variable(s) entered on step 1: Gender, GroceBrand.