

Master Thesis Report
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E-Pharmacy
– A tranquilizer for seniors?

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Abstract

“E-Pharmacy – A tranquilizer for seniors?”

This exploratory research was written as a part of my International Master of Science in Business Administration, fall 2011 - spring 2013.

Above all, this paper aims at providing some insights into this increasingly important market segment “seniors” but also a better comprehension and suggest that different strategies have to be developed by pharmacies in order to satisfy this particular population.

The findings are consistent with previous research on senior consumer behaviour, and address new topics as their interest in e-commerce and the impact of cognitive age on their willingness to adopt the online pharmacy.

Oslo, August 2013

Hortense Lasserez

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Preface

I have enjoyed this individual work and its challenges throughout the process. However, I would not have been able to do it on my own.

This is why, I would like to take this opportunity to express my appreciation for all support and assistance I have received during this research study starting with my supervisor: Erik Olson for his precious feedback. I would also like to thank BI Oslo and FCEE-Católica of Lisbon for teaching me their knowledge but also values during those two last years, both truly help me to carry out my research in a very complementary way.

My appreciations go as well to my family and friends for encouraging me and helping me as much as they could and for volunteering during the questionnaire and focus group. A final thank you to my grandmother, my inspiration for this thesis and to all endearing people that are seniors.

1. Introduction

1.1. Background

It is expected that by 2050 one-third of the population of developed countries will be at least 60 years old (Sudbury and Simcock 2009). The phenomenon of aging is more profound in France as already a third of its population is over 50 years old. This fast growing generation is thus becoming more and more affluent. Besides, their attention to welfare increased as their purchasing power improved. It would be however problematic to omit their limited mobility due to their decreasing physical and sometimes mental capacity. Seniors are more vulnerable to sickness, injuries but also to diseases typical for their age such as Parkinson. They are also likely to feel uncomfortable and even fear the “out-of-home” world. If medical services are offered at home i.e., doctor or nurse visits, elderly still need to go to the pharmacy to get their medication. This can prevent them to purchase those items and lead to worsen their situation. Some regular issues linked to the aging do not even require any prescription.

A solution to avoid this problem would be to embrace the booming tendency of purchasing online. In other words, elderly could simply buy their drugs in front of their screen with e-commerce. This would represent a voluminous market opportunity as France is one the biggest medicine consumer in Europe and seniors highly contribute to this fact. 48.5% of prescriptions are delivered to people over 50 year-old (INSEE 2008). Internet is moreover invading every sector including the medical one. People nowadays are increasingly disposed to search online sickness related to their symptoms and the necessary medicine to cure them (INSERM 2007).

1.2. Motivation

This paper is aimed at marketers, pharmaceuticals companies and pharmacies willing to sell online but also at the government that might consider allowing a broader range of medical items to e-commerce. It reviews literature in marketing, consumer behaviour, psychology and law but also on innovation. The theoretical framework rests on innovation adoption by elderly, which is a neglected segment in the literature. Certainly, researchers tend to focus on

younger people as it is assumed that seniors will be less likely to adopt an innovation due to their strong habits (Cuddy et al. 2005).

The exploratory research type was chosen since E-pharmacy is a process innovation and therefore, it is problematic at a preliminary stage (Earl, Babbie 2007). Besides, another characteristic from this type of research is the difficulty to get information about the targeted population so that it allows general research questions and hypothesis constructs. This study investigates whether elderly would use the online version. It also attempts to analyse which types of pharmaceutical items seniors would be more willing to buy and explore possible differences between seniors depending on their environment as well as on their cognitive age. One should not only consider this mature segment based on their chronological age, but also on their perceived age as it might explain elderly potential interest and adoption speed of the E-pharmacy. One could conjointly claim that there is a need for theoretical contributions about senior consumer behaviours with regards to e-commerce. A last important aspect is this research has not been treated in the French literature so far.

1.3. French market

1.3.1. E-commerce:

The electronic commerce is the buying and selling of products and services via electronic system like Internet. In modern society e-commerce is an increasing purchasing trend.

It is a real success in France. The revenue generated by B2C e-commerce increased by 20% in 2012 representing 46 billion euros. France is the third-largest e-commerce market in Western Europe with 26.5 million of digital users in 2012 (New Media Trend Watch 2013).

1.3.2. Pharmaceutical market:

Pharmacy is both the branch of health sciences dealing with the preparation, dispensing, and proper utilization of drugs and a place where drugs are compounded or dispensed. (Saunders 2007. Dorland's Medical Dictionary). As pointed out previously, French are among the biggest drug consumer. The older they get, more medicine they take. A study reported that 340 000 French over 70 year-old consume more than ten different drugs per month (Celtipharm, 3004 pharmacies investigated from July 2012 to June 2013). 20% of prescriptions include more than five various drugs, twice more than any other age category. An

alarming element is that 2,6% of seniors have handed prescription including over ten different drugs to a pharmacist. This “hyper-consumption” can lead to incompatibility of treatments and heavy secondary effects that need to be considered during the study.

1.3.2.1. Online pharmacy

Online pharmacies, also called Internet pharmacies or e-pharmacies and are pharmacies operating via Internet. The orders made by the clients are sent by mail or by shipping companies. There are nowadays 44 legal e-pharmacies over 23 000 traditional ones in France.

E-pharmacy is a process innovation i.e. “the implementation of a new or significantly improved production or delivery method. This requires significant changes in techniques, equipment and/or software” (OECD 2005). In this case the delivery method will allow a differentiated service and an improved quality of the pharmaceuticals supply.

Since 2000, Internet pharmacies have been spreading all over the world. Most of those pharmacies operate by brick-and-mortar community pharmacies. They serve consumers online and/or at the store. The most known advantages of this online service are its price competitiveness, large products offer, convenience and respect for privacy regarding the medicine to purchase lowering social risk. Clients that need drugs or other medical items might be demanding costumers but also homebound, physically weak or vulnerable to virus. Moreover, pharmacy stores might be implemented far from home and yet, it becomes difficult for them to drive as their reflex and vision abilities decrease.

Online pharmacies are common in Canada, United States or United Kingdom for examples. However, in France, it is a recent topic and the law concerning the sale of medicine online is more restrictive. In December 12th 2012, The French Health Minister Marisol Touraine presented an order allowing the sale of medicine that do not require any prescription on Internet within France and under certain circumstances. Only pharmacists having the license to create a physical pharmacy have the permission to sell online. The decree came into effect July 12th 2013. Even though, the French “Order of Pharmacists” estimates this order as dangerous.

Indeed, there are three types of Internet pharmacies:

- E-pharmacy selling all types of drugs including prescription drugs i.e., requiring a valid doctor prescription, not allowed in France.
- E-pharmacy selling over-the-counter pills and “para-pharmaceutics” products as hygiene and beauty items, recently allowed in France.
- E-pharmacy selling prescription drugs without requiring a prescription, not allowed in France.

The third one especially is controversial. In France, eleven fraudulent E-pharmacies coming from Russia, Belgium and Spain are being sued.

The potential consequences are widely known as the absence of improvements of the person condition, worsening due to an incompatibility of the medication with other treatment or physiology and the development of the drugs black market. Surely, the sale of out-dated, substituted or counterfeit medications by fraudulent pharmacies is the flipside of the coin. It is also common that online pharmacies are not located in the claimed country. Minors could be tempted to order drugs without adult supervision too. Besides, pharmaceuticals can be temperature sensitive for instance and thus the shipping is another potential problem. It is also more difficult to check for potentially dangerous drugs interaction as e-commerce gives a more standardized service. E-pharmacy can hardly be as tailored to the clients as in over-the-counter situation. Finally, it is not possible to get the product purchased right away so there is no “instant gratification” for the customers (Martin et al. 1994). This means the items bought should not be for an urgent purpose.

Taking into consideration E-pharmacy pros and cons, French seniors are the ones evaluating and deciding to adopt or reject this innovation. According to a survey, 3% of French people did order pharmaceutical items online (IPSOS, 2012). 17% of respondents said they were ready to buy medicine online. The main motivation for those people would be the attractive pricing (50%), followed by the non-obligation to present a prescription (38%).

2. Research questions

The research objective is to find out if E-pharmacy can comply with senior expectations and needs despite their little experience with e-commerce. It also aims at better understanding contemporary seniors and their behaviours in an online shopping context.

What are the elements that could bring seniors to switch to E-pharmacy?

In this study, one is interested to know which attributes of the service would improve the willingness to use the e-pharmacy: promotional advantages of E-pharmacy, products and services delivered on the platform -for instance, over-the-counter products only or all types of pharmaceutical items- but also pharmacist advice related to the medication, level of sophistication/complexity regarding the innovation, security concerning the payment and personal data and most of all the price.

Which process and factors would lead seniors to use or not E-pharmacy?

Risk, uncertainty, social needs, loyalty orientation and cognitive ability might be barriers for the innovation to spread. Consequently, they need to be taken into account in the online shopping experience as they might lead to senior innovation rejection. Although, influence of word-of-mouth (WOM) and seniors aspirations and new lifestyle might be in favour of their adoption. Thereby, the study aims at giving some insights on the senior decision making process including the drivers and inhibitors.

Does cognitive age affect propensity of seniors to adopt E-pharmacy?

Seniors with younger cognitive age might adopt more easily this process innovation as they are perceived to be fast-learner and more opened to new technologies whereas older cognitive age seniors might be reluctant and have difficulties to use online pharmacy. This differentiation might be crucial to determine the E-pharmacy positioning.

3. Literature review

In this part, one first reviews the well-known theories about the diffusion of innovation of Rogers (1962) and the adoption of innovation from Gourville (2006) and introduces the concept of cognitive age. The themes of “seniors and their adaptation to the internet” and “consumer behaviours of elderly” are also discussed. A conceptual framework finalizes this review.

3.1. Theory

3.1.1. The diffusion of innovation

In 1962, Rogers contributed largely in the literature with his theory concerning “the diffusion of innovation”. He ascertains four elements influencing the spread of a new idea: the innovation, the different communication channels, the time, and finally a social system. More precisely, the diffusion of innovation relies on a large number of adoptions to sustain and needs to reach a critical mass in order to attract the most reluctant adopters. He also advances that there are five categories of adopters: innovators, early adopters, early majority and late majority and finally, the laggards. It is relevant for the research purpose to find out which category the generation “seniors” can be attributed to. Indeed, each category adopts the innovation one by one following a S-shaped curve. They also differ in their behaviours regarding to innovation. The first ones to adopt the innovation are the innovators, enjoying the venture. Then, early adopters follow increasing drastically the number of adopters. They emphasize their personal needs and are more likely to search information. The early and late majority of adopters are next, more slowly to adopt. The early majority is in contact with early adopters and are opinion leaders whereas the late majority is sceptical in regards to innovation, in contact with early majority and listen to those opinion leaders. Finally, the curve reduces his slope as the laggards adopt slower the innovation.

These two last categories seem to attach more weight to their social needs, have a lower aspiration level and search less for information. Besides, an important observation is that early adopters deal better with uncertainty than late adopters (Rogers, 1995). This implies that their decision making process is different, for instance, the late adopters might need the confirmation from their peers before adopting the innovation.

Rogers enriched his theory about the diffusion of innovation (1995) by stating five attributes of the innovation:

- The Relative Advantage of the innovation

It represents the potential outcomes that the adopters could benefit from the innovation in term of characteristics improvement, price, social prestige etc. In the case of seniors it would be mainly the convenience of not having to move to the pharmacy, the confidentiality, the potential price reductions and a wider range of products.

- The Compatibility of the innovation regarding to the adopter life

In order to use E-pharmacy, seniors might have access to a computer or a tablet connected to Internet.

- The Complexity of the innovation

The innovation should not be perceived as complicated or difficult to use. It is a real concern in our study as seniors have a decreasing cognitive ability, thus E-pharmacy should be as simple and clear as possible.

- The “Trialability” of the innovation

An innovation that can be tested is more likely to be adopted. Pharmacists or the elderly entourage could show seniors how the website works.

- The “Observability”.

An innovation that is visible has more chance to be adopted, as it will gather communication between members of a society. Online advertising, mailings and/or a computer displayed in the traditional pharmacy guarantee this.

For this research study, it is relevant to use the theories stated above in order to identify the different categories of adopters among seniors and understanding their decision-making process. Likewise, the attributes seem to be a good basis to analyse the key success factors and barriers of this online service.

However, criticisms of the model should be taken into consideration. First, technologies as Internet and e-commerce are not static, there is always improvement made in terms of Internet speed or convenience for instance and in interaction with adopters (Glanz, Rimer and Viswanath 2008). Thus, it attracts new adopters all along the S-curve. It is even argued that the S-curve is better defined as a series of “bell curves” by various groups of a population adopting different versions of this technology-related innovation (Rogers 1995). Among those groups of a population, seniors have a particular position and often ignored.

Seniors are a growing generation, which evolves very fast and becomes heterogeneous. This is why it is relevant, regarding this type of innovation studied, to integrate the concept of cognitive age. Besides, there is still a significant theoretical gap regarding the way seniors might be influenced by their peers, social networks or entities as the government but also their consumer decision making process.

3.1.2. The adoption of innovation

In the article “Understanding the Psychology of New-product Adoption”, Gourville (2006) expresses the interesting “trade-offs innovations demand”. It corresponds in what customers lose by adopting this innovation as the physical contact with a pharmacist and what customers gain, as less queuing at the pharmacy store. Gourville based his study on Kahneman and Tversky’s findings. They defined four characteristics influencing the adoption.

Firstly, people evaluate the attractiveness of an alternative based on its subjective or perceived value. Secondly, consumers evaluate new products or investments relative to a reference point, in this case the physical pharmacy. Thirdly, consumers consider improvements relative to their reference point as gains and shortcomings as losses. Lastly, people value higher losses than gains even though they are proportional, it is called “loss aversion.” The endowment effect (being attached to their pharmacist), the status quo bias or the resistance to behaviour change can explain this.

Those trade-offs are critical in senior’s decision to use E-pharmacy and thus should be included in the research. Nonetheless, Internet pharmacy is a process innovation i.e. it is not the medication itself but the distribution channel that should be compared and evaluated. This differentiation is essential but might not be made by elderly.

3.1.3. Cognitive Age

Based on the review of literature, it appears that cognitive age impacts the likelihood of purchasing online in variety of ways. Understanding the purchasing behaviour -online or in store- of older consumers is essential for two reasons. First, based on the current size and projected growth of the elderly market, Moschis, Curasi and Bellenger (2004, 132) affirm, “their needs, wants, and expectations will come to dominate marketing strategy.” Second, there is evidence that elderly differ from younger adults in term of consumer behaviour.

Previous studies treating the topic of seniors and Internet rely all on chronological age. This can be problematic as it has been proved that the chronological age as a demographic variable is limited in its ability to reflect the full dimensionality of someone's age (Jacqueline K. Eastman and Rajesh Iyer, 2005). Chronological age does not correlate perfectly with functional age, i.e., two people may be of the same age, but differ in their mental and physical capacities. It is even more accurate for the elderly. It was found seniors have a strong tendency to perceive themselves as younger than they actually are i.e. than their chronological age (Blau 1956, 1973; Peters 1971; Rosow 1967, 1974). Moreover, the ones that see themselves as younger are more likely to be innovative (Blau 1973). They tend to reject traits of character and attitudes/behaviors related to their chronological age (Havighurst and Albrecht 1953; Tuckman and Lorge 1958; Blau 1956, 1961; Tuckman and Lavell 1957; Tuckman et al. 1961; Barak et al. 1981).

This is why the concept of cognitive age was introduced in the research model within Rogers's framework. It is the determination and measurement of self-perceived age and works as an alternative to chronological age. There is a clear link between cognitive age and values as for instance "security". This value is the second most important for seniors after "self-respect," this could obviously influence their purchasing behaviour (Lynn Sudbury and Peter Simcock 2009). In the same way, Schiffman and Sherman (1991) proved before the relevance of the concept of new-age elderly that contradicts the traditional elderly image in terms of values. The first ones, more independent and actors of their life, this may impact their decision to adopt this process innovation.

Besides, if cognitive age is not receiving much attention in innovation adoption, consumer behaviour, and marketing research, marketers start to agree self-perceived age should substitute chronological age and thus should be added to the observation (Barak et al., 1981; Barak and Stern 1986). As examples, seniors with a younger cognitive age use more Internet than seniors with an older cognitive age and older cognitive are more brand loyal than younger cognitive age (Eastman and Iyer 2005). Szmigin and Carrigan (2000) nevertheless attested that there is no significant evidence that "consumers with lower cognitive ages would be more likely to show innovatory behaviour", going against Blau conclusions. It seems consequently imperative to realize own calculations specifically on the E-pharmacy.

3.2. Focus on seniors

3.2.1. Seniors and their adaptation to the Internet

"The population of the world is aging. We are shifting from a youth-oriented to a middle-aged and mature society" (Dychtwald 1997).

This topic has been gaining more attention recently for two reasons: On one hand, Western Europe is growing old, known as the "greying of Europe". On the other hand, the use of technology has become predominant. Internet has turned the society upside-down, and is now part of most people daily life – according to Internet World Stats (2012) Italy, Germany, France or UK have more than 8 out of 10 people are connected.

As addressed previously, elderly have traditionally been ignored in consumer behaviour research related to new technologies. Even though their web use is constantly increasing. Stereotypes are prevailing and marketers do not perceive seniors as digital-friendly. According to Niemela-Nyrhinen (2007), current stereotypes depict aging customers as "technology anxious and reluctant to adopt new technologies". Fear towards technology among seniors is well-known but not based on real facts (Szmigin and Carrigan 2000). Other findings are rather encouraging; Finnish Baby-boom consumers are shown to have low levels of technology anxiety and high levels of experience of Internet and SMS usage. It is also stated that technology anxiety and experience have an inverse relationship in the age group. Older consumers of today are certainly not older consumers of yesterday. There is a clear evidence of distortedness between current stereotypes and actual behaviour of the elderly.

The article "Decision Making and Brand Choice by consumers" deals with Internet usage among elderly. It is said that in order to attract and secure loyalty of seniors, websites should reduce the amount of information on the screen; *"comprehension and use of numeric information can be increased by reducing cognitive effort, that is, by providing only the most relevant information (...) in general, doing the math for decision makers rather than requiring them to make inferences"* (Cole et Al, 2008). Indeed, there need to be as few steps as possible in order not to confuse the customer.

Pew Research on Internet behaviour (2012) studied elderly and Internet. As western European countries and the U.S are increasingly adopting the same behaviour towards new technologies, this survey is encouraging with regards to the results. Older Americans are increasingly connected to the Internet and social networks, a majority of 65 and more (53%) guaranteeing using the web and e-mail for the first time. Even if the elderly are less likely than other age groups to use new technologies, the growth of users - low in recent years - has accelerated "significantly," according to the researchers. Once connected, seniors are enthusiastic and 70% use Internet every day (82% for users of all ages). The percentages fall sharply for the 75 years + (34%).

As far as this research is concerned, stereotypes about senior online behaviour were incorrect. Seniors make the best clients, and are seen as kind, friendly and patient (Cole et al. 2008). They often have higher incomes than their younger counterparts and more disposable time. When combined, these two factors are potentially profitable for marketers. If businesses are trying to boost on-site engagement numbers, seniors are an ideal demographic as well. Simplified interface and easy access to information are more valuable for seniors than other age groups, they feel in-sync with this new world and much closer from their children and grandchildren, who grew up in a digitalized world.

3.2.2. Consumer behaviour of elderly

Consumer behaviour is defined as "*the study of the processes involved when individuals or groups select, purchase, use, or dispose of products, services, ideas, or experiences to satisfy their needs and desires*" (Kotler in Mooji 2003,93). For seniors, some researches have been conducted and the following two sources are the best for the purpose of this paper.

Previous research done by Kelly Tepper (1994) has shown that elderly are more aware of their purchasing power than the younger generations. This research also showed that they do not want to be identified as elderly and they are less inclined to marketing directed to them and their age. Any discounts directed to them will be used, as long as its not directed at their age. One disadvantage of this particular research is it deals with the discount cards in the American market. Yet, it permits to infer that the questionnaire form should not emphasize on the fact it is directed exclusively to this generation.

Donald L. Potter (2010) wrote something that can be transferrable to this research. Although it is not a research paper, he pointed out some very important subjects that will be tested here. He stated that seniors are not as reluctant to try new things, as one may think. In fact, seniors are willing to purchase things that will make themselves good. They can afford to spend money on themselves after a long life of worrying about family and family spending. Although this piece of information is contributing to close gaps for senior consumer behaviour, those affirmations will be tested in the questionnaire.

3.3. Conceptual Framework

Figure 1 exhibits links between senior consumers' lifestyles, characteristics including cognitive age and values but also factors as the WOM associated with Rogers' innovation attributes (1995) to determine the E-pharmacy acceptance or rejection of seniors.

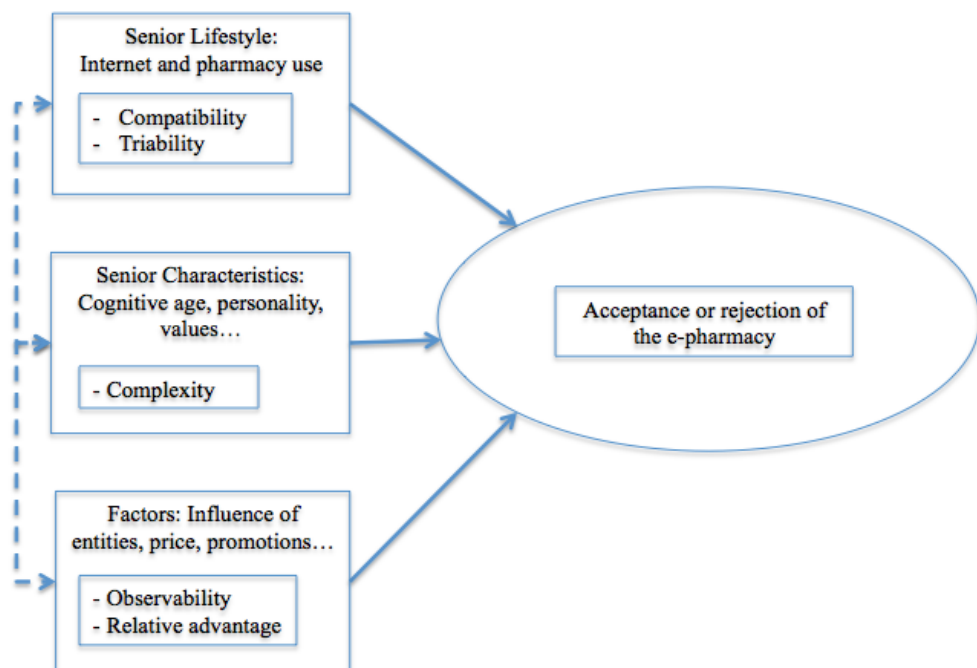


Figure 1. Conceptual Framework “seniors acceptance or refusal to adopt the E-pharmacy.

4. Methodology

This research has the intention to analyse the pharmaceutical market opportunity to set up online. First of all, a senior is defined for this research based on his/her chronological age: 50 year-old and older. In France, marketers consider people from 50 year-old as seniors because the first life changes affecting consumer behaviours appear at this age (French seniors Institute 2013).

4.1. Research Design

The research design is based on an exploratory study as it develops a problem: “Are seniors able and willing to use the E-pharmacy?” To answer this question it is indispensable to understand elderly needs and consumer behaviours regarding to pharmaceuticals and Internet but also the way their environment influences them. It requires comparing their purchasing behaviours both online and in traditional pharmacy store too. The research is based on Rogers’s theories about innovation: his four elements leading to the innovation spread, five attributes guaranteeing its success or failure (1995) and five categories of adopters (1962) while taking into consideration Gourville’s trade-offs perspective (2006). This study includes the concept of cognitive age and the environment of elderly, in this case whereas they live in a rural or an urban area but also other elements as gender, occupation, home members or revenue.

4.2. Questionnaire

4.2.1. Data Collection

This research consists on a first main part: a questionnaire conducted in French. This is to prevent any misunderstanding within the process and to be sure the research is as accurate as possible.

In order to encourage seniors to answer the survey, a printed version is delivered in retirement homes and to all seniors preferring this method. An electronic version of the questionnaire (via Qualtrics online survey tool) is sent by e-mails and on social network as Facebook and forums dedicated to seniors. The questionnaire is introduced by a little paragraph on the research objectives, guaranteeing respondent’s anonymity and not pointing out it is senior targeted. Respectively, 300 and 400 questionnaires are sent of the printed and electronic versions, in addition to the link posted on the different networks. (See Appendix 1.1.)

4.2.2. Questionnaire division

This survey has three sections. The first section includes general questions about senior purchasing and consumer behaviour regarding drugs, pharmaceutical and Internet habits. In case the person does not use Internet or does not buy online some in-depth questions are not asked. The second section is based on the concept acceptance and importance of attributes as security, time spent or comfort in general and in comparison with traditional pharmacy but also possible influence of some entities as media, pharmacist, government or entourage in the adoption decision. Eventually, the respondent age (chronological and cognitive), gender, revenue, occupation and home members are requested.

Respondents are divided into three cognitive age groups before analysing any answers. A “young”, “middle” and “old” cognitive age groups are calculated based on six and not four elements defining the concept. It seems relevant to add two dimensions impacted by the aging, “health” and “thinking” by Mathur et al. (1998) to the four-dimensions of Barak (1981). This group division permits to reckon how perceived age influence seniors in their decision making process within the research topic. (See Appendix 1.2.)

	>20s	30s	40s	50s	60s	70s	80s <
“I feel as though I am in my...”							
“I look as though I am in my...”							
“My health is as though I am in my...”							
“I do most things as though I am in my...”							
“I think as though I am in my...”							
“My interests are mostly those of a person in his/her . . . ”							

4.3. Reliability & Validity

Participants shall not be dissuaded by large amounts of questions; therefore a limited number of questions are asked. Reversely, a large number of respondents is expected to reduce margin of error.

The questionnaire is formal and simple to guarantee comprehension and enable to answer (Cole et al. 2008). The elderly interviewed have to meet some qualifications as reporting their exact chronological age and be 50 year-old or older, otherwise the outliers’ answers are invalidate.

Some flaws with this construct of study are respondents may not answer correctly, give false answers intentionally or by misunderstanding or simply not end the survey. This is an issue with most surveys overall conducted online. It is reported that surveys have a 95% confidence level plus or minus three percentage points (Ropercenter. 2012).

To get reliable data, some questions are consistent with each other and permit to verify congruence of participant's answers (Saunders, et al. 2009). The questionnaire is also tested by 10 persons prior questionnaire diffusion to check the clearness of the questionnaire and make the last improvements.

4.4. Focus Group

The second main part of this study leads to two different focus groups on their reasons to adopt or reject the innovation: E-pharmacy. The goal is getting information on elements of the website that would be relevant for them, which products and services should be delivered and how, what would make them switch definitively to the online version and understand the barriers to remove in order to guarantee its success.

This part was not planned at the beginning but resulted from a need in clarification and extension regarding questionnaire results.

A unique moderator (myself) conducts the focus groups. Two groups of 6 members are created with seniors from young, middle and old cognitive age but also from both genders, working or retired, rural and urban. This decision to take identical groups with heterogeneous profiles is to verify answers and get different focuses and freedom in the topic. It is assumed seniors have an assertive personality and will not be bothered to express their opinions in front of others. Participants were easily found, as many volunteered to help further and close entourage kindly accepted. (See Appendix 2.1.)

4.4.1. "The situational game"

"The situational game" is the starting point of the focus group. The moderator asks participants to imagine purchasing situations where they have to choose between buying both/or separately two products in a traditional pharmacy or on E-pharmacy. In this scenario, drugs are: a painkiller (P) that is an over-the-counter pill, non-vital and for a non-determined future need and a vital drug (V) requiring medical prescription and needed in a week.

Both distribution alternatives offer the same characteristics and then variants. It contributes to get more weighted and accurate answers. Further, it includes the respondents' perceptions of their own physical state, mobility in purchase situations and their use of technological devices.

- The first group (A) benefits from a lower price on the pharmacy website only while the second group (B) does not benefit from a lower price.
- The first group (A) receives free samples of cream (hand or face) on the E-pharmacy while the second group (B) do not receive free samples.
- The second group (B) has a wider range of product choice on the online pharmacy while the first group (A) has no advantage.
- The second group (B) has access to a personal account allowing a drug registry of the client with an intelligent information motor calculating the compatibility of drugs on the E-pharmacy only while the first group (A) does not have access to this.

The seniors write down their answers on a sheet of paper and hand it to the moderator. This one drafted the global results on a board without attributing any names, cognitive ages neither other data. These personal information are only used during the focus groups analysis. Seniors are allowed however to enclose their opinions and information when participating. (See Appendix 2.2.)

4.4.2. Open Discussion

The focus group continues with an open conversation on E-pharmacy content, possible elements to integrate on the website and specific concerns. The moderator shows an existing E-pharmacy website grouping 174 pharmacies offer: <http://www.1001pharmacies.com/>. As the law is very new, the website offers all pharmaceuticals products (beauty care, solar products, maternity products) except drugs. Although the tab "drugs" is already available, it is linked to a blank page with a message expressing the sale of drugs will be soon offered on the website as they are waiting for accreditation from the chartered institutions. They also specify it will be over-the-counter drugs only as the law imposes it. Finally, each respondent answers are reformulated by the moderator in order to clarify and thus avoid any biased or wrong interpretations. (See Appendix 2.3.)

5. Hypothesis

Various hypothesis were developed for this paper:

H1: Old cognitive age seniors are more loyal to their pharmacy than young cognitive age.

Old cognitive age seniors might favour long lasting relationships with their pharmacy and thus pharmacist (Eastman et al. 2008).

H2: French seniors with younger cognitive age are more probable to use Internet.

Younger cognitive age is the person, more connected to Internet he/she is (Iyer et al. 2005).

H3: French seniors with younger cognitive age are more probable to own a computer.

Younger cognitive age elderly are more likely to owe new technologies. (Iyer et al. 2005).

H4: Young cognitive age elder is more willing to adopt online pharmacy than old cognitive age.

Seniors with higher cognitive age might be more reluctant and have more difficulties to adopt this innovation due to their decreasing cognitive ability for instance (Blau 1973).

H5: Rural seniors are more willing to use E-pharmacy than urban seniors.

Seniors -often with a limited mobility- could find online pharmacy more convenient overall in rural areas where physical pharmacies are rare.

H6: Old cognitive age seniors are more willing to use Internet pharmacy if the following entities encourage them (entourage, pharmacist, media, government).

One can consider seniors need stimulation from their entourage and other entities (Rogers 1962).

H7: Old cognitive age elderly is more risk averse regarding E-pharmacy than young cognitive age.

Old cognitive age seniors value more security aspect than younger cognitive age seniors (Lynn Sudbury and Peter Simcock, 2009).

H8: Price is not determining for switching to online pharmacy in France.

As the French health system is more favourable than most countries regarding the reimbursement of doctor visits and drugs, it might be less interesting for French people to buy online at a potentially cheaper price. It has also been demonstrated that seniors are not as price sensitive as other generations.

6. Results

116 valid questionnaires were filled in and 2 focus groups of 6 persons of each were realized. (See Appendix 1.2.)

6.1. Questionnaire results

6.1.1. Descriptives

- Home members:

Home	
Live with their partner	44.7%
Live alone	31.1%
Live with their partner and/or children	15.5%
Live in retirement home	5.8%
Live with friends	2.9%

Almost half of the seniors (44.7%) live with their partner only, 15.5% with their partner and/or child/ren, 5.8% with other people of their age as in retirement home, 2.9% with a/some friend(s) and 31.1% live alone.

- Revenue:

Revenues (monthly)	
[0; 500]	2.0%
[500; 999]	5.1%
[1000; 1999]	37.4%
[2000; 2999]	29.3%
[3000; 3999]	14.1%
[4001[	12.1%

Seniors interviewed have monthly revenue: 2% less than 500 euros, 5.1% from 500-1000, 37.4% from 1001-2000 and 29.3% from 2001-3000, 14.1% from 3001-4000 and 12.1% from 4000 and more.

- Occupation:

Occupation	
Retired	62.5%
Professional activity	30.8%
Housewives/men	4.8%
Unemployed	1.9%

30.8% of elderly have still a professional activity, 4.8% are housewives/men, 1.9% are unemployed and 62.5% are retired.

- Localization:

Localisation	
Urban	67.3%
Rural	32.7%

67.3% of the seniors interviewed live in urban areas.

6.1.2. Chronological and cognitive age

Chronological age	[50-59]	[60-69]	[70-79]	[<80]
Average chronological age	55.2	64.0	74.2	85.6
Cognitive age	[n/a]	[n/a]	[n/a]	[n/a]
“I feel as though I am in my...”	51.7	60.4	69.7	81
Av. chronological age - Av. cognitive age "feel being a person of"	-3.5	-3.6	-4.5	-4.6
“I look as though I am in my...”	50.7	61.5	71.5	81
Av. chronological age - Av. cognitive age "Look like a person of"	-4.5	-2.5	-2.7	-4.6
“My health is as though I am in my...”	51	62.3	70.3	83
Av. chronological age - Av. cognitive age "healthy as a person of"	-4.2	-1.7	-3.9	-2.6
“I do most things as though I am in my...”	48.6	58.4	69.1	75
Av. chronological age - Av. cognitive age "do like a person of"	-6.6	-5.6	-5.1	-10.6
“I think as though I am in my...”	49.7	56.2	64.4	75
Av. chronological age - Av. cognitive age "think as a person of"	-5.5	-7.8	-9.8	-10.6
“My interests are mostly those of a person in his/her . . . ”	49	57.2	69.1	77
Av. chronological age - Av. cognitive age "Interest as a person of"	-6.2	-6.8	-5.1	-8.6
Average cognitive age	50.1	59.3	69.0	78.7
Av. chronological age - Av. cognitive age	-5.1	-4.7	-5.2	-6.9

All respondents are 50 year-old and more. Seniors from 50 to 59 year-old represent 25.9% (average age: 55.2 year-old). 55.1% are from 60 to 69 (average age: 64 year-old), 14.8% from 70 to 79 (average age of 74.2 year-old), 3.5% from 80 to 90 (average age 84.5 year-old) and 0.9% (one respondent) is 90 year-old. Interviewed seniors are 65.36 year-old on average. Seniors consider themselves as more than 5 years younger than they truly are. As previously seen in other studies, the biggest gap between chronological age and cognitive age is for the oldest category (over 80 year-old) with almost 7 years old difference against 5 for the youngest category (50s) (Blau 1956, 1973; Peters 1971; Rosow 1967, 1974).

When one focuses to each age perception, “thinking” gathers the most impressive difference with the chronological age, from 5.5 years less for the 50s people to 10.6 years less for the 80s and more. This gradually increases with age. Globally, 45.5% consider thinking as a person in their 50s, 23.8% in their 60s, 11.9% under 40s and 18.9% over 70s. The perception element “feeling” goes from 3.5 years cut to 4.6 years, once again increasing gradually with age. The “interests” follows the same path from 6.2 to 8.6 years less. 32% consider having his her main interests of a person in their 50s, 43% in their 60s, 19% under 40s and 6% over 70s. “Activities” are based on differences from 5 to 10.6 years lowered. 29% consider having activities mainly of a person in their 50s, 38% in their 60s, 16% below 40s and 17% over 70s. Those observations might go in favour of the adoption, as “thinking” and “activities” are determining elements.

Although there is an increasing gap depending on the age for most of the perceived statements, two of them are not that sensitive: “health” and “look” with differences going from 1.7 to 4.6 years less. The health is not so affected by self-perceived age, 27.7% consider having the health of a person in the 50s, 43.6% in the 60s, 7.9% under 40s and 17% over 70s. Seniors health aging and deterioration leads to higher medication consumption thus this lack of age differentiation is meaningful to the research.

Respondents are divided into categories: young, middle and old cognitive age based on their 6 perceived-age statements average. Young cognitive age means an average perceived age under 50 year-old, a middle cognitive age from 50 to 65 year-old and old cognitive age from 65 year-old. This was decided to get more proportional groups.

6.2. Findings & Hypothesis testing

One starts with seniors habits in term of pharmacy and Internet, to continue with acceptance or rejection of “E-pharmacy” and end by comparing both types of pharmacies.

- Pharmaceutical habits:

Seniors have increasing needs in medicine. Indeed, 58% of elderly consume pharmaceutical products everyday, almost 10% each week, 23% each month and 8.9% never do. On average, seniors go around 1, 32 times per month to the pharmacy store: 22.4% go less than once per month, mainly men, almost 40% go once, more than 25% twice, 8% three times and 3.4% four times.

There is no clear evidence of relationship between cognitive age and both drug consumption and number of visits to a pharmacy. 9% of seniors always ask advice from their pharmacist, 42% do sometimes, 37% do rarely and 12% never do and this is recurrent for each cognitive age.

Number of times to pharmacy per month	Young cognitive age	Middle cognitive age	Old cognitive age
None	4.5%	5.2%	16.7%
]0,9]	11.4%	12.9%	0.0%
[1; 1,9]	50.0%	43.6%	22.2%
[2; 2,9]	18.2%	35.9%	33.3%
[3; 3,9]	9.1%	2.6%	22.2%
[4[	6.8%	0.0%	5.6%
Total	100.0%	100.0%	100.0%
Drug consumption	Young cognitive age	Middle cognitive age	Old cognitive age
Never	15.9%	0.0%	0.0%
Every month	20.5%	34.2%	22.2%
Every week	4.5%	7.9%	27.8%
Every day	59.1%	57.9%	50.0%
Total	100.0%	100.0%	100.0%
Habits	Young cognitive age	Middle cognitive age	Old cognitive age
Always to the same pharmacy	33.3%	55.3%	72.2%
To one in particular and sometimes to others	59.5%	34.2%	16.7%
To any pharmacy	7.1%	10.5%	11.1%
Total	100.0%	100.0%	100.0%
Advice from pharmacist	Young cognitive age	Middle cognitive age	Old cognitive age
Never	9.1%	13.2%	5.6%
Rarely	36.4%	34.2%	38.9%
Sometimes	45.5%	42.1%	44.4%
Always	9.1%	10.5%	11%
Total	100.0%	100.0%	100.0%

H1: Old cognitive age seniors are more loyal to their pharmacy than young cognitive age seniors:

Seniors are relatively loyal to their pharmacies as almost half of them (48.6%) always go to the same pharmacy overall older cognitive age. 72.2% of them always go to the same pharmacy in contrast to 33.3% for the youngest cognitive age. In average, 42.2% used to go to one pharmacy in particular and sometimes elsewhere, this statement is the young cognitive age category preference (59.5%). Only 9.2% go to several pharmacies without preferences, independently of their cognitive age.

→ Pearson chi-square confirms this significant relationship between cognitive age and loyalty within 95% confidence level (Sig. value is .014).
Hypothesis 1 is accepted.

- Internet habits:

The probability seniors will accept the concept highly depends on their use of Internet. Among those using Internet, seniors spend 8h54 in average per week.

H2: French seniors with younger cognitive age are more probable to use Internet:

Use of internet	Young cognitive age	Middle cognitive age	Old cognitive age
Yes	75.0%	55.3%	16.7%
No	25.0%	44.7%	83.3%
Total	100.0%	100.0%	100.0%

More than half of the seniors interviewed (56.8%) use internet, as expected young cognitive age seniors are the biggest web users (75%), middle cognitive age ones are more balanced (55.3%) and only 16.7% of older cognitive age use internet. Besides, the youngest is the senior cognitive age the longest connected to Internet he/she is. This is the second strong difference among cognitive age and confirms the importance of this concept.

H3: French seniors with younger cognitive age are more probable to own a computer:

Computer ownership	Young cognitive age	Middle cognitive age	Old cognitive age
Yes	75.0%	55.3%	16.7%
No	25.0%	44.7%	83.3%
Total	100.0%	100.0%	100.0%

The percentages of computer ownership are similar: 75% of the young cognitive age seniors own a computer connected to Internet, followed by 55.3% for intermediate cognitive age seniors and 16.7% for old cognitive age ones.

→ Cognitive age is perfectly statistically significant in relation to both their use of Internet and computer ownership (Sig value is .00).

Both hypothesis 2 and 3 are accepted.

Number of hours spent on internet per month	Young cognitive age	Middle cognitive age	Old cognitive age
None	38.6%	59.0%	83.3%
] 0; 4]	15.8%	20.6%	0.0%
[5; 9]	20.4%	10.3%	5.6%
[10; 14]	13.6%	10.3%	11.1%
[15 [	9.0%	2.6%	0.0%
Total	100.0%	100.0%	100.0%
Purchase on internet	Young cognitive age	Middle cognitive age	Old cognitive age
Yes	70.5%	44.7%	11.8%
No	29.5%	55.3%	88.2%
Total	100.0%	100.0%	100.0%
Number of purchase online per month	Young cognitive age	Middle cognitive age	Old cognitive age
None	38.6%	64.1%	88.9%
] 0; 0,9]	9.1%	18.1%	5.6%
[1; 1,9]	18.2%	12.8%	5.6%
[2; 2,9]	22.8%	5.1%	0.0%
[3; 3,9]	4.5%	0.0%	0.0%
[15 [	6.8%	0.0%	0.0%
Total	100.0%	100.0%	100.0%

Furthermore, to get a better insight on how elderly life affects their use of Internet, here are complementary results. 75% of seniors living alone use Internet, they are the biggest web users in front of seniors living with their partner and child/ren (66.7%) and with their partner only (50%). There is no sexual difference. Half of seniors using Internet have already bought an item on the web, 70.5% of the young cognitive age seniors compared to 11.8% of the old cognitive age. Again, the youngest is the cognitive age the highest number of purchases online he/she has been made. More precisely, 34.1% of young cognitive age bought more than 2 products per month against none for the oldest ones. 75% of seniors still working have bought online, only 20% of housewives/men and 40.6% of retired people. If 60.9% of urban seniors have already used the e-commerce, only 27.3% of the rural ones did (this is an indication regarding to hypothesis 5). Seniors living with their partner and child/ren are the largest e-buyers (66%), followed by the ones that live alone (56.3%), the seniors who live with their partner (47.8%), with their friends (33.3%) and none of the people living in retirement home did buy on internet. The wealthier is the senior, the higher is the probability he/she has already bought something online, for instance, 75% of seniors with monthly income over 4000 euros did against 20% with revenue from 500 to 1000 euros.

Pharmaceutics purchase on internet	Young cognitive age	Middle cognitive age	Old cognitive age
Yes	19.4%	17.6%	0.0%
No	80.6%	82.4%	100.0%
Total	100.0%	100.0%	100.0%
Type of pharmaceutics bought online	Young cognitive age	Middle cognitive age	Old cognitive age
Eye care	16.7%	0.0%	na
Beauty care	16.7%	0.0%	na
Long duration treatment	16.7%	0.0%	na
Drugs without prescription	0.0%	33.3%	na
Intimacy products	50.0%	66.7%	na
Total	100.0%	100.0%	na

Among all seniors 16.7% bought pharmaceuticals, mainly non-drugs related: 55.6% linked to the intimacy, followed by 11% for beauty and eye care but also pills for long-duration treatment and over-the-counter drug, neither with prescription nor drugs to order in advance neither bandages. Once again, youngest cognitive age elderly are the ones having bought the most and the oldest cognitive age having never bought online. Young cognitive age seniors have bought intimacy products (50%), and equally eye care, beauty care and long duration treatment (16.7%). The middle ones have bought for one-third drugs without prescription and two third intimacy products.

The only ones that bought pharmaceutical products online are the retired (19.2%) and the ones working (16.7%) so none among housewives/men or unemployed. Those seniors are living exclusively in town, alone for 22.2%, with their partner for 18.2% and with their partner and child/ren for 10%. They have comfortable revenues and men are twice more represented.

- Concept acceptance or rejection:

As for very questionnaire concerning adoption/purchasing intentions, results need to be minimized. Seniors answering “interested” or “very interested” to the following would not obligatory buy online.

Now looking at the first question « Would you be interested by the concept now? », the result is not that optimistic: 28.3% of seniors are not interested at all by E-pharmacy, 32.3% not interested, 17.2% indifferent, 20.2% interested and only 2% very interested. Seniors favourable to online pharmacies are from 50 to 80 year-old, people in the 60s are the most enthusiastic.

Women are slightly more stimulated by the concept than men (22.9% against 18.6%). Elderly looking for a job (50%) and with a professional activity (36.7%) are the most interested, then come housewives/men (20%) and retired people (14.1%).

Following with the revenues, seniors with the highest income (>4000 euros) are only for 16.7% (very) interested, the seniors with an average income of 2000-3000 and 3000-4000 are the most likely to use E-pharmacy, being (very) interested for 37% and 35.7% respectively. The lowest income elderly are the less likely to use this concept as only 8.3% of seniors with revenue from 1000 to 2000 are (very) interested and none are with lower income.

Regarding their social situation, seniors living in a retirement home or living with friends are not interested in the concept (0%), the ones living with their partner are for 18.2% (very) interested, followed by the ones living alone (25.8%) and finally the most interested are the ones living with their partner and child/ren (31.1%). The ones very interested are for 66.7% high medicine consumer (everyday). It also gathers most of persons going several times per month to pharmacies. Seniors the least interested are for 82.4% using less than 5 hours Internet per week (compared to 22.2% among the most interested).

H4: Young cognitive age is more willing to adopt online pharmacy than old cognitive age:

Would you be interested now?	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all interested	28.6%	31.6%	22.2%
Not interested	16.7%	31.6%	72.2%
Indifferent	21.4%	18.4%	5.6%
Interested	31.0%	18.4%	0.0%
Very interested	2.1%	0.0%	0.0%
Total	100.0%	100.0%	100.0%

Young cognitive seniors are the most into the concept: 33.1% are within the « young » against none within « elders ».

→ There is a statistically significant relationship between cognitive age and interest according to Pearson chi-square (Sig. value is .006).

Hypothesis 4 is accepted.

Would you be interested moving to a less covered area?	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all interested	17.1%	18.9%	6.3%
Not interested	14.6%	13.5%	31.3%
Indifferent	12.2%	16.2%	31.3%
Interested	37.0%	51.4%	31.3%
Very interested	19.5%	0.0%	0.0%
Total	100.0%	100.0%	100.0%
Would you be interested if limited mobility?	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all interested	14.6%	15.8%	6.3%
Not interested	4.9%	10.5%	18.8%
Indifferent	7.3%	10.5%	18.8%
Interested	46.0%	52.6%	50.0%
Very interested	26.8%	10.5%	6.3%
Total	100.0%	100.0%	100.0%

In the situation the elder moves in a less covered area in traditional pharmacies: 40.2% would be interested and 9.3% very interested so almost half seniors would be favourable to E-pharmacy. There is no chronological tendency as seniors in the 50s are for 42.8% (very) interested, in the 60s 55%, in the 70s 33% and seniors in the 80s are 50%. There is nevertheless a statistically significant relationship between cognitive age and interest according to Pearson chi-square (Sig. value is .023).

Aging or injuries reducing senior physical mobility lead to even more encouraging findings. 48% would be interested in one of those two cases and 17.3% very interested, especially seniors consuming pharmaceuticals on a daily basis. As predictable, 80% of the least interested use less than 5 hours per week Internet (only 23.6% of the low internet users are very interested in the concept seniors). There is neither chronological nor cognitive age influence to those results. 72.8% of young cognitive age would be (very) interested, 63.1% for middle age and 56.3% for the older cognitive age but Pearson chi-square is insignificant (Sig. value is .327).

H5: Rural seniors are more willing to use E-pharmacy than urban seniors:

Would you be interested now?	Urban	Rural
Interested	26.9%	11.8%
Indifferent	16.4%	20.6%
Not interested	56.7%	67.6%
Total	100.0%	100.0%

Would you be interested moving to a less covered area?	Urban	Rural
Interested	53.2%	44.1%
Indifferent	12.9%	23.5%
Not interested	33.9%	32.4%
Total	100.0%	100.0%
Would you be interested in case of limited mobility?	Urban	Rural
Interested	68.3%	61.7%
Indifferent	7.9%	14.7%
Not interested	23.8%	23.6%
Total	100.0%	100.0%

(This is a simplified table; Pearson chi-square analysis is based on 5-range scale and not 3 as above. See Appendix 1.1.)

Concerning their location, urban seniors seem paradoxically more enthusiastic about the concept. For instance, 26.9% of urban elderly are interested to use online pharmacy from now on against 11.8% for rural seniors.

→ However Chi-square shows no statistically significant relationship between rural and urban seniors in their decision to adopt or reject this innovation (“being interested now”: Sig = .208, “being interested in case of moving to an area with rare pharmacies”: Sig = .281, “being interested if reduced mobility”: Sig = .182).

Hypothesis 5 is rejected.

H6: Old cognitive age seniors are more influenced to use E-pharmacy by the following entities (entourage, pharmacist, media, government):

Pharmacist influence's on your decision to use the concept	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	4.5%	7.7%	5.9%
Not important	4.5%	20.5%	17.6%
Neutral	15.9%	15.4%	17.6%
Important	47.7%	41.0%	41.2%
Very important	27.3%	15.4%	17.6%
Total	100.00%	100.0%	100.0%
Government influence's on your decision to use the concept	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	18.2%	24.3%	17.6%
Not important	20.5%	24.3%	17.6%
Neutral	15.9%	27.0%	5.9%
Important	36.4%	16.2%	29.4%
Very important	9.1%	8.1%	29.4%
Total	100.0%	100.0%	100.0%

Media influence's on your decision to use the concept	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	20.5%	36.8%	17.6%
Not important	22.7%	26.3%	23.5%
Neutral	29.5%	21.1%	23.5%
Important	27.3%	13.2%	23.5%
Very important	0.0%	2.6%	11.8%
Total	100.0%	100.0%	100.0%
Entourage influence's on your decision to use the concept	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	4.5%	10.5%	11.8%
Not important	11.4%	21.1%	17.6%
Neutral	36.4%	34.2%	11.8%
Important	27.3%	26.3%	29.4%
Very important	20.5%	7.9%	29.4%
Total	100.0%	100.0%	100.0%

In case their pharmacist was advising them E-pharmacy, 66% of the seniors would consider it (very) important in their decision-making process, overall young cognitive (75.4%) compared to old cognitive (58.8%).

The government impact less their decision to adopt this innovation, only 39.6% of the whole senior group, old cognitive age are the most encouraged: 58.8%. Media is less popular among seniors, only 24.5% consider it as (very) important, old cognitive age are the most influenced with 35.3% and the young cognitive age consider it for 27.3% as important but none as very important. Senior entourage arouse interest of 44.2% of seniors, old cognitive seniors are constant with 58.8%, younger cognitive 47.8%, and middle cognitive age seniors are the ones least influenced with 34.2%.

The pharmacist has a key role in the concept acceptance mainly for young cognitive age category. On average, social and direct contact with the senior – pharmacist and entourage- gathers more receptivity. Seniors with older cognitive age weight the influencers equally except media, the least considered by all.

→ Yet Chi-square test does not find statistically significant connection between cognitive age groups (“pharmacist influence”: Sig = .589, “government influence”: Sig = .161, “media influence”: Sig = .203 and “entourage influence”: Sig = .368) considering the significance level required at 0.05.

Government, media and entourage seem to have more influence on older cognitive age seniors than younger cognitive age, although Chi-square test shows no significant relationship with their cognitive age.

Hypothesis 6 is rejected.

- Comparison between traditional and online pharmacies:

An innovation is always compared to a reference point in this case the physical pharmacy (Gourville 2006). (See Appendix 1.2.3.)

Seniors found E-pharmacy better in term of purchase duration, 46.6% of seniors found it faster and 30.7% equal. 49% of seniors expect also a cheaper pricing and equal prices for 39%. The comfort aspect is ranked higher for 40.6% and equal for 37.6%. It looks more practical for 47.5% and the same for 34.7%. The rapidity of access to products receives a bit less positive results, 30% think it is better and 35% it is equal. 47.5% considers online pharmacy as better about the confidentiality and 33.7% thinks it is neutral however older cognitive ages perceive it as worse for 68.8%.

The principal issues and barriers to adoption might be although regarding the reliability of the products. If 48% of seniors perceive it as similar, 43.1% of them think it is worse than in traditional pharmacies. Another issue is regarding the pharmacist advice's, seniors mention it as worse for 51.5% and similarly for 35.6%. It is neither well perceived in term of confidentiality, 68.8% of older cognitive age think it is worse. Finally, the security of payment is better for only 11.9% and worse for 39.6%. One can observe that main concerns are related to the concept of risk and uncertainty.

Importance ranking	
Reliability of products	4.28/5
Payment security	4.09/5
Pharmacist advice	4.01/5
Confidentiality	3.98/5
Pricing	3.96/5
Comfort	3.75/5
Products access speed	3.70/5
Time spent	3.28/5

Those three elements are in addition higher ranked in term of importance. On a scale from 1 to 5, and in a decreasing order, reliability of the products come first (4.28), followed by payment security (4.09) and pharmacist advice (4.01), then comes confidentiality aspect and pricing (3.98 and 3.96 respectively), comfort (3.75), rapidity of access (3.70) and finally time spent (3.28) which was the element perceive as the best compared to the traditional pharmacy. Although the results go in disfavour of the concept, the grading difference is of one-point only between the best and the worst grade.

There is no evident importance differences regarding time spent, comfort and usefulness of this purchasing type. Older cognitive seniors have a slight tendency to rank higher the importance level than younger cognitive age. (See Appendix 1.2.)

H7: Old cognitive age elderly are more risk averse regarding E-pharmacy than young cognitive age elderly:

Elderly with higher self-perceived age consider more important than younger cognitive age: the rapidity of access (83.3% for older cognitive vs. 69.8% for younger cognitive age), the reliability of products (94.4% vs. 86%), at a lower degree the payment security (83.4% vs. 80%) and the pharmacist advice (87.5% vs. 83.7%). They are all related to risk aversion but also uncertainty concepts. (See Appendix 1.2.1).

The one-way ANOVA confirms this fact with the statement “I prefer to buy products I am used whether to try things I am not certain of” (taken as a continuous variable as it a 7-range scale).

→ There is a statistically significant difference between cognitive age groups ($F= 4.212$, $p = .018$), overall between young and old cognitive seniors ($p = .010$).

Hypothesis 7 is accepted.

E-pharmacy could yet improve the likelihood of adoption. 48% of seniors judge individualized advice from pharmacist (depending on the patient background) as important and 28.4% very important. The secured payment via Paypal for instance would be a significant advantage for 42.6% and very significant for 33.7% of them. Free delivery is important for 40.2% and crucial for 36.3%. It is more required by young cognitive age seniors (86.4%), than older

(76.5%) and middle cognitive (63.1%). Regarding free samples, 39.2% evaluates this bonus as important and 13.7% very important. Only 36.3% think a loyalty program is important and only 7.8% very important. This loyalty program is mainly very important for 29.4% of the old cognitive category compared to 4.5% and 2.6% for the young and middle cognitive ages. It confirms the findings that old cognitive age elderly are more into loyal relationships.

Finally, 35.9% perceive a virtual pharmacist (avatar) as important and 13.6% very important. This avatar is preferred by younger (59.1%) then middle (43.6%) and lastly by older (41.1%).

H8: Price is not determining for switching to online pharmacy in France:

Reduced price	
Not at all important	4.9%
Not important	7.8%
Neutral	10.8%
Important	53.9%
Very important	22.6%
Total	100.0%

Contrary to the hypothesis formulated, prices are decisive for seniors. Respectively 53.9% and 22.6% of seniors consider a reduced price as important and very important in their decision to buy online whether than at a pharmacy store. The price factor was also ranked as 3,96/5 for pharmaceuticals purchase. Hypothesis 8 is rejected.

6.3. Focus group results

- Website attributes:

Respondents confirm their security concern. Some websites parameters seem necessary such as a personal profile account where patients can visualize their prescription record and a forum where clients and pharmacists can communicate. Regarding the pharmacists, some customized notes inside the package box and a possibility to chat instantly with them would be considerable advantages. It should also guarantee deliveries on time and the French origin of the pharmacy.

“A forum or pharmacist available online would be nice and a little note regarding the pills usage in the package”. Martine L. (Young cognitive age)

- Drugs:

The focus group confirms the previous results on the type of drugs. Drugs over-the-counter are more attractive to seniors because they are perceived as less dangerous and are not reimbursed by the Regional Health Insurance Agency (or if the person has one, by the mutual fund). A lower price would be the most persuasive advantage of the E-pharmacy, mainly for over-the-counter pills in the example of painkillers. The wider range of products and personal account would also help the adoption but free samples much less. The personal account would also increase the probability of adoption concerning vital drugs.

“I would not buy prescription pills however I would not have problem to buy painkillers as Doplipran or other para-pharmaceuticals products”. Fabienne C. (Middle cognitive age)

“Some of the drugs I buy are very expensive and less and less reimbursed by my mutual so if online pharmacy guarantees a more competitive price I will go for it without hesitation”. Jocelyne M. (Young cognitive age)

- Favourable and worrying factors:

Most emphasize on the influence of the entourage, mainly from a younger age or pharmacist. They have to convince seniors but also to teach them how the E-pharmacy works. Government should inform on the dangers of this online version. Media (news and reportages on TV, radio and magazines) tackles issues about fraudulent websites existing and dangerous pills sold online but the government does not seem to react sufficiently on this polemic according to both focus groups.

“Only my entourage could influence me to use it, if my daughters advise it to me, or if my pharmacist shows me how it works but he never has time”. Jean-Jacques W (Old cognitive age)

“We heard a lot about this law allowing the sale of drugs online and the risks from doctors and the “Order of Pharmacist” but nothing from the government. It is a sensitive topic so they should communicate on it”. Michel H (Young cognitive age).

Except two (old cognitive age seniors), all participants affirmed having already searched online for medical advice, for examples on forums and healthcare websites. Five seniors assure they will use those websites to check the legitimacy of the e-pharmacies found online.

“ I often check online for medical advice as on doctissimo (online website; e-healthcare). It would be then convenient for me to directly order online my medication. I might however check the legitimacy of E-pharmacy on forums or on the Order of Pharmacist ” Maité H. (Young cognitive age)

- Cognitive age impact:

As predictable older cognitive age seniors show less interest as they see bigger cons –late-delivery and security concerns, pharmacist relationship- than pros.

“I enjoy my pharmacist advice, she became important in my routine”. Lucienne M. (Old cognitive age)

Seniors with young cognitive age express practical desires as a personal account or forums and give importance to range width and prices. Indeed, the price is a decisive factor in senior’s young and middle cognitive age decisions to buy online or in-store, overall for the over-the-counter pills unlike free samples.

“If prices are the same ones that in store and I need to pay the delivery I would not go buy online”. Evelyne A. (Middle cognitive age)

-In a nutshell-

E-pharmacy creates enthusiasm among certain seniors however some worries are prevailing. This process innovation needs to be approved by opinion leaders in order to get accepted by most seniors and will not substitute the traditional pharmacy in the short-term.

“I would use both pharmacy and E-pharmacy, for instance if my doctor gives me a new medication I will be more likely to go first to a physical pharmacy but if I am used to this pill, I might order it online.” Martine L. (Young cognitive age)

7. Conclusion & Recommendations

De Asis (2007) declared that understanding elderly market requires a deeper learning of their attitudes and lifestyles in order to explore effectively this lucrative segment. This was the goal of this research in an online pharmaceutical shopping context.

The study reveals how heterogeneous is this population and demonstrates that a large part of seniors are not only able to use Internet but already do it, some even purchasing online. This compatibility with senior life was certainly mandatory for the innovation adoption. It goes against the well-known myths and stereotypes about elderly that they constitute a uniform group, seeing them as old and reluctant to try new products and services (Rodriguez et al. 2008).

If seniors might not be “innovators” or “early adopters” of E-pharmacy, they could represent a growth opportunity segment (Rogers 1962). Indeed, the younger is the senior; the most probable he/she is to adopt the concept directly and it is even more obvious taking cognitive age into account. Younger cognitive age elderly are the most animated by online pharmacies. They would probably be represented in the “early majority”, slow in the adoption process but in contact with opinion leaders and/or “early adopters”, their children or colleagues for instance. Regarding older cognitive age seniors, they are more likely to be “late adopters” or “laggards”, being sceptical and asking confirmation from their peers due to higher risk aversion and loyalty attachment to their pharmacist and environment.

Nearly all seniors recognize E-pharmacy relative advantages over the traditional one. Allowing comparison between pharmacies thereby competition, seniors are aware it could benefit them in term of price, comfort but also diversity offer. This process innovation answers elderly increasing needs regarding autonomy and medication too.

The findings show innovation diffusion will take time and require influencers, favouring direct contact. Pharmacy websites must convince their entourage first and be visible online via social platform as forum or healthcare websites (Pew Research on Internet behaviour 2012). Those sites are great opportunities for e-pharmacies to operate marketing communication. The decision making process of elderly will not go through typical steps (Solomon 1996). Seniors will not gather but receive information from his/her peers or via Internet itself. He/ she will consider and value E-pharmacy by comparing it to traditional

pharmacies and feedbacks from entourage. The recognition of a problem as his/her geographical isolation or limited mobility will be decisive.

In addition, French government and the “Order of Pharmacist” are expected to warn and inform further about this innovation. The fact French law allows only physical pharmacies to create their own website might be an advantage. Seniors and mainly old cognitive age seniors are indeed loyal to their pharmacy and would feel reinsured. Pharmacists should sell their website and show clients how it works on their counter and/or display a computer in the store. It would make the innovation visible and allows trial, reducing risks of misuse.

Online pharmacies should not be targeted to seniors, as they would not be receptive (Cole et al. 2008; Tepper, 1994). Most assume being able to use this service alone in the condition someone taught them before utilization. Guarantees about in-time delivery and a French label notifying it is a legal online pharmacy website seem necessary. Seniors are attached to the French origin. As other countries, French E-pharmacies should offer personal accounts to increase security and confidentiality of clients but also allow better follow-up and extend sales to prescription pills.

The initial products that could lead to a more global use are para-pharmaceuticals as beauty and eye care items or non-requiring prescription as painkillers. It permits to familiarize seniors with the website while later, when the law will potentially allow prescription pills to be sold, seniors would be psychology ready to purchase online. In the long term long-duration treatments and drugs often out-of-stock or with release issues seem to be a real advantage of the E-pharmacy for a comfort matter mainly. Finally, intimacy-related products could represent a niche market focused on urban young and middle cognitive age seniors.

Conclusively, pharmacists should neither put aside seniors in regards to their advanced age nor to their localisation. E-pharmacies will not substitute traditional pharmacies but be for most seniors, a complementary distribution channel to buy pharmaceuticals products.

8. Limitations

As any research studies this thesis has limitations. The sample size should have been larger in order to get more representative results. This was due to the difficulty to reach French seniors, living in Norway. Elderly are not all connected to Internet or in physical and mental capacity to answer the questionnaire. They are surprisingly very asked to participate in marketing studies too, in retirement home for instance.

Some missing data mainly concerning the age was also an issue. SPSS calculations as correlations and factor analysis would have been interesting to be investigated further but unfortunately the results were not significant enough. A limited number of questions and lack of expertise regarding SPSS led to simplifying results.

Besides, senior cognitive age was difficult to define and thus might default. One of the weaknesses is that cognitive age might depend on the senior day-to-day life. An old person that had trouble to sleep the night before answering the questionnaire might be more tired than usually. Cognitive ability could also have been tested.

The questionnaire findings were not as insightful as expected thus two focus groups a posteriori were realized. It might have been relevant to do it before the questionnaire distribution in order to improve this one. Some open questions on the website characteristics and concerns around it could have been relevant to the analysis. This qualitative part, its interpretation of verbal as well as non-verbal articulations might include biases. Nevertheless, efforts were made to clarify and reformulate senior answers.

Finally, this research study is explorative. E-pharmacy concept has just been allowed in France and most pharmacies are waiting their website approval from the government. It would have been however interesting to get feedbacks of both pharmacists and senior clients.

9. Further Research

This study presents some findings that are unique to literature offering opportunities to pursue for pharmacists but also raises some interrogation on marketing and innovation adoption fields applied to seniors.

Further research could be done on the Pharmacia side to examine potential monetary and non-monetary benefits of this innovation. Yet other study could investigate how E-pharmacy can partially solve issues as recurrent “out of stock” drugs, by a better management of demand and supply.

This research has investigated senior’s consumer and purchase behaviour in online pharmacy setting. Researchers and marketers could expand digital opportunities overview among this generation. Other drivers and inhibitors to Internet access service could also be investigated relying on cognitive age and abilities to add significance to the topic. There is a need for more research about how characteristics as education, career, hobbies or culture influence elderly adoption decision-making.

Topics on eWOM and online loyalty of seniors could add significance to the topic. Future research should include young and middle-aged respondents in order to fully understand aging mechanisms.

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Questionnaire (Qualtrics):

https://bino.qualtrics.com/SE/?SID=SV_6AkHM6uqmfxEQEB

Website for the focus group:

www.1001pharmacies.com

11. Appendices

Appendix 1: Questionnaire Part

Appendix 1.1: Questionnaire

Thank you for taking the time to complete this survey about E-pharmacy. This survey should only take about 7 minutes of your time. Your answers will be completely anonymous.

1. On average, how many times are you going to the pharmacy per month? ____
Times.

2. How often do you consume pharmaceutical items (drugs, bandages,...)?
 - Everyday
 - Every week
 - Every month
 - Never

3. Which of the following propositions describes best your pharmacy shopping?
 - I always use the same pharmacy.
 - I use one pharmacy for most of my purchases, but sometimes use others as well.
 - I frequently use many different pharmacies with no favorite one.

4. How often do you ask advice from your pharmacist?
 - Always
 - Sometimes
 - Rarely
 - Never

5. Do you use Internet?
 - Yes
 - No

If “No” to question 5, go to question 9

6. On average, how many hours per week do you spend on Internet? ____ Hours.

7. Do you have your own computer connected to Internet?
 - Yes
 - No

8. Have you already shopped online?

- Yes
- No

If “No” to question 8, go to question 12

9. On average, about how many online purchases do you make per month? ____
Purchases.

10. Have you already bought pharmaceutical products online?

- Yes
- No

If “No” to question 10, go to question 12

11. If yes, which items? Select those items

- Bandages
- Eye care (contact lenses for instance)
- Beauty care (cosmetics, make-up, hair care, skin care)
- Fitness and diet items
- Long duration treatment (supplements, drugs for diabetes and allergies)
- Drugs requiring a prescription
- Drugs without prescription (over-the-counter)
- Items related to the private life (condoms, Viagra, incontinence, fertility test etc.)

The concept of E-pharmacy:

E-Pharmacies are online pharmacies. It means they are pharmacies operating via Internet. The clients can order items on an E-pharmacy website and their purchase is delivered by mailing. Popular in countries as the United States, Canada or United Kingdom, this questionnaire aims at defining if the concept of E-pharmacy could interest the French population.

12. How interested would you be in using an online pharmacy?

From now on	Not interested at all	1	2	3	4	5	6	7	Extremely interested
In case of moving in an area with rare traditional pharmacies	Not interested at all	1	2	3	4	5	6	7	Extremely interested
In case of limited mobility due to aging or an accident	Not interested at all	1	2	3	4	5	6	7	Extremely interested

13. If yes, which products would you be interesting in buying?

Not interested at all	1	2	3	4	5	6	7	Extremely interested
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Bandages	1	2	3	4	5	6	7
Eye care (contact lenses)	1	2	3	4	5	6	7
Beauty care (cosmetics, make-up, hair care, skin care)	1	2	3	4	5	6	7
Fitness and diet items	1	2	3	4	5	6	7
Long duration treatment (supplements, drugs for diabetes and allergies...)	1	2	3	4	5	6	7
Drugs requiring a prescription	1	2	3	4	5	6	7
Drugs without prescription (over-the-counter)	1	2	3	4	5	6	7
Drugs to be ordered in advance	1	2	3	4	5	6	7
Drugs sometimes out-of-stock	1	2	3	4	5	6	7
Items related to the private life (condoms, Viagra, incontinence, fertility test etc.)	1	2	3	4	5	6	7

14. On a scale from 1 to 7, how do you value E-pharmacy compared to a physical pharmacy in regards to those dimensions?

Much worse	1	2	3	4	5	6	7	Much better
------------	---	---	---	---	---	---	---	-------------

Time spent	1	2	3	4	5	6	7
Rapidity of the access of drugs	1	2	3	4	5	6	7
Comfort	1	2	3	4	5	6	7
Reliability of the products	1	2	3	4	5	6	7
Pharmacist advice	1	2	3	4	5	6	7
Price	1	2	3	4	5	6	7
Privacy	1	2	3	4	5	6	7
Practical/easiness to buy	1	2	3	4	5	6	7
Secured payment	1	2	3	4	5	6	7

15. On a scale from 1 to 7, how important are the following factors when you buy drugs?

Not important at all	1	2	3	4	5	6	7	Extremely important
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Time spent	1	2	3	4	5	6	7
Rapidity of the access of drugs	1	2	3	4	5	6	7
Comfort	1	2	3	4	5	6	7
Reliability of the products	1	2	3	4	5	6	7
Pharmacist advice	1	2	3	4	5	6	7
Price	1	2	3	4	5	6	7
Privacy	1	2	3	4	5	6	7
Practical/easiness to buy	1	2	3	4	5	6	7
Secured payment	1	2	3	4	5	6	7

16. On a scale from 1 to 7, how important would it be for you that E-pharmacy was advised by those entities?

Not important at all	1	2	3	4	5	6	7	Extremely important
----------------------	---	---	---	---	---	---	---	---------------------

A pharmacist	1	2	3	4	5	6	7
The government	1	2	3	4	5	6	7
The media (TV, newspapers)	1	2	3	4	5	6	7
Your entourage	1	2	3	4	5	6	7

17. On a scale from 1 to 7, how important would the following factors be in your decision to use E-pharmacy rather than to go to a physical pharmacy?

Not important at all	1	2	3	4	5	6	7	Extremely important
----------------------	---	---	---	---	---	---	---	---------------------

Price reduction	1	2	3	4	5	6	7
Free shipping	1	2	3	4	5	6	7
Free samples	1	2	3	4	5	6	7
Loyalty program	1	2	3	4	5	6	7
Pharmacist advice related to the patient background	1	2	3	4	5	6	7
Pharmacist avatar online	1	2	3	4	5	6	7
Secured payment-Paypal	1	2	3	4	5	6	7

18. On a scale from 1 to 7, how much do you agree with the following statements?

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
----------------	---	---	---	---	---	---	---	-------------------

Products that I purchase in pharmacies are very important to me.	1	2	3	4	5	6	7
Pharmacies are generally very similar, so it makes little difference, which one I choose.	1	2	3	4	5	6	7
I consider myself very knowledgeable about pharmacies.	1	2	3	4	5	6	7
People frequently ask me for advice about choosing pharmaceutical products.	1	2	3	4	5	6	7
I like to try new things.	1	2	3	4	5	6	7
I would rather stick with products I usually buy than try something I am not sure about.	1	2	3	4	5	6	7

Demographics

19. Gender:

- Female
- Male

20. Age: _____ years

21. Regarding the following dimensions, please indicate in which category of age you correspond to:

I feel as though I am in my:	>30s	30s	40s	50s	60s	70s	<80s
I look as though I am in my:	>30s	30s	40s	50s	60s	70s	<80s
My health is as though I am in my:	>30s	30s	40s	50s	60s	70s	<80s
I do most things as though I am in my:	>30s	30s	40s	50s	60s	70s	<80s
I think as though I am in my:	>30s	30s	40s	50s	60s	70s	<80s
My interests are mostly those of a person in his/her:	>30s	30s	40s	50s	60s	70s	<80s

22. Please indicate if you live in an urban or rural area:

- Urban area
- Rural area

23. Occupation:

- Worker

- Housewife/Houseman
- Retired

24. Who are you living with?

- Your husband/partner only
- Your husband/partner and/or child/ren
- With other people of my age (In a retirement center)
- With friends
- I live alone

25. Please, indicate your monthly income (Before tax reduction)

- <500 Euros
- 500-1000 Euros
- 1001-2000 Euros
- 2001-3000 Euros
- 3001-4000 Euros
- >4000 Euros

Appendix 1.2: Questionnaire Results

Appendix 1.2.1. Attributes importance of the pharmacy

Time spent	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	2.30%	5.60%	5.60%
Not important	18.20%	25.00%	16.70%
Neutral	27.30%	27.80%	22.00%
Important	45.50%	33.30%	50.00%
Very important	6.80%	8.30%	5.60%
Total	100.00%	100.00%	100.00%
Rapidity of access	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	0.00%	5.40%	0.00%
Not important	0.00%	13.50%	11.10%
Neutral	30.20%	32.40%	11.10%
Important	55.80%	32.40%	61.10%
Very important	14.00%	16.20%	22.20%
Total	100.00%	100.00%	100.00%
Comfort	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	0.00%	2.70%	0.00%
Not important	0.00%	8.10%	0.00%
Neutral	22.70%	32.40%	22.20%
Important	68.20%	43.20%	66.70%
Very important	9,10%	13.50%	11.10%
Total	100.00%	100.00%	100.00%

Products reliability	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	0.00%	2.70%	0.00%
Not important	0.00%	2.70%	0.00%
Neutral	14.00%	13.50%	5.60%
Important	37.20%	35.10%	44.40%
Very important	48.80%	45.20%	50.00%
Total	100.00%	100.00%	100.00%
Pharmacist advice	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	0.00%	0.00%	0.00%
Not important	0.00%	7.90%	0.00%
Neutral	16.30%	15.80%	12.50%
Important	62.80%	50.00%	56.40%
Very important	20.90%	26.30%	31.10%
Total	100.00%	100.00%	100.00%
Price	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	0.00%	0.00%	0.00%
Not important	2.30%	5.30%	11.80%
Neutral	27.30%	15.80%	5.90%
Important	40.90%	55.30%	58.80%
Very important	29.50%	23.70%	23.50%
Total	100.00%	100.00%	100.00%
Confidentiality	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	0.00%	0.00%	0.00%
Not important	0.00%	5.40%	6.30%
Neutral	13.60%	35.10%	0.00%
Important	59.10%	35.10%	75.00%
Very important	27.30%	24.30%	18.80%
Total	100.00%	100.00%	100.00%
Practical aspect	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	0.00%	0.00%	0.00%
Not important	2.30%	2.60%	0.00%
Neutral	22.70%	44.70%	22.20%
Important	56.80%	34.20%	66.70%
Very important	18.20%	18.40%	11.10%
Total	100.00%	100.00%	100.00%
Security of payment	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	0.00%	0.00%	0.00%
Not important	0.00%	2.80%	0.00%
Neutral	18.20%	30.60%	16.70%
Important	38.60%	36.10%	55.60%
Very important	43.20%	30.60%	27.80%
Total	100.00%	100.00%	100.00%

Appendix 1.2.2. Comparison between traditional and E-pharmacy

E-pharmacy perceived better in term of: Time spent	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	4.7%	10.5%	23.5%
Worse	11.6%	7.9%	29.4%
Neutral	30.2%	42.1%	5.9%
Better	44.2%	36.8%	41.2%
Much better	9.3%	2.6%	0.0%
Total	100.00%	100.00%	100.00%
E-pharmacy perceived better in term of: Product speed access	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	7.0%	13.2%	18.8%
Worse	20.9%	15.8%	50.0%
Neutral	32.6%	44.7%	18.8%
Better	30.2%	23.7%	12.5%
Much better	9.3%	2.6%	0.0%
Total	100.0%	100.0%	100.0%
E-pharmacy perceived better in term of: Comfort	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	9.1%	10.5%	11.8%
Worse	9.1%	7.9%	29.4%
Neutral	29.5%	50.0%	35.3%
Better	43.2%	28.9%	11.8%
Much better	9.1%	2.6%	11.8%
Total	100.0%	100.0%	100.0%
E-pharmacy perceived better in term of: Pharmacist advice	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	13.6%	13.2%	17.6%
Worse	25.0%	26.3%	52.9%
Neutral	52.3%	50.0%	23.5%
Better	9.1%	2.6%	5.9%
Much better	0.0%	7.9%	0.0%
Total	100.0%	100.0%	100.0%
E-pharmacy perceived better in term of: Price	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	4.5%	16.2%	5.9%
Worse	22.7%	21.6%	76.5%
Neutral	61.4%	48.6%	11.8%
Better	9.1%	10.8%	5.9%
Much better	2.3%	2.7%	0.0%
Total	100.00%	100.00%	100.00%

E-pharmacy perceived better in term of: Practical aspect	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	4.7%	10.5%	11.8%
Worse	4.7%	10.5%	23.5%
Neutral	39.5%	36.8%	17.6%
Better	37.2%	39.5%	47.1%
Much better	14.0%	2.6%	0.0%
Total	100.0%	100.0%	100.0%
E-pharmacy perceived better in term of: Confidentiality	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	7.0%	13.2%	18.8%
Worse	20.9%	15.8%	50.0%
Neutral	32.6%	44.7%	18.8%
Better	30.2%	23.7	12.5%
Much better	9.3%	2.6%	0.0%
Total	100.0%	100.0%	100.0%
E-pharmacy perceived better in term of: Product Reliability	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	13.6%	13.2%	17.6%
Worse	25.0%	26.3%	52.9%
Neutral	52.3%	50.0%	23.5%
Better	9.1%	2.6%	5.9%
Much better	0.0%	7.9%	0.0%
Total	100.0%	100.0%	100.0%
E-pharmacy perceived better in term of: Payment security	Young cognitive age	Middle cognitive age	Old cognitive age
Much worse	4.5%	16.2%	5.9%
Worse	22.7%	21.6%	76.5%
Neutral	61.4%	48.6%	11.8%
Better	9.1%	10.8%	5.9%
Much better	2.3%	2.7%	0.0%
Total	100.00%	100.00%	100.00%

Appendix 1.2.3. Importance of E-pharmacy assets

Reduced price	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	2.30%	7.90%	5.90%
Not important	6.80%	10.50%	5.90%
Neutral	6.80%	13.20%	17.60%
Important	56.80%	52.60%	41.20%
Very important	27.30%	15.80%	29.40%
Total	100.00%	100.00%	100.00%

Free delivery	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	2.30%	7.90%	11.80%
Not important	6.80%	10.50%	0.00%
Neutral	4.50%	18.40%	11.80%
Important	45.50%	34.20%	29.40%
Very important	40.90%	28.90%	47.10%
Total	100.00%	100.00%	100.00%
Free samples	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	6.80%	13.20%	11.80%
Not important	9.10%	15.80%	11.80%
Neutral	25.00%	28.90%	17.60%
Important	45.50%	31.60%	35.30%
Very important	13.60%	10.50%	23.50%
Total	100.00%	100.00%	100.00%
Loyalty program	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	2.30%	15.80%	11.80%
Not important	18.20%	18.40%	0.00%
Neutral	29.50%	31.60%	35.30%
Important	45.50%	31.60%	23.50%
Very important	4.50%	2.60%	29.40%
Total	100.00%	100.00%	100.00%
Pharmacist advice	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	2.30%	7.90%	0.00%
Not important	6.80%	5.30%	0.00%
Neutral	11.40%	13.20%	23.50%
Important	47.70%	50.00%	41.20%
Very important	31.80%	23.70%	35.30%
Total	100.00%	100.00%	100.00%
Pharmacist avatar	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	6.80%	5.10%	11.80%
Not important	13.60%	10.30%	5.90%
Neutral	20.50%	41.00%	41.20%
Important	47.70%	28.20%	23.50%
Very important	11.40%	15.40%	17.60%
Total	100.00%	100.00%	100.00%

Security of payment	Young cognitive age	Middle cognitive age	Old cognitive age
Not at all important	2.30%	5.30%	11.80%
Not important	4.70%	2.60%	0.00%
Neutral	9.30%	18.40%	17.60%
Important	37.20%	34.20%	23.50%
Very important	46.50%	39.50%	47.10%
Total	100.00%	100.00%	100.00%

Appendix 1.2.4. Personality statements

Pharmacies are all the same for me	Young cognitive age	Middle cognitive age	Old cognitive age
Completely disagree	2.30%	5.30%	0.00%
Disagree	27.30%	18.40%	16.70%
Nor disagree nor agree	15.90%	23.70%	11.10%
Agree	43.20%	47.40%	72.20%
Completely agree	11.40%	5.30%	0.00%
Total	100.00%	100.00%	100.00%
I like to try new things	Young cognitive age	Middle cognitive age	Old cognitive age
Completely disagree	13.60%	10.80%	17.00%
Disagree	15.90%	29.70%	33.00%
Nor disagree nor agree	29.50%	40.50%	27.80%
Agree	25.00%	18.90%	22.20%
Completely agree	15.90%	0.00%	0.00%
Total	100.00%	100.00%	100.00%
I prefer to buy products I am used to	Young cognitive age	Middle cognitive age	Old cognitive age
Completely disagree	20.50%	12.80%	6.00%
Disagree	27.30%	17.90%	6.00%
Nor disagree nor agree	43.20%	53.80%	61.10%
Agree	9.10%	15.40%	27.80%
Completely agree	20.50%	31.60%	33.30%
Total	100.00%	100.00%	100.00%

Appendix 1.2.5. Summary tables of significant results

CA & Loyalty	8.606	2	0.014
CA & Internet	17.810	2	0
CA & Computer ownership	17.810	2	0
CA & Interest	21.546	8	0.006
One-Way ANOVA	F	df	p
CA & Risk aversion	4.212	2	0.018

Appendix 2: Focus Group Part

Appendix 2.1: Focus Group Guide

Set 1: Introduction of the purpose of this focus group

Set 2: The situational game

Set 3: Open questions

- Consumer decision to adopt the innovation: Would you be interested and try online pharmacy by yourself? Would you try if your entourage encouraged you? Why? Would you ask for help for your first purchase?

- Main pros and cons of the E-pharmacy: What are the benefits for you? What are you scared of?

- Elements of the website: What do you think of free delivery, an avatar, free samples? What are the mandatory elements for you?

Set 4: Conclusion

Is there a concern you thought of that we did not elaborate on?

Do you have final remarks, comments, questions?

Set 5: Thanking

Appendix 2.2: “Situational Game” - Comparison Tables

Group A	Item P	Item P	Item V	Item V
	Pharmacy	E-pharmacy	Pharmacy	E-pharmacy
No advantage on E-pharmacy				
Young cognitive age	1	1	2	0
Middle cognitive age	1	1	2	0
Old cognitive age	2	0	2	0
Total	4	2	6	0
Lower price on E-pharmacy				
Young cognitive age	0	2	2	0
Middle cognitive age	0	2	1	1
Old cognitive age	2	0	2	0
Total	2	4	5	1
Free samples on E-pharmacy				
Young cognitive age	0	2	2	0
Middle cognitive age	2	0	2	0
Old cognitive age	2	0	2	0
Total	4	2	6	0

Group B	Item P	Item P	Item V	Item V
	Pharmacy	E-pharmacy	Pharmacy	E-pharmacy
No advantage on E-pharmacy				
Young cognitive age	0	2	1	1
Middle cognitive age	2	0	2	0
Old cognitive age	2	0	2	0
Total	4	2	5	1
Wider range on E-pharmacy				
Young cognitive age	0	2	1	1
Middle cognitive age	1	1	2	0
Old cognitive age	2	0	2	0
Total	3	3	5	1

Personal account on E-pharmacy				
Young cognitive age	0	2	1	1
Middle cognitive age	1	1	1	1
Old cognitive age	2	0	2	0
Total	3	3	4	2

Appendix 2.3: Relevant and Repetitive Affirmations

Evelyne A. Middle CA. *“I would be reinsured with a secured profile account”*;
“An avatar does not seem serious enough, too childish”.

“If prices are the same ones that in store and I need to pay the delivery I would not go buy online”.

Lucienne M. Old CA. *“I am scared the delivery gets late as my pills are vital for me”*;

“My pills are reimbursed so I would not care about paying more or less”;

“I enjoy my pharmacist advice, she became important in my routine”.

Martine L. Young CA. *“I would be interested in having the possibility to see my prescription record, it would be a bonus”*

“A forum or pharmacist available online would be nice and a little note regarding the pills usage in the package”.

“I have to take pills for a thyroid illness, I need to take them everyday but there are often out-of-stock so I need to buy them in advance and my pharmacist calls me every time he gets some so online pharmacy could improve my situation”.

“I would use both pharmacy and E-pharmacy, for instance if my doctor gives me a new medication I will be more likely to go first to a physical pharmacy but if I am used to this pill, I might order it online.”

Jean Jacques W. Old CA. *“Only my entourage could influence me to use it, if my daughters advise it to me, or if my pharmacist shows me how it works but he never has time”*.

Daniel A. Old CA. *“However, I would not be so influenced by media, they should transmit governmental information. I heard non French online-pharmacies pretending they were legal French websites and were delivering wrong pills, this could be dangerous”*.

Michel H. Young CA. *“We heard a lot about this law allowing the sale of drugs online and the risks from doctors and the “Order of Pharmacist” but nothing from the government. It is a sensitive topic so they should communicate on it”*.

Alain C. Middle CA. *“I would need someone to show me how the website works, maybe someone of my entourage or the pharmacist himself”.*

Jocelyne M. Young CA. *“Some of the drugs I buy are very expensive and less and less reimbursed so if online pharmacy guarantees a more competitive price I will go for it without hesitation”.*

“As far as I am concerned, I am not scared by the way the website works, it should not be complicated”.

“I do not think pharmacies can be totally replaced by E-pharmacy. I am a nurse, I am used to deal with patients and talk about medication but I do not see myself advising them to buy online.”

Fabienne C. Middle CA. *“I would like to compare prices on some well-known products and then decide where to buy it, online or in a store”.*

“I would not buy prescription pills however I would not have problem to buy painkillers as doplipran or other para-pharmaceuticals products”.

Maité H. Young CA. *“ I often check online for medical advice as on doctissimo (online website; e-healthcare). It would be then convenient for me to directly order online my medication. I might however check the legitimacy of the E-pharmacy on forums or on the Order of Pharmacist ”*

NB: “Order of Pharmacist” offers an inventory of all legal e-pharmacies.