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[A GENERIC OPTION]

In the Dutch healthcare system a generic drug is crucial to keep the costs low. Health insurers and the government work together to stimulate the use of generics, resulting that the choice is made for the consumer. This thesis tries to found out what will happen when a consumer can choose for drugs themselves. A conceptual framework is constructed, whereas the drivers; the price-quality inference; the involvement of a consumer; and the perception on efficacy of consumers is included to measure when a consumer will choose for a branded drug. Also demographics were included, but not significant. Results showed that a consumer will choose a branded drug over a generic drug when the consumer follows the price-quality inference, when the consumer is low involved in drug use, and when the consumer doubts the efficacy of a generic drug.

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1. Introduction

§1.1 Introduction

Consumers make use of generics drugs without being aware of it. The presence of generics is however very significant, hence almost 60%[1] of the prescription drugs is of generic substitution. It seems however that outside the pharmaceutical industry the drug is rather unidentified. A generic drug is bioequivalent to the branded drug, but it is far less expensive. Substituting a branded drug for a generic drug can save from 20% to 80%.[2]

A generic drug is a very interesting component of the pharmaceutical market. First, it is subject to additional legislation. Hence, it can only be introduced after a patent expire of the branded drug and it doesn't carry a brand name. To be exact it carries the name of the working component. Secondly, the interference of other parties. The government actively tries to enhance the market share of generics. Trying to favor a product in a competitive market is not typical. Another party is the health insurance companies. In order to keep their costs low and profit high, they are favoring generics. These two parties often work together.

In The Netherlands consumers choice is not so relevant. The government has introduced a so called prevention policy, giving the health insurers the power to choose for the consumers. They give generics naturally the upper hand in their health plan, resulting in consumers having limited choice. However, in this economical environment the pharmaceutical industry has to deal with major cuts, which rises the copayment-ratio for the consumers and so their interest in prices. In addition, there is an own risk rule in The Netherlands which may twist or already has twisted the market.

In this thesis the aim is to discover why consumers would choose a branded drug over a generic drug. As consumers' choice will become more relevant in the future, it is interesting which factors or drivers are related in choosing a branded drug over a generic drug. First I'll introduce a conceptual framework that will inhabit important drivers for not using a generic drug. Second, a research will be done to prove the conceptual framework, which will have the methodology and results. The thesis will end with a discussion.

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[1] This information is readily available on the website of 'Stichting farmaceutische kengetallen (SFK)'. Number is applicable on the Dutch market.

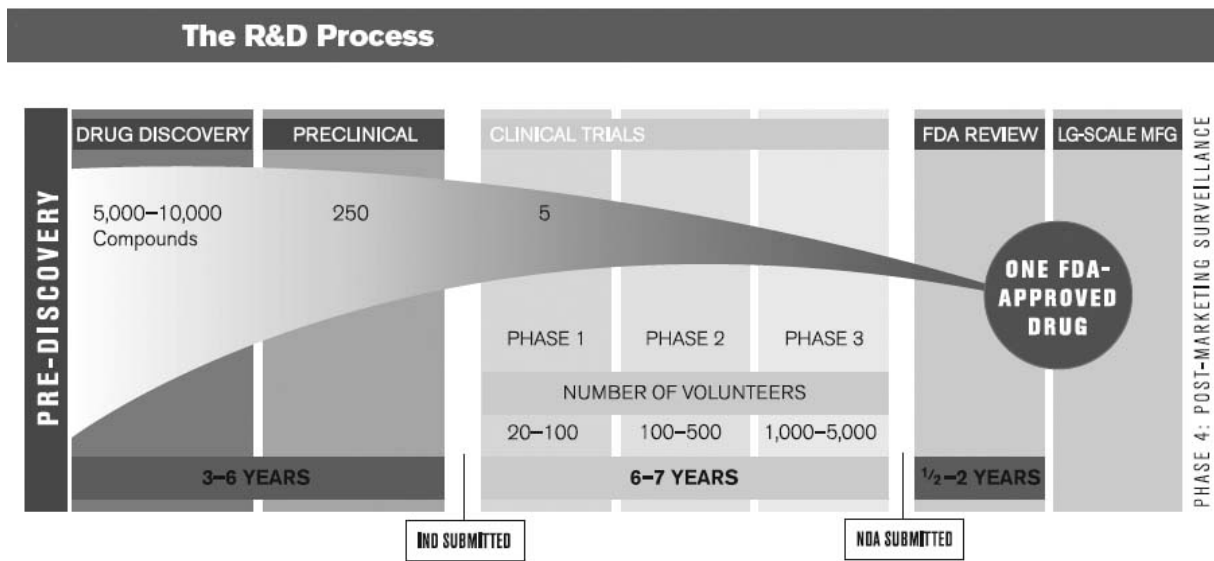[2] Bogin.nl

§1.2 Background

1.2.1. Launching a drug

Because of the structure and complexity of the pharmaceutical market, it is wise to start with a background. The pharmaceutical industry is a money-spinning market, making it a lucrative business. In the USA the profit was in 2008 almost 20% of the revenues, making it the third most profitable industry.[3] The industry is however regulated (in some country's more than others). Every country has his own institution to control the (new) drugs market. That means control over the safety and efficacy of drugs. The most well known is the Food and Drugs Administration (FDA) in the USA. The drugs in the European Union is controlled by the European Medicines Agency (EMEA). This thesis will focus on The Netherlands and thus on the EMEA.

The complexity already starts with researching and developing (introducing) a new drug into the market. As it is not only a time-consuming experience, it is also very costly. It takes an average of 12 years and 350 million dollar to get a drug from laboratory to sale ready. There are a couple of steps that has to be done before you can introduce a new drug (see figure 1 and appendix 1). These steps all take a couple of years making it long and costly to introduce a drug. Baring in mind that only 1 of the 1000 drugs will go through the third step, before it is tested on humans in the different phases. So the research and development is very valuable for a pharmaceutical. To recover these costs the price of a drug is perceived high.

The patent begins at the first stage and has a duration of 20 years. As the average R&D time before introducing is 12 years, a pharmaceutical has only 8 years to fully exploit the profitability of the drug. After the patent expires every company has the chance to introduce a drug similar as the patent protected drug (furthermore named as the branded drug or brand-name drug). This is when generics enter the market.

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[3] According to Fortune 500

Figure 1[4]

The R&D Process

	DRUG DISCOVERY	PRECLINICAL	CLINICAL TRIALS			FDA REVIEW	LG-SCALE MFG

PRE-DISCOVERY

5,000–10,000 Compounds   250   5

ONE FDA-APPROVED DRUG

PHASE 1   PHASE 2   PHASE 3

NUMBER OF VOLUNTEERS

20–100   100–500   1,000–5,000

3–6 YEARS   6–7 YEARS   ½–2 YEARS

PHASE 4: POST-MARKETING SURVEILLANCE

IND SUBMITTED   NDA SUBMITTED

1.2.2 Launching a Generic

A generic drug is a drug that is exactly the same as the brand-name drug, but can only be produced after the brand-name drug's patent has expired. Usually it is referred to as bioequivalent to the brand-name drug. In The Netherlands a company can add certain attributes to the drug, unless it effects the bioequivalence of the generic. So the benefit of generic drugs is that they aren't made from scratch, which saves lots of R&D costs. A generic drug is therefore traditionally cheaper than a brand-name drug. A literature overview concerning a generic entry is available at the end of this thesis.

In Canada prices of generics are 25% lower than branded drugs with a single generic in the segment and 50% lower if four or five generics are in the segment. The same study concluded that there was no price change in branded drug once generics come to the market (Lexchin, 2004). In some studies the prices of the branded drug even increases as generics enter the market (Frank and Salkever, 1997; Grabowski and Vernon, 1992). This means that brand drugs manufacturers don't compete in prices with generics. Caves, Whinston and Hurwitz (1991) however concluded that the price of branded drugs decline over time as more generics enter the market.

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[4] Source; PhRMA Industry Profile 2009

The launch of generics have some international differences. A comparison between the US and the European market clarifies that Europe is providing incentives to develop generic production and tries to have as little delay for market entry as possible. Less delay was accomplished due a edict by the European Commission to give generic manufacturers their own development work during a patent period (Varol, Costa-Font and McGuire 2010). The USA makes an effort to prevent manufacturers of branded drugs to delay generic launch.

The overall conclusion is that generics is best to be launched in country's with relatively high branded drug prices (such as the US, UK and Germany). In these markets the generic market is mostly mature. In Japan the delay is the largest of all markets. It takes roughly 11 years after the first adoptive country to implement a generic in Japan (Varol, Costa-Font and McGuire 2010). Also, highly regulated markets tend to adopt generic launches later.

Once a generic is launched it doesn't always means it hurts the sales of a branded drug. The loss on return is dependent on the market size and the price of the branded drug prior to the generic entry (Hudson 2000). Also, Aronsson, Bergman and Rudholm (2001) concluded that not all branded drugs were hurt after generic entry. Applying this on the Dutch market a conclusion can be made due to the small market and the price of the branded drug is on average. This states that the revenue loss for manufacturers of a branded drug is not fully hurt due to the small size of the market.

§1.3 The Dutch generic market

1.3.1. Pricing system

The Dutch market was in the eighties, comparatively with other European markets, known for its high prices and fast health care spending rising. In order to cut on healthcare spending a reference price system was introduced in 1991. They aimed to make information more transparent, to make consumers more cost-consciousness and to increase the price competition (De Vos, 1996). Brekke, Holmas and Straume (2009) concluded that the RF system reduces both brand-name and generic prices. As it also stimulates generic competition, it also reduces the market share of branded drugs (Aronsson, Bergman and Rudholm, 2001).

Drugs are allocated in certain defined clusters based on a criterion.[5] Due to the prevention policy of the government only the drug with the lowest price has to be fully reimbursed by the health insurer. A consumer who chooses for a more expensive drug has to compensate the difference. Generic drugs and new products are positioned in a cluster. New products that aren't suited for an existent cluster may be reimbursed if it is indicated for a disease for which no pharmaco-therapeutic treatment is available; if another treatment exists, the new drug may be reimbursed only if it is cost-effective relative to the alternative and if sufficient budget funds are available (Danzon and Ketcham, 2003). In this reference price system it doesn't matter if a drug has a patent or not.

1.3.2 Reasons to use generics

Consumers have no incentives to choose for a generic drug in the Dutch system. There is no co-payment. As there is no direct-to-consumer advertising, awareness can't be created. Generic substitution by the pharmacist is however allowed, considering the agreement of the doctor and consumer (Simoens and De Coster 2006). A policy was invented to remove financial incentives in selling a generic drug over a branded drug and vice versa. Pharmacists have a target rate for generic substitution, which were set by insurers.

Physicians also have incentives for prescribing a generic drug. Most of the incentives are introduced in information gatherings and conferences. This makes the incentives rather voluntary, but it makes the physician aware of generics and can result in prescribing the drug. There is a financial incentive introduced, but is currently awaiting trial due a claim by branded drug companies.

1.3.3 Market-entry

The Netherlands can set (as can every nation in the European Union) its own prices and refunding system. An upside is that this method is a good validation. But when a generic drug is set to enter the market a period of time is needed to establish the price. This period can't surpass 90 days (The Transparency Directive 89/105/EEC).[6]

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[5] It started with 5 criteria, but is eventually decreased to a single criterion.
[6] A edict introduced by the European commission.

§1.4 USA vs. The Netherlands

In this thesis both the market in the USA and the market in The Netherlands are important. A reason of difference is the regulation, with the most salient the direct-to-consumer advertising. It's prohibited in the European region, but not in the USA. This makes American patient much more aware of the different brands and generics, as information is more transparent in the USA.

This difference is very important for this research. Previous (most American) literature has a focus on markets where generics are generally known. The awareness in The Netherlands is still indistinct, making it a interesting topic to research.

The other reason is the healthcare system. There are major differences in providing healthcare. The Netherlands uses a highly regulated system whereas the private insurers receive compensation for higher risks. Along with other regulations it caused universal healthcare. The USA is far less regulated, making it a complex market. The U.S. has fragmented care, high administrative costs, and stands out with regard to heterogeneity in treatment because of race, income, and geography (Garber and Skinner, 2008).

The differences in healthcare systems is of interest, as this thesis makes use of a survey. This survey is being conducted in The Netherlands, where healthcare is universal. This assumption assures that every respondent is answering with more or less the same coverage, which gives a more nationwide result. An uninsured respondent can maybe choose for a generic, but if he was insured he would choose for a branded drug.

2. Conceptual framework

In this chapter I will explain which framework will be the red line in this thesis. The aim is to unfold what is important for a consumer when choosing a branded drug over a generic drug. So the possible drivers (or factors) has to be projected. In this research I will try to discover if marketing concepts as we know it can serve as a fundament for reasons not to choose a generic drug.

I will start with the price-quality inference. This is an interesting possible driver, because previous literature hasn't linked this principle to the choice of a drug. The second driver is the involvement of a patient in using his/her prescription drug. It is debatable if the Dutch patient is aware of the drugs that is taken. This becomes however more important in the future, baring the own-risk in mind.

Lastly, the third driver in the conceptual framework will be the efficacy of a generic drug. As previous literature predicts consumers are rather hesitant in using a generic drug, because the consumer is worried with the efficacy and safety of the drug. The last paragraph is demographics, which will be an underlying factor in this conceptual framework.

In this chapter I also will announce hypotheses alongside the development of the framework. Furthermore it is interesting to have knowledge of previous literature about the drivers and the topic in general.

§2.1 Price-Quality Inference

The first driver is the price-quality inference. This plainly says that price can work as a signal for product quality, given that quality is unobserved. Hence, if consumers do not observe product quality before purchase, they may use price, advertising, or seller reputation to infer quality (Jin, Kato 2006). Gerstner (1985) already studied if price is a signal for quality. The conclusion was that the correlation is weak. This study was however done on frequently purchased brands, making it questionable if this will also hold for medication. Advertising drugs on media is not allowed in The Netherlands and the surrounding countries, so this isn't relevant for our research.

In contrast, sellers reputation is debatable and thus a topic worth inquiring. Sellers reputation has correlation with involvement (specifically awareness), which is the second driver in the conceptual framework. Consumers don't care for the company behind the drug and thus they don't care for the sellers reputation. However to what extend this statement holds is open for debate and this thesis tries to unfold if consumers has knowledge concerning pharmaceuticals.

Consumers believe that generic prescribing will lead to a greater likelihood that a brand produced by a manufacturer without a reputation will be used (Mason and Bearden 1980). This statement implies that a generic drug is perceived as a product made by an unknown manufacturer (at least with no reputation). In this framework it is interesting to know if the reputation of a manufacturer hurts a branded drug.

This thesis will however merely investigate the relation between price and quality. As many researched the evidence of consumers buying a high-priced product over a low-priced product in relation to quality (Gabor and Granger 1966; Lambert 1970; 1972; McConnell 1968a,b,c; Peterson 1970; Stafford and Enis 1969; Woodside 1974), the pharmaceutical industry can be treated, due industry-specific characteristics, differently. There is a study that discussed the relation of generic substitution and the price-quality inference, but the findings didn't actually get nearer to an answer as the study had another purpose (Lambert et al. 1980).

The price-quality inference is thus the first driver that is linked in the framework (see figure 2). So if the consumer links price to quality, he is more likely to choose a branded drug.

This also explains **hypothesis I** :
The price-quality inference is positively related to the choice of a branded drug.

Figure 2
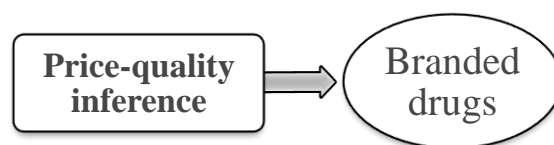
§2.2 Involvement

This brings us to the second driver; the involvement of consumers in their use of medication. It is debatable if a consumer takes effort in his/her knowledge in the drug that is prescribed by the physician. So whether the drug is of generic origin, his/her knowledge over the price, if the drug has side effects, etc. In the methodology I will divide this driver in a consumers' involvement in price and a consumers' involvement in drug use.

In this paragraph I will first establish a clear definition for involvement. Although the definitions given by different authors, are on the same line it has still an unclear meaning. Next, the influence of the own-risk on the price involvement is discussed. The last part of this paragraph will discuss the awareness of a generic drug. As direct-to-consumer advertising is not fully allowed in The Netherlands, it is questionable if consumers know of its existence.

2.2.1. Definition

It is first essential to know what involvement means. The involvement concept is introduced in mid 60's by Krugman(1965) and has had high interest ever since, especially when it comes to advertising. The general idea is that consumer behavior differs in a 'low involved' state and a 'high involved' state (Antil 1984). The concept is however defined in multiple ways making it difficult to distinguish this driver.

Over the years a lot of researchers used different angles in communicating the definition of involvement. For a overview see appendix 3. The most widespread is of Houston and Rothschild (1978). They created a 3 level description, making it easier to label a consumers involvement. The levels are the situation, the strength and the cognitive processing. In other words, it has to cause something with the consumer, the association with drugs has to be strong and the consumer has to take on active behavior.

The cognitive part of involvement can be distinct as follows: when consumers are involved, they should engage in a number of behaviors (active search, extensive choice process, active information processing, etc.); when consumers are not involved, they should not engage in these behaviors (Lauren and Kapferer, 1985). In this explanation you can clearly distinguish the difference between high and low involved consumers.

A consumers decision and information search depends on their level of involvement (Lauren and Kapferer, 1985). A low-involved consumer is less cognitive and doesn't feel associated with drugs. The consumers is therefore low-involved in drug use and more willing to choose for a branded drug.

Hypotheses II: Low involvement in (a) price and in (b) drug use is positively related to the choice of a branded drug .

2.2.2. Own-risk

There are multiple reasons for a consumer to be involved in price. The first reason is the structure of the health plan in The Netherlands. This structure makes it questionable if consumers are involved with choosing which drug to buy. A full paid plan has the lowest acceptance rate (Kendall, Simon and Schoner, 1991). Nowadays, each year a consumer has an own-risk. This says that there is an amount (165 euro in 2011) that a consumer has to pay before the insurance company will reimburse the costs of drugs and other insured services (there are exceptions). So, as the health plan is not fully paid it is interesting to elaborate more on this area.

Primary, do consumers take the 165 euro into account as costs that will be made anyway? This makes the costs of the insurance just 165 euro higher for an insured consumer. If this is not the case it could be that the consumer considers more intensively when choosing drugs or in other words the consumers will be higher involved. This thought is in line with consumers choosing a generic drug to lower their costs.

Also, as the own-risk raised last year, does it influence the involvement of the consumer. So if the own-risk rises in amount it could be possible that a consumer in a low-involvement state will develop in a high-involvement state. Consumers who are low involved aren't price conscious and are thus more likely to use branded drugs. The high involved consumers on the other hand actively search and compare the different medical treatment. They are thus more price conscious and product involved (Lichtenstein, Bloch and Black, 1988). In result they are more willing to choose for the generic drug.

Hypothesis III: A consumer who spends more than the own-risk on healthcare is more aware of the costs of his healthcare costs.

2.2.3. Existence

It is highly debatable who in fact are aware of the existence of generic drugs. In the United States this seems to be a non-issue as direct-to-consumer advertising is allowed. This also resulted in advertising on behalf of all generics in general (to make consumers aware of the existence and efficacy of the bioequivalent drug).[7] In The Netherlands the question if the consumer are aware of the existence of generics can be a relevant matter.

Not being aware of generics is a result of not checking your prescription, not caring which medication you receive (it just needs to treat the medical condition) or not checking the price. The result of not caring is the fact that consumers are not involved. Hence, when consumers are not aware of the existence of generics, they are low involved.

Another reason is the health plan structure. The structure in the United States is different than in The Netherlands (see background). In the USA co-payment is much more relevant, making consumer more aware of drugs in general. The awareness becomes stronger even more in combination with the direct-to-consumer advertising.

Hypothesis IV: High involvement in (a) price and in (b) drug use is correlated with brand awareness.

The involvement of a consumer expands our model as the second driver influencing the choice (see figure 3). If a consumer is low involved in whether to choose branded drugs or generic drugs, he is more likely to choose a branded drugs. The same holds when a consumer is high involved and he uses price as a signal to quality and when he is concerned if a generic drug is safe and effective.

Figure 3

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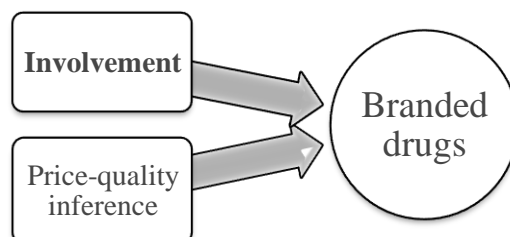
[7] See appendix 2

§2.3 Efficacy

The last driver that will complete the framework is consumers perception on the efficacy of a generic drug. This topic is already intensively researched by other studies. There is a study which concluded that at least 20% to 30% of consumers believe that generic prescription drugs are both less safe and less effective (Ganther and Kreling 2000). This phenomenon differs however in the severity of the medical condition. They found that patients with a heart condition (53.8%) are more reluctant towards generic drugs than patients who are treated with a simple cough (14.3%). They felt that choosing for a generic drug is more riskier.

But does these findings mean that those consumer who believe that generics are less safe and less effective are also choosing a branded drug over a generic drug? It is very possible that they feel as such, but their actual behavior would be using or choosing a generic. This can be the case if the price difference is too high or if the illness isn't very life threatening. I will elaborate on this part of the discussion of the efficacy of drugs.

A study by Mason and Bearden (1980) concluded that views on efficacy do not appear to be a key issue affecting wider generic practices. This implies that the driver efficacy does not influence the choice for a branded drug or a generic drug. In this research there was however no efficacy doubt found on generics by the consumers.

As a result I will investigate if there is some doubt in efficacy for generic drugs and I will then if the perception of a consumer on the efficacy of a generic drug pressures the choice of generic substitution significantly. But as this thesis explores the drivers that influence the choice of branded drug over a generic drug, the opposite will be researched. Also, as safety is a big part in the medical environment, safety[8] will be a topic of interest.

Hypothesis V: The more effective a consumer perceives a generic drug, the less negative his attitude towards generics.

The consumers perception on the efficacy of a generic drug concludes the drivers in the framework (see figure 4). If a patient is thinks that a generic drug is less effective or less safe, than he is more likely to choose a branded drug over a generic drug.

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[8] Safety will probably be correlated with efficacy. This will be further clarified in the results.

Figure 4
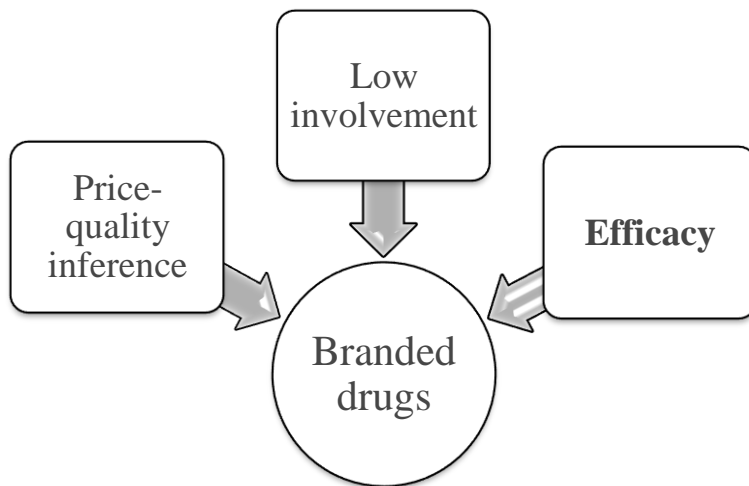
§2.4 Demographics

The demographics will be included in the model as a fourth driver. This factor can be important in choosing a drug. Demographics can have a large influence on being hesitant in using generic drugs. A consumer can choose a generic drug, because of his age, education or gender. In this research income can also be a interesting demographic. It is however correlated with age and especially education. The higher a person is educated, the more income he generates (Welch 1974).

The older an consumer is the less acceptance he is towards generics (Kendall, Simon and Schoner 1991). An older consumer is also more cautious with change and will thus more likely stay with their branded drug.

Hypothesis VI: The choice for a branded drug is positively related with the age of a consumer.

The more educated consumer will choose for a generic drug. Educated consumers think and act more rationally. Generics is the more rational choice. Generics are the same as branded drugs, but less expensive.

Hypothesis VII: A higher educated consumer is less likely to choose for a branded drug.

The difference between a female and male is an interested topic. The female e.g. makes 1.5 times more use of drugs.[9] A female has therefore a lot more to save. It is however the question which gender will more likely choose for a branded drug and if there is a difference. Kendall, Simon and Schoner (1991) found little differences between the acceptance rate of a gender. Females are however more risk averse. Their knowledge of drugs is as a result superior than the male. In line with this thought a female will more likely choose for a generic drug.

Hypothesis VIII: Man are more likely to choose a branded drug as compared to women.
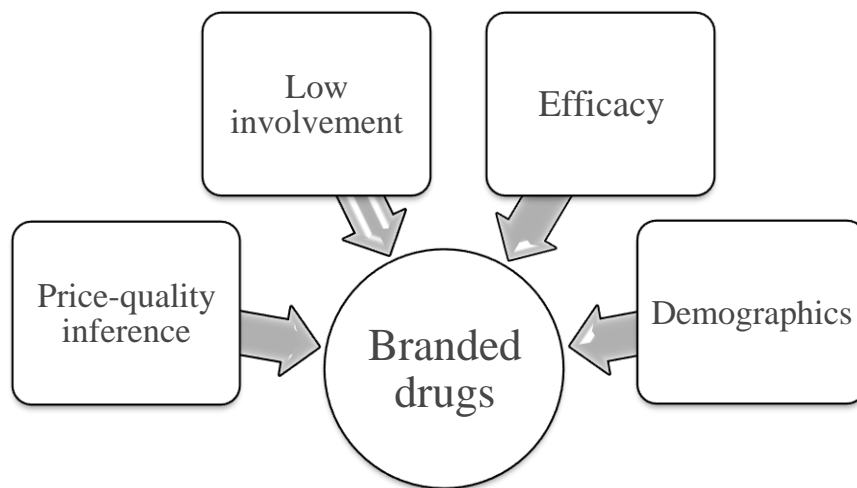

Figure 5

Figure 5 demonstrates the complete model or framework that is elaborated in the previous paragraphs. So this thesis will build on this framework as I think it is a good illustration on why consumers will choose for a branded drugs over a generic drug.

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[9] 'Stichting farmaceutische kengetallen (SFK)'

3. Methodology

In this chapter I will try to prove the conceptual framework of the previous chapter. A survey will be used to verify the model. and which will be further explained in the upcoming paragraphs. First the method of researching will be explained, then the data is being presented, followed by the results.

§3.1 Research Instruments

To put all the drivers (plus the demographics) from the conceptual framework into practice a survey will be used (see appendix 4 and the survey at the end). It is an descriptive research with the focus on hypotheses. A survey is a great tool to measure attitude, feeling and emotions. In this thesis the survey will measure the attitude of the respondents to predict their behavior. So to forecast the intentions of a consumer.

Most of the questions can be answered by a Likert scale. The Likert Scale is an ordered, one-dimensional scale from which respondents choose one option that best aligns with their view (Likert, 1932). This survey will use the commonly used 5 point scale (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree). All the questions are using this type of scaling, unless stated otherwise.

The survey contains 27 questions and is prearranged in the different drivers of the framework. The first 4 questions of the survey concerns the knowledge of the respondent. The respondent is asked if he/she has previously heard of a generic drug, if he/she thinks a generic drug is cheaper than a branded drug, if he/she uses generics (yes/no) and if he has a familiarity with certain pharmaceuticals (none to four or more). The results of these questions can tell if a consumer has knowledge of generic drugs. These questions can have correlation with the involvement of a respondent.

3.1.1 Price-Quality Inference

In order to measure the effects of the different drivers, each driver needs its own set of questions. The first driver in the conceptual framework is the price-quality inference. This tells us that a consumer links the price to quality, given an unobserved quality. Thus a higher price communicates a better product. The context of this research is generic choice. With the intention of proving the relation of the price-quality inference with the choice for generic drugs the two phenomenon's are independently questioned. With this in mind the first questions of the survey will solely be for the price-quality inference. The only relation with generics the respondent is aware of is the stated intro.

There are three questions in the survey to estimate if a respondent links price to quality. The first is a statement telling us that the higher the price, the better the quality. The respondent can agree or disagree via the Likert scale mentioned before in this paragraph. The answer to this statement tend to be enough for estimating whether the consumer follows the principle of the price-quality inference. To make this sure the follow-up statement is used; If I don't know the quality of a product, I use the price as an indicator. The third statement is whether the respondent finds it hard to measure the quality of a medicine. This question can prove that the consumers are beforehand unaware of the quality of the product (in this case drugs).

The next two questions in the survey are a part of the price-quality inference, but can be seen as a disconnected section, as it doesn't contribute the main purpose of the research. It can be combined with the last question of the knowledge section (familiarity with certain pharmaceuticals) . It signifies the sellers reputation. One determines the familiarity a consumer has with the company behind the drugs he uses and the other clarifies whether a consumer believes a honest company has a better product. The reputation of a manufacturer will clarify if a consumer finds reputation important in the pharmaceutical industry. As this section isn't the most important topic of this thesis, it's not extensively elaborated.

3.1.2 Involvement

The second driver in the conceptual framework is the involvement a consumer has with using his drug. It is hard to fully understand the involvement of a consumer, as they differ in layers. A consumer can be for example high involved with the use of drugs, this means the way of using the drugs and the attributes of the drugs. He could however be low-involved with price. In other words an consumer is not interested in the price, because for example the insurance covers the expenses. In the survey this two different topics are separated making the involvement a two-stage driver (see figure 4). Price is in the marketing a good pointer for measuring involvement, as the risk of a wrong purchase is high when the costs are high (Rothschild 1979). The drug use however can give a enhanced insight for choosing a branded drug over a generic drug.
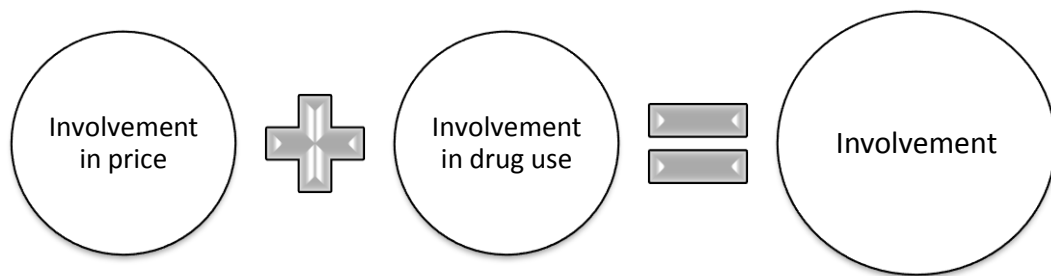
Figure 6

The survey uses multiple techniques for measuring involvement. This is because there are a lot of different ways represented in the literature in measuring involvement (see appendix 3). The main focus however is the definition of Houston and Rothschild(1970). They constructed a three-level definition for involvement; the situation, the strength and the cognitive processing. The questions and statements in the survey will reflect these three levels of involvement.

The price stage in measuring involvement has five statements where the participants have to respond via the Likert scale. I will use the own-risk to indirect measure the involvement of a respondent in price. Two statements concerning the own-risk inquires whether a consumer spends more in healthcare than the own-risk of 165 euro (yes/no) and whether a consumer has always spend more on healthcare than the 165 euro. The other two statements concerning the own-risk inquires whether a consumer is more aware of the price since the own-risk and whether a consumer pays more attention on the price, because of the own-risk. These questions can also give an insight of the impact of the recently introduced own-risk.

The last question concerning the price of a drug is whether a consumer pays attention on the price of his prescription drugs. This part of the survey is in line with the cognitive process. An experiment by Zimbardo(1960) gives me the chance to further outline the cognitive process. In choice or attitude change experiments highly involved subjects were led to believe that they would have to make a public stand on their opinion in front of a group of spectator (Lauren and Kapferer 1985). This occurrence is researched by the statement whether a respondent informs his surroundings of the drugs he uses.

These questions will give us an good view on the involvement of consumers on the price of drugs. In investigating the drug use of a respondent 4 statements pass in the survey. They will give us insight how much a consumer is caught up with using the drug. So the respondent is asked if he carefully inspects his prescription drugs, if the attributes of a medicine is important for him, if the risks of a medicine carries is important and if the respondent checks the leaflet.

3.1.3 Efficacy & Demographics

The next driver is efficacy which is extensively explained in the previous chapter (the conceptual framework). I will prove this driver with a total of four questions. The first questions the quality of a generic drug, stating that generics are of lesser quality. Second, the safety of a drug is debated. The last 2 questions involving the efficacy of a generic drug is about the perception of the effectiveness of generics in comparison with a branded drug and whether the respondent has doubts concerning the efficacy of a generic drug. This thesis also tries to unfold if there is a difference in age, education and gender. These demographics will conclude the survey.

Lastly, the dependent variable in the survey has to clarify whether a respondent will choose one type drug over the other type; "I choose a branded drug over a generic drug." This statement will reflect the opinion of the participant. He can answer with the Likert scale.

§3.2 Data

There were 152 participants who all inhabited the region of Rotterdam in The Netherlands. The respondents ranged from 17 to 70 years. Participant received a questionnaire stating that the purpose of the study was to research the distinction between a branded drug and a generic drug. In addition, participants were reminded that their responses were anonymous.

Five participants were removed from the questionnaire as their response was incomplete. Of the remaining 147 participants age is reasonably spread, with the most respondents between 21 and 35 years (31.5%). The participants are well educated as almost 75% has an education level of MBO or higher. Only 2 respondent has answered elementary school or less and both respondents are 56 years and older. Gender has a allocation of 67 (45%) male and 80 female (55%).

§3.3 Results

3.3.1. Existence

The data is present and can be analyzed. I will do this with SPSS, which is a good computer program for statistical analysis. In this paragraph the results of the survey will be analyzed and clarified.

The first statements in the survey was regarding the knowledge a respondent has about a generic drug. This can be very important as if a consumer has no knowledge concerning a certain product he can't have a opinion. So the statement telling us if a consumer knows of the existence of generics is relevant in this framework. The histogram in figure 7 shows us that the answers are more or less uniformly arranged. The most respondents are however confirming the statement.

Almost 70% (68.6%) of the respondents have replied with 3 or more. I interpreted the neither agree or disagree (3) as respondents who heard of generics somehow, but unaware of what it actually is. The intro of the survey made sure they now know what it is. The results of the other knowledge question (whether a respondent thinks a generic is cheaper than a branded drug) are similar.

Does the respondent heard of generics before?

Mean =3,23
Std. Dev. =1,275
N =153

Does the respondent heard of generics before?
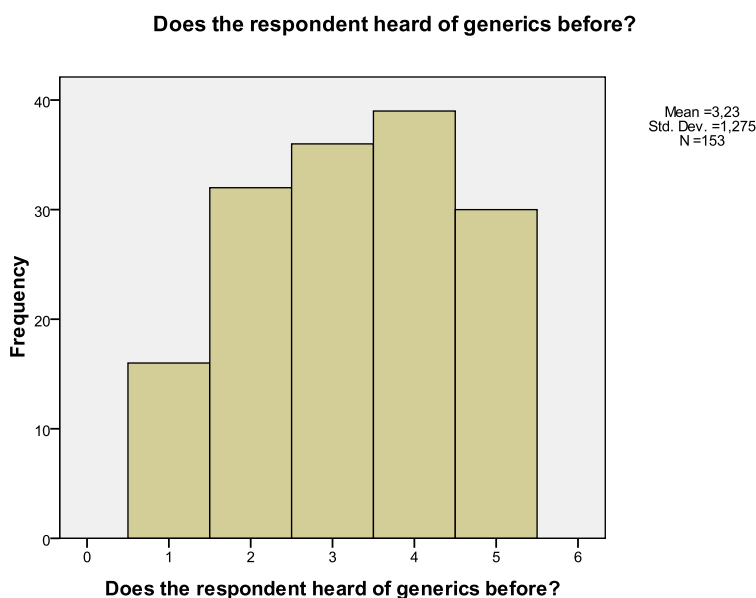
Almost 70% of the respondents clarifying that they at least have heard of a generic drug is rather surprising, as there is no effort from any involved party in The Netherlands to make awareness. There is no advertising, it isn't a regularly topic to discuss, doctors don't mention generics and health insurers make the choice for us. This observable fact can be considered surprising and as this topic exceeds the purpose of this thesis it will not be further investigated.

The existence of generics will be measured by the combination of the two knowledge questions. Respondents may have heard about generics, but can still be unaware of the principle. The second question is therefore essential. A significant positive correlation of 0.464 states a rather moderate relationship between the two questions.

Pearson Correlations		
	Heard of generics before	Generics are cheaper
Heard of generics before	1	,464[**]
Generics are cheaper	,464[**]	1
N	147	147
**. Correlation is significant at the 0.01 level (1-tailed).		

3.3.2. Factor Analysis

A factor analysis is used to confirm structure in the data (confirmatory factor analysis). This is also needed for theory testing, as I want to prove the conceptual framework. The factor analysis is done with the varimax option and 16 variables are used. The eigenvalues identified 6 factors (all above 1). The Scree Plot is less clear (see appendix 5), but 6 factors can be seen as a reasonable outcome. The factors explain 73% of the variance, which is a okay result.

Price-Quality Inference
Price Quality
Price As Indicator
Quality Perception

The first factor concerns three questions; The higher the price, the higher the quality; Price as quality indicator and; the difficulty to observe the quality of a medicine. All these questions are referring to the price-quality inference stated by me in the first paragraph of this chapter. Hence, this factor will be called the price-quality inference. A cronbach's alpha test gives a value of ,890. Which proves the underling correlation. This implies that a consumer who links price to quality also finds it difficult to judge the quality of a drug, seeing that it also proves the contrary.

Health care cost conscious, Price conscious and paying attention to the price are grouped in the second factor. These statements were presented to measure the price involvement. The first two statements are related to the own-risk, but as they are correlated with paying attention to the price it can be seen as price-involvement. A reliability test gives a cronbach's alpha of ,876.

Price-Involvement
More Cost Conscious
More Price Conscious
Pay price attention

The involvement in drug use is divided in two factors. Attributes and inspection are clustered (*correlation=,694, p=,000).* This is a logical pair as consumers who inspects a medicine is interested in the attributes of the drug. The other factor is clustered by environment and risks *(correlation=,199, p=,015)..* The correlation of these two variables is low making this new factor questionable. An explanation for this pair: if a consumer informs his environment about the drugs he uses, he is also interested in the risks. As his environment will also asks about the risks of the medicine or the consumer wants to notify/ warn about the

Attributes	Environment
Attributes	Environment
Inspection	Risks

risks. The surprise is that leaflet (if a respondent is checking the leaflet) is missing. You will see this grouped with other statements.

Efficacy is also divided in two factors. The lesser quality and safety is paired *(correlation=,172, p=,038).* This factor makes sense as if a consumer thinks a generic is of lesser quality, then the consumer is concerned about his safety. The correlation is however low. The last factor is grouped by more-efficient (branded drug vs. generic drug), efficiency-doubt (generic drugs) and leaflet. This factor is concerns initial the efficacy. The reason behind checking the leaflet is somewhat complicated. A reliability test gives a cronbach's alpha of ,498 stating a not reliable result. A satisfying reason is not easy to be found.

Safety	Efficiency
Lesser Quality Safety	Efficiency-doubt More efficient Leaflet

These six factors has made it easier to analyze the purpose of this thesis. A descriptive statistics (see appendix 6) that I've derived, tells the value a respondent has towards the factors. The mean of the different factors are more or less the same telling us that respondents find the factors equally important. The minimum and maximum values are however different. The maximum regarding efficiency is the highest and regarding the price-quality inference the lowest. This implies that consumers find the efficiency of a drug the most important factor in choosing their drug. The differences are however small.

Appendix 6 also shows the factor scores for the first 10 participants. The scores can be used in a way to evaluate the relative score of one person compared to another. A negative score means that the respondent answered lower than the average in that particular factor. Respondent number 6 scores e.g. high on the price-quality inference and attributes and so is believing the price-quality inference and is very involved with the attribute and inspection (factor: attribute) of the drug use involvement. The negative values of safety and efficiency explains that he has less doubt about the efficiency and safety.

3.3.3. Framework testing

I will first analyze the main purpose of the thesis (finding evidence for the conceptual framework). A linear regression is used to test the hypotheses on the effect of the drivers on the choice of branded drugs. Survey respondents choose answers on scales from strongly agree to strongly disagree. The established regression is displayed here.

Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	2,569*	,428
	PriceQualityInference	,462*	,085
	Price Involvement	-,112***	,085
	Attributes Inspection	-,140**	,085
	Efficacy	,214*	,085
	Environ	,015	,084
	Safety1	-,063	,085
	Age	,050	,069
	Female	,099	,168
	Education	,117	,113
***p<.20, **p<.10, *p<0.05			
Dependent Variable: BrandedDrug			

A test on multicollinearity stated no suspicion on correlation between independent variables. This is not surprising as the factor analysis is used and already discovered and grouped correlation between the different variables. The R square of this regression is low (.246). This is a result of not a large sample and the few variables that are implemented in the model. Some hidden drivers seems to be influencing the model as well. The regression gives nevertheless some insights.

As can be seen in the table the price-quality inference is tested. It shows a significant positive estimate *(b=.462, st.= .085, p=.000).* This implies that the first hypothesis constructed in the conceptual framework can be accepted. A consumer who uses the price as a signal for the quality of a product will choose for a branded drug over a generic drug. The unobserved quality is included in this variable.

Next is the involvement. This driver is divided in two parts. The price involvement has a negative effect *(b = -,214, st. = .085, p=.190)* on the choice of a branded drug. The result is however not significant. So if a consumer is high involved regarding to the price of a drug, then it is uncertain if he will choose for a branded drug or a generic drug. An rejection of the second hypothesis can be concluded, as hypothesis II stated that low involvement in price is positively related to the choice of a branded drug .

The drug use involvement is the other part of the driver. This part is separated in two factors. Inspecting the drugs and finding the attributes important has a negative effect on the choice for branded drug *(b = -,140, st. = .085, p=.101)* . The other factor (environment) is not significant, so not much can be said. This refers to an acceptance of the second hypothesis. High involved consumers in drug use are apparently more keen to choose for a generic drug. A consumer who inspects a generic drug will probably see no large differences in respect to a branded drug, resulting in the choice for the less expensive generic drug.

The third driver is efficacy, which is also divided in two part (efficacy and safety). Efficacy represents a consumer who doubts the helpfulness of a generic drug. A positive and significant estimate *(b = ,214, st. = .085, p=,013)* tells us that these respondents will be more keen in choosing for a branded drug. This is in line with our expectations and confirms hypothesis V. Safety on the other hand is not significant.

The underlying driver should have been demographics. Age, gender and education are however not significant, telling us that there is no relation between demographics and the choice of which drugs to choose. This means that there is no evidence for the last three hypothesis and thus a rejection. An independent t-test on gender and an ANOVA test on age and education (presented in appendix 7) gives however significant differences in choice between the education levels *(p=,063)*. This means that education does has an effect on the choice of drug.

Together with this I have tested six of the eight hypotheses. The outcomes of these tests have proven (or unproven) the conceptual framework.

3.3.4. Brand awareness and the own-risk

However, two more hypotheses were introduced in the second chapter. In this paragraph I will test these two remaining theories.

High involvement in correlation with brand awareness is a tricky task to examine. Simply because both issues have multiple factors influencing them. For high involvement we can use the price involvement and the drug use involvement. In the second chapter I already linked brand awareness with the sellers reputation and the existence of a generic drug. The sellers reputation is represented by 2 questions in the survey; if a respondent is familiar with the company behind the drug; and an honest company has a better product. Whether a consumer is aware of the existence is fully explained in the first paragraph of this chapter.

I will use the first question (heard of generics before) as the brand awareness. This question can be influenced by multiple factor. "If a consumers believes he uses a generic" can explain brand awareness, as does the sellers reputation questions. An regression with a R square of .400 (see appendix 8) shows us that whether a respondent believes he uses a generic drug *(b = -1.639, st. = .179, p=.000) and* sellers reputation *(b = -,137, st. = .082, p=.096 and b = -,121, st. = .071, p=.091)* are factors influencing brand awareness (both negative).

This is a odd result. It seems that if a consumer has already heard of a generic, he things he doesn't uses it. Also, the more a consumer is aware of the company behind a drug the more chance he has never heard of a generic.

Correlation		Heard of generics before	Price involvement	Attributes	environment
Heard of generics before	Pearson Correlation	1	,013	-,088	,069
price involvement	Pearson Correlation	,013	1	,000	,000
Attributes	Pearson Correlation	-,088	,000	1	,000
environment	Pearson Correlation	,069	,000	,000	1
	N	147	147	147	147

The correlation matrix above give no significant results. This result leads to a rejection of hypothesis IV. There seems to be no correlation between involvement and brand awareness. Even when significance is not taken in consideration, then still there seems no correlation between involvement and brand awareness.

The last hypothesis looks into the own-risk, which is recently compulsory by the Dutch government. The aim is to find out whether a consumer who spends more than the own risk, is more aware of the healthcare costs.

A independent t-test (see appendix 9) doesn't show a significant effect between spending more than the own-risk on healthcare since the introduction of the own-risk and the more cost consciousness since the own-risk. It seems that there is no correlation. An ordinal regression, with the first variable as the dependent and the price-quality inference factor as the independent for control gave no significance. These outcomes leads to the rejection of hypothesis III.

3.3.5. Other results

In investigating other results an ANOVA test on education and a t-test on gender in relation to the 6 factors came up with no significant results. So it seems to be that education and gender has no influence on the drivers. Age on the other hand age had two interesting outcomes (see appendix 10). Age has a significant effect on the price-quality inference and on the price-involvement. A regression then informs that age has an significant negative effect on the price involvement *(b = -,123, st. = .066, p=.062)*. The result on the price-quality inference was however not significant*(b = -,106, st. = .066, p=.110)*. Meaning the older you get, the less a consumer is involved with the price. The income is correlated with age, resulting in less price involvement as they have more funds.

Hypotheses	True/false
The price-quality inference is positively related to the choice of a branded drug.	This hypothesis is accepted
Low involvement in (a) price and in (b) drug use is positively related to the choice of a branded drug	This hypothesis is accepted for the drug use involvement. The hypothesis regarding to the price involvement is rejected.
High involvement in (a) price and in (b) drug use is correlated with brand awareness.	This hypothesis is rejected.
A consumer who spends more than the own-risk on healthcare is more aware of the costs of his healthcare costs.	This hypothesis is rejected.
The more effective a consumer perceives a generic drug, the less negative his attitude towards generics.	It seems that if a consumer doubts the efficacy of a generic, he will probably choose for a branded drug. Safety was however found not significant.
The choice for a branded drug is positively related with the age of a consumer.	This hypothesis is rejected.
A higher educated consumer is less likely to choose for a branded drug.	This hypothesis is rejected. Education seems to effect the choice between groups, but the regression came with a not significant result.
Man are more likely to choose a branded drug as compared to women.	This hypothesis is rejected

4. Conclusion

The aim of this thesis is to discover why consumers will choose a branded drug over a generic drug. It develops into a relevant topic as major cuts are introduced in the healthcare department, resulting in consumers spending more on their healthcare costs. Consumers who spend more also want more information.

Nowadays health insurers or pharmacies choose the drug for their consumer. A generic drug is mostly chosen. If a consumer wants a other drug, a co-payment is in order. But what if consumers could choose for themselves? Are they reluctant towards generics? In this thesis a conceptual framework is developed that tries to explain why consumers will choose a branded drug over a generic drug.

Three drivers and a controllable driver were considered to influence the consumer in his choice; the price-quality inference; the low involvement a consumer has in price and drug use; the suspicion in efficacy of a generic drug; and the demographics of the consumer. The results concluded only the demographics and the involvement in price as not significant. Meaning that the other three drivers are indeed manipulating the choice of the consumer.

The first driver tells us that a consumer who uses the price as a signal for the quality of a drug will rather choose a branded drug. Consumers do not have the ability to evaluate the quality of a drug. This is why consumers make use of this principle. The second driver is divided in two parts. Only the low drug use involvement consumer chooses for a branded drug. Lastly, if a consumer doubts the efficacy of a consumer, he will also rather go with the branded drug.

Furthermore, whether a consumer spends more on the own risk, doesn't make a consumer more price or cost conscious. The introduction of the own-risk itself did make the consumer both more cost and price conscious. Also, high involvement does not mean a consumer is more aware of generics.

5. Managerial Implications & Limitations

§5.1 Implications

This study contributed on why consumers are reluctant in using generics. The results provided however several implications. With these implications we must bear in mind that generics lowers the cost of a consumers healthcare. The government and the health insurers are eager to lower these costs.

That is why organizations have to take the price-quality inference into consideration, as consumers who follows this principle will rather choose for the branded drug. They have to find a way to either stop a consumer to believe this principle or make the quality of a drug observable. They can do this by more educating the consumers on the drugs. A physician can help in this matter, telling more about the prescription drugs.

This also helps in the involvement, as low involved consumers will rather choose for a branded drug. Making a consumer more involved with using their drugs could make them choose for a generic drug. Also a way to make a consumer more price involved (although price involvement is not significant), health insurers can let the consumer free in choosing their drug during the own-risk period. Consumers are then more reluctant in choosing for a branded drug as they pay for the medicine themselves.

If consumers still have doubts about the efficacy of the generics they will choose for a branded drug. This implicates that consumers need to see generics as an equal to a branded drug, at least as the same quality. Advertising could help consumer understanding the principle of generics.

As direct-to-consumer advertising is not allowed in The Netherlands (it is only allowed under certain circumstances), it is difficult to educate consumers regarding generics. However brochures and books in a physicians waiting room can enhance the knowledge of a consumer in generic drugs. The most ideal scenario is the legalization of the promotions of generic drugs. Advertisement as in appendix 2 should be great.

§5.2 Limitations

There are however some limitations regarding this research. As the researched population was small some outcomes didn't fit, demographics is a great example. Another conclusion could have been made for e.g. age if the sample was larger. The sample also wasn't ideal distributed, as the respondents were more high educated and younger. There were also more females.

Furthermore, the sellers reputation didn't fit well in the investigation. There was no link with the choice of a branded drug and with the other variables. Additional research about this topic must be made, as I still think it can be important.

The conceptual framework of choosing for a branded drug is a limitation itself. The framework didn't explain all of the variance. It seems like there is another driver(s) influencing the choice of a consumer. More research has to be made to unfold this factor or these factors. Demographics can still be a driver. Also, the explanatory value of the models in the thesis are low, which makes the results trivial.

Another limitation is that there were a lot of respondents who never heard of generics before. This made the answers of these respondents trivial. The survey had some educational intro's about generics hopefully resulting in more realistic answers.

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Literature overview, Generic drugs

Authors	Findings[10]	Method used	Empirical base
Pioneer generics			
Gupta, Sachin, Yu Yu, and Rahul Guha (2006)	The first generic entrant enjoys a substantial market share and profit advantage over the second and third generic entrant.	Nested logit model	49 drug molecules in which the pioneer brand drug lost patent protection between January 1, 1992 and December 31, 2000
Bowman and Gatignon (1996)	A late entrant does not necessarily has a lower share, but overcoming the effects of the order-of-entry is not without substantial costs.	Multiplicative competitive interaction (MCI) model	Data from five different product categories
Hollis A, (2002)	A first mover in the market has an advancement of around 30% in market share (among generics) over a period of at least 4 years.	Regression with pooled cross-section data.	31 drugs in Canada for which a generic entrant had begun to compete in the period 1994–1997.
Caves R, Whinston M, Hurwitz M. (1991)	The price of a firs-mover declines as the number of generic competitors increases. The effect of a additional generic is stronger on the price of a generic drug than on branded drugs.	Simple exploratory analysis	30 pharmaceuticals for which a generic entrant had begun to compete in the period 1976-87.
Reiffen D, and Ward M.R, (2005)	Generic drug prices fall with increasing number of competitors, but remain above long-run marginal cost until there are eight or more competitors.	Exploratory analysis	31 drugs that went off patent in the late 1980s and early 1990s

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[10] Some important findings on the highlighted topic.

**The effect of generic entry on
branded drug prices**

Caves R, Whinston M, Hurwitz M. (1991)	The price of a branded drug declines with the number of generic entrants. The decline is however small.	Exploratory analysis[11]	30 pharmaceuticals for which a generic entrant had begun to compete in the period 1976-87.
Frank R.G, and Salkever D.S, (1997)	Prices of a branded drug increase after generic entry and are accompanied by large decreases in the price of generic drugs.	Game theory	32 drugs that lost patent protection during the early to mid-1980s.
Grabowski H.G and Vernon J.M, (1992)	Prices of branded drugs remain higher than generics and even increase in nominal terms. The average market price decreases however.	Exploratory analysis	18 major products first exposed to generic competition over the period 1983-87.
Lexchin J, (2003)	Branded drugs don't change in price when generic competition starts.	Exploratory analysis	81 different products in 144 separate presentations were analyzed (Canada).
Wiggins and Maness (1994)	Increases in the number of competitors leads to a reduce in prices, even when there are numerous sellers.	Cournot model	Retail-level pharmacy transaction data for all anti-infective products over the period 1984-1990.

[11] A model is introduced, whereas this model is subjected by a regression.

The effect of generic entry on branded drug market share

Aronsson, T., Bergman, M.A., Rudholm, N., (2001)	A higher price of the original product, relative to the average price of the generic substitutes, significantly decreases the market share of 5 of the 12 branded drugs.	Exploratory analysis	12 branded drugs and its generic substitutes from 1972 to 1996.
Hudson J, (2000)	The speed with which the branded drug loses revenue would appear to be directly proportional to both the size of the market and the price of the original brand prior to generic entry.	Exploratory analysis	Drugs that covers the period 1985–1996.

Regulation and generics

Danzon P.M. and Li-Wei Chao, (2000)	Price competition between generic competitors is significant in unregulated or less regulated markets. Regulation undermines generic competition in strict regulatory systems.	Regression analysis	All drug sales through retail pharmacies between October 1, 1991, and September 30, 1992.
Brekke K.R, Holmas T.H, and Straume O.R, (2009)	Reference pricing (RF) significantly reduces both brand-name and generic prices. RP also stimulates generic competition, resulting in lower brand-name market shares.	Exploratory analysis	Sales value and volume for each package of drugs sold at the Norwegian pharmaceutical market.
Aronsson, T., Bergman, M.A., Rudholm, N., (2001)	The RF system seems to decrease the market shares of branded drugs. Also, RF system is an important determinant of the price paths	Exploratory analysis	12 branded drugs and its generic substitutes from 1972 to 1996.

Appendix 1

Development of a new drug[12]

1) Discovery
2) Research
3) End Preclinical/tox
4) End phase I
5) End phase II
6) End phase III

If the FDA gives the green light, the "investigative" drug will then enter three phases of clinical trials:

4) Phase 1 uses 20-80 healthy volunteers to establish a drug's safety and profile. (about 1 year)
5) Phase 2 employs 100-300 patient volunteers to assess the drug's effectiveness. (about 2 years)
6) Phase 3 involves 1000-3000 patients in clinics and hospitals who are monitored carefully to determine effectiveness and identify adverse reactions. (about 3 years)
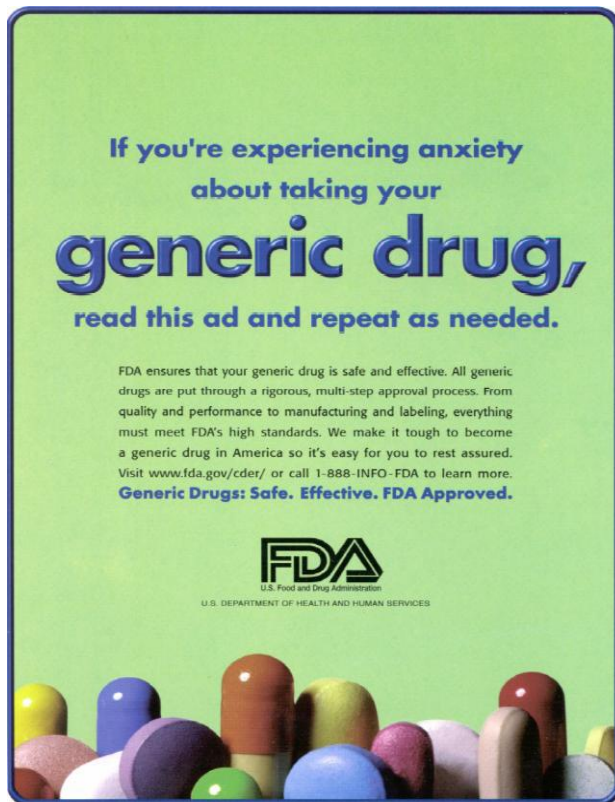
The company then submits an application (usually about 100,000 pages) to the FDA for approval, a process that can take up to two and a half years. After final approval, the drug becomes available for physicians to prescribe. At this stage, the drug company will continue to report cases of adverse reactions and other clinical data to the FDA.

The research-based pharmaceutical industry currently invests some US$12.6 billion a year in new drug development. Historically, the drug development figure doubles every five years.

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[12] http://www.drugs.com/fda-approval-process.html

Appendix 2

A typical ad from the FDA promoting generic substitution.[13]

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[13]http://www.fda.gov/downloads/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/UnderstandingGenericDrugs/UCM169285.pdf

Appendix 3

Definitions involvement up to 1981

- "The number of 'connections' conscious bridging experiences or personal references per minute, that the subject makes between this content of persuasive stimulus and the content of his own life." (Krugman, 1966)

- "The general level of interest in the object or the centrality of the object to the persons ego-structure" (Day, 1970)

- "A direct outgrowth of the potential or rewards the product holds for the consumer." (Bowen and Chaffee, 1974)

- "Strength of the individuals believe system with regard to a product or brand." (Robertson, 1976)

-
    1) Situational involvement – "The ability of a situation to elicit from individuals concern for their behavior in that situation."
    2) Enduring Involvement – "Reflects the strength of the preexisting relationship between an individual and the situation in which behavior will occur."
    3) Response involvement – "The complexity or extensiveness of cognitive and behavioral processes characterizing the overall consumer decision process

      (Houston and Rothschild, 1978)

- "An individual level, internal state variable that indicate the amount of arousal, interest or drive evoked by a particular stimulus or situation." (Mitchel, 1979)

- A low involvement product class is one of which most consumers perceive little linkage to their important values and is a product class where there is little consumer commitment to the brands." (Lastovioka, 1979)

- "In high involved situations, the persuasive message under consideration has a high degree of personal relevance to the recipient, whereas in low involvement situations, the personal relevance of the message is rather trivial." (Petty and Cacioppo, 1981)

- "An unobservable state reflecting the amount of interest, arousal or emotional attachment evoked by the product in a particular individual." (Bloch, 1981)

Appendix 4

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Heard	147	1	5	3,24	1,280
Cheaper	147	1	5	3,41	1,145
Using	147	1	2	1,33	,473
Pharmaceuticals	147	1	4	1,74	,631
Price Quality	147	1	5	3,05	1,115
Price As Indicator	147	1	5	3,14	1,176
Quality Perception	147	1	5	3,20	,991
Company Awareness	147	1	5	2,45	1,048
Honest Company	146	1	5	3,18	1,230
SpendmoreOwnrisk1	143	1	2	1,20	,398
SpendmoreOwnrisk2	143	1	2	1,27	,443
More Cost Conscious	147	1	5	3,24	1,149
More Price Conscious	147	1	5	3,25	1,158
Inspection	147	1	5	3,10	1,100
Pay Attention	147	1	5	3,14	,991
Environment	147	1	5	3,87	,938
Attributes	147	1	5	3,19	1,178
Risks	147	1	5	3,44	,966
Leaflet	147	1	5	2,95	1,109
Lesser Quality	147	1	5	3,08	1,150
Safety	147	1	5	3,16	,973
More Efficient	147	1	5	3,23	1,079
Efficacy Doubt	147	1	5	3,35	,842
BrandedDrug	147	1	5	3,12	1,128
Age	147	1	5	2,93	1,250
Female	147	0	1	,54	,500
Valid N (listwise)	142				

Education				
	Frequency	Percent	Valid Percent	Cumulative Percent
Elementary or lower	2	1,4	1,4	1,4
High School	36	24,5	24,5	25,9
MBO	66	44,9	44,9	70,7
HBO/WO	43	29,3	29,3	100,0
Total	**147**	**100,0**	**100,0**	

Appendix 5

Scree Plot
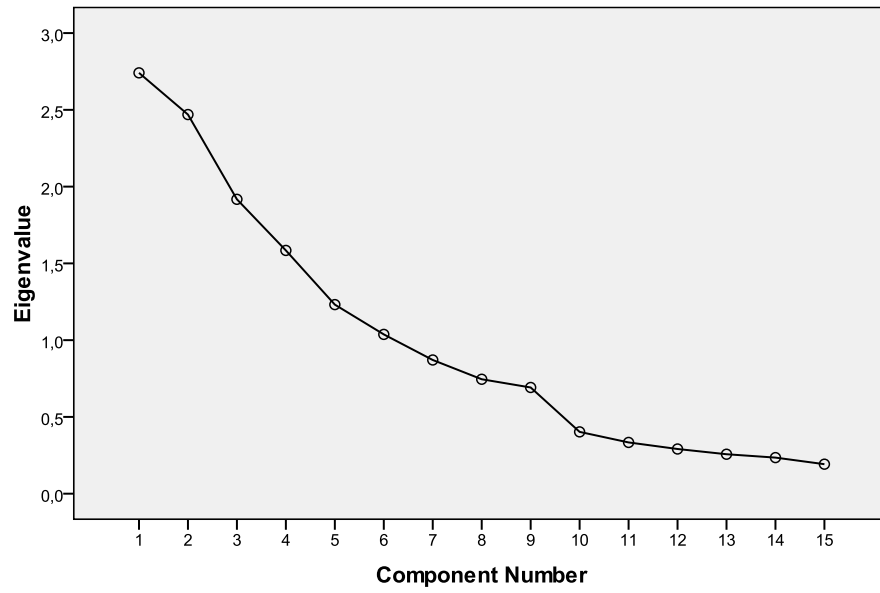
Appendix 6

Descriptive Statistics			
	N	Minimum	Maximum
Price-Quality Inference	147	-2,29897	1,93204
Price-Involvement	147	-2,34469	1,98538
Attributes	147	-2,31110	2,21128
Environment	147	-2,46312	2,15751
Safety1	147	-2,36183	2,08840
Efficiency	147	-2,32435	2,59595

Case Summaries[a]						
	Price-Quality Inference	Price-Involvement	Attributes	Environment	Safety	Efficiency
1	,90801	-,23284	1,56637	,36705	,29067	,55514
2	-1,19836	-,41774	,18445	-1,98983	,86362	-,77946
3	-,78832	,61547	,10255	-1,01051	1,19036	-,36614
4	-,27912	,02508	-1,54680	-,81871	,78506	,94568
5	1,58383	,18737	-,87151	-,25098	1,00910	-,35783
6	1,69823	,17183	2,19500	,87736	-,80348	-,66516
7	-1,04858	-1,08640	,95577	,62984	-1,04177	-,81195
8	-,15376	,54469	,39531	,09910	,76262	,31397
9	-,67180	,24695	,90227	-1,99000	,94155	1,35713
10	1,14857	,28763	,44014	,75689	,49838	1,11407
a. Limited to first 10 cases.						

Appendix 7

Independent Samples Test, Gender(1:female, 0:male)					
		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
BrandedDrug	Equal variances assumed	,251	,617	,176	145
	Equal variances not assumed			,176	138,380

		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
BrandedDrug	Equal variances assumed	,860	,033	,187
	Equal variances not assumed	,861	,033	,188

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
BrandedDrug	Equal variances assumed	-,337	,403
	Equal variances not assumed	-,339	,405

Anova: age

ANOVA					
BrandedDrug					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3,864	4	,966	,754	,557
Within Groups	181,932	142	1,281		
Total	**185,796**	**146**			

Anova: education

ANOVA					
BrandedDrug					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9,206	3	3,069	2,485	,063
Within Groups	176,590	143	1,235		
Total	**185,796**	**146**			

Appendix 8

Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	6,060*	,503
	Using	-1,639*	,179
	Farmaceuticals	,055	,136
	CompanyAwareness	-,137**	,082
	HonestCompany	-,121**	,071
a. Dependent Variable: Does the respondent heard of generics before?			

APPENDIX 9

Group Statistics					
	SpendmoreOwnrisk2	N	Mean	Std. Deviation	Std. Error Mean
MoreCostConsious	Yes	105	3,33	1,107	,108
	No	38	3,00	1,273	,207

Independent Samples Test				
		Levene's Test for Equality of Variances		t-test for Equality of Means
		F	Sig.	t
MoreCostConsious	Equal variances assumed	1,129	,290	1,528
	Equal variances not assumed			1,430

		t-test for Equality of Means		
		df	Mean Difference	Std. Error Difference
MoreCostConsious	Equal variances assumed	141	,333	,218
	Equal variances not assumed	58,431	,333	,233

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
MoreCostConsious	Equal variances assumed	-,098	,765
	Equal variances not assumed	-,133	,800

APPENDIX 10

ANOVA		Sum of Squares	df	Mean Square	F	Sig.
Price-Quality Inference	Between Groups	10,254	4	2,564	2,682	,034
	Within Groups	135,746	142	,956		
	Total	146,000	146			
Price-involvement	Between Groups	8,792	4	2,198	2,275	,064
	Within Groups	137,208	142	,966		
	Total	146,000	146			
Attributes	Between Groups	3,050	4	,763	,757	,555
	Within Groups	142,950	142	1,007		
	Total	146,000	146			
Environment	Between Groups	,361	4	,090	,088	,986
	Within Groups	145,639	142	1,026		
	Total	146,000	146			
Safety 1	Between Groups	1,084	4	,271	,266	,900
	Within Groups	144,916	142	1,021		
	Total	146,000	146			
Efficiency	Between Groups	,714	4	,179	,174	,951
	Within Groups	145,286	142	1,023		
	Total	146,000	146			

SURVEY (DUTCH)

Welkom

Ik doe een onderzoek naar geneesmiddelen voor mijn scriptie en heb daarvoor uw hulp nodig. In deze enquête wordt een onderscheid gemaakt tussen generieke geneesmiddelen en merkgeneesmiddelen. Deze worden in de enquête verder uitgelegd. Het beantwoorden beslaat ongeveer 5 minuten van uw tijd en zou me verder uitstekend op weg helpen.

*Antwoorden zijn anoniem.

Knowledge: Weet de gevraagde wat een generieke geneesmiddel is?

Een merkgeneesmiddel is het originele geneesmiddel en is onderhevig geweest aan hoge introductie kosten. Generieke geneesmiddelen zijn geneesmiddelen met dezelfde eigenschappen als een merkgeneesmiddel, maar hebben niet de hoge kosten gehad. In de hedendaagse gezondheidszorg is een generieke geneesmiddel een belangrijk aspect geworden. De volgende vragen hebben hier betrekking op.

1. **Ik heb eerder van generieke geneesmiddelen gehoord.**
   A. Helemaal mee oneens
   B. Mee oneens
   C. Ertussenin
   D. Mee eens
   E. Helemaal mee eens

2. **Generieke geneesmiddelen zijn goedkoper dan merkgeneesmiddelen.**
   A. Helemaal mee oneens
   B. Mee oneens
   C. Ertussenin
   D. Mee eens
   E. Helemaal mee eens

3. **Ik gebruik(te) generieke geneesmiddelen.**
   A. Ja
   B. Nee

4. **Ik ken …. Farmaceutisch(e) bedrijf/bedrijven.**

   A. geen

   B. 1

   C. 2

   D. 3

   E. 4 of meer

Price-quality inference

Als u in een winkel staat, hoe beoordeelt u dan de prijs en de kwaliteit van een product? De volgende vragen hebben betrekking op deze vraag.

5. **Hoe hoger de prijs van een product, des te beter de kwaliteit**.

   A. Helemaal mee oneens

   B. Mee oneens

   C. Ertussenin

   D. Mee eens

   E. Helemaal mee eens

6. **Als ik de kwaliteit van een product niet ken, dan gebruik ik de prijs als indicator.**

   A. Helemaal mee oneens

   B. Mee oneens

   C. Ertussenin

   D. Mee eens

   E. Helemaal mee eens

7. **Het is moeilijk om de kwaliteit van een geneesmiddel te beoordelen.**

   A. Helemaal mee oneens

   B. Mee oneens

   C. Ertussenin

   D. Mee eens

   E. Helemaal mee eens

Sellers reputation

8. **Als ik een geneesmiddel gebruik, dan ben ik bekend met het bedrijf achter het geneesmiddel**.

   A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

9. Een eerlijk bedrijf heeft ook een beter product.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

Involvement

De eigenrisico dit jaar was 165 euro. Er wordt een stijging van 40 euro verwacht in 2012! De zorg wordt mede hierdoor dus steeds duurder. De volgende vragen hebben betrekking op de eigenrisico en over uw gebruik van een geneesmiddel.

10. Ik geef meer uit aan ziektekosten dan de eigenrisico van 165 euro dit jaar.

A. Ja

B. Nee

11. **Sinds de eigenrisico bestaat, heb ik altijd meer uitgegeven aan ziektekosten**.

A. Ja

B. Nee

12. Door de eigenrisico ben ik meer bewust van mijn ziektekosten.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

13. Door de eigenrisico let ik meer op de prijs van geneesmiddelen.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

14. Ik inspecteer zorgvuldig mijn voorgeschreven medicatie.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

15. Ik let op de prijs als ik een geneesmiddel krijg voorgeschreven.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

16. Ik vertel mijn directe omgeving over mijn medicijnen.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

17. De eigenschappen van een geneesmiddel is belangrijk voor mij.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

18. **De risico's die een geneesmiddel met zich meedraagt is belangrijk voor mij**.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

19. Ik bekijk de bijsluiter altijd zorgvuldig.

    A. Helemaal mee oneens

    B. Mee oneens

    C. Ertussenin

    D. Mee eens

    E. Helemaal mee eens

Efficacy

De volgende vragen gaan over generieke geneesmiddelen. Deze geneesmiddelen hebben dezelfde eigenschappen als een merkgeneesmiddel. Gelijkwaardige generieke geneesmiddelen kunnen wel andere niet-actieve hulpstoffen bevatten (b.v. kleurstoffen, zetmeel, sacharose etc.), maar die hebben geen therapeutisch effect. De volgende vragen hebben met uw perceptie over generieke middelen te maken.

20. Generieke geneesmiddelen zijn van mindere kwaliteit.

    A. Helemaal mee oneens

    B. Mee oneens

    C. Ertussenin

    D. Mee eens

    E. Helemaal mee eens

21. Generieke geneesmiddelen zijn veilig.

    A. Helemaal mee oneens

    B. Mee oneens

    C. Ertussenin

    D. Mee eens

    E. Helemaal mee eens

22. Een merkgeneesmiddel is effectiever dan een generieke geneesmiddel.

    A. Helemaal mee oneens

    B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

23. Ik betwijfel de effectiviteit van een generieke geneesmiddel.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

24. Ik verkies een merkgeneesmiddel boven een generieke geneesmiddel.

A. Helemaal mee oneens

B. Mee oneens

C. Ertussenin

D. Mee eens

E. Helemaal mee eens

Demografische kenmerken

25. Leeftijd (jonger dan 20, 21-35, 36-45, 46-55, 56 en ouder)

26. **Geslacht** (man/vrouw)

27. Opleiding (basis onderwijs, middelbaar onderwijs, MBO, HBO/WO)

Einde

Bij deze wil ik u bedanken voor deelname aan deze enquête.