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Customers' information seeking behavior prior to community pharmacy visits: A community pharmacy survey

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ABSTRACT

Background: Customers are commonly seeking information, e.g. via the internet, to achieve information on health, diseases, and treatment options. However, little is known about customers' information seeking behavior prior to community pharmacy visits.

Objective: To quantify and describe customers' information seeking behavior prior to community pharmacy visits, and to describe how pharmacy staff utilize information obtained by customers.

Methods: Six Danish community pharmacies collected data on customers' information seeking behavior through an online survey for five days in a three week-period in November 2018. Customers were asked about their information seeking behavior regarding their errand at the pharmacy that specific day, what kind of information they had sought, which sources they had used, and their motivation for seeking that information. Hereafter, the pharmacy staff recorded whether they confirmed or disconfirmed the information, and whether they used the information in their counselling. The results were reported using descriptive statistics.

Results: A total of 3424 customers were invited to participate in the study. Among 2623 customers agreeing to participate, 14.4% (n = 377) had obtained information prior to the pharmacy visit. Information seeking was more frequent among younger customers (< 40 years: 22%; 40–60 years: 17%; ≥60 years: 10%). Further, women sought information more often (17%) than men (11%). Customers sought information to gain knowledge about self-management (42%), the purchased product (35%), and how others might help (29%). Information was mainly obtained from official sources of health and drug information (44%), Google (41%), and non-pharmacy health care professionals (28%). The information presented by the customer was generally confirmed or integrated into the pharmacy counselling (70%) and only rarely disconfirmed by pharmacy staff (5%).

Conclusion: A total of 14.4% of customers had sought information prior to visiting the community pharmacy. The majority of customers had used reliable sources, and the information was used during pharmacy counselling.

Introduction

Pharmacy staff must provide adequate and individual counselling, as well as support patients who have acquired information about their illness and treatment options prior to visiting the community pharmacy. Patients seek information about health and medicines on the internet for several reasons.¹

First, the information is easily accessible. Second, patients visiting community pharmacy today are eager to know more, demand more, and want their preferences to be taken into account. They are also less

likely to regard pharmacy staff as the authoritative source they did in the past.^{2,3} Seeking information on the internet is potentially beneficial in regards to empowering patients^{4,5} and helping them be more involved in their health and health decision making.⁶ However, information on the internet is of varying quality, and a large proportion of patients question information obtained from the internet.^{7–9} Patients need guidance from health care professionals to identify reliable information,¹⁰ and until now only one study has described patients' use of information on illness, health, and medicines obtained from the internet prior to pharmacy visits.¹¹

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Patients searching the internet for information on medicines are usually young, well-educated women, using national health portals and pharmacy websites.¹² Further, they use a range of social media for medical information exchange, in addition to social and emotional support and for disease self-management.⁸ A study found that more than one-third of patients in an emergency department searched the internet for information concerning their problem before attending the emergency department.¹³ Almost half of them regularly searched for health information on the internet, particularly younger and e-health literate patients.¹³ Another study suggested that existing interventions that aimed at assisting patients with navigating online health information might not align with what patients want or perceive they need.¹⁰ Finally, seeking health information on the internet has been shown to improve the patient-physician relationship, depending on whether the patient discusses this information with the physician and on their prior relationship.¹⁴

The scientific literature describing where patients seek health information prior to community pharmacy visits is scarce. Furthermore, studies have yet to describe how pharmacy staff deals with the newly acquired information presented by patients. This study aimed to remedy this gap in knowledge by quantifying and describing customers' information seeking behavior prior to visiting the community pharmacy and by describing whether the information acquired was used in the counselling of the customer at the pharmacy.

Methods

A survey for collecting data on customers' information seeking behavior prior to community pharmacy visits was developed and deployed. An online version of the survey was distributed to community pharmacies across Denmark, each collecting data on customers' information seeking behavior for a total of five days.

Setting and participants

The study was conducted in November 2018. Community pharmacies were recruited through the Danish Network for Research and Development of Pharmacy Practice, currently comprising 99 community pharmacies across Denmark.¹⁵ Recruitment of pharmacies was conducted in October 2018 through e-mail communication with the members of the network and through the facebook page of the network. Recruitment of pharmacies was stopped once six pharmacies had agreed to participate, as a sufficient number of registrations was expected based on six pharmacies. The participating pharmacies differed in number of customers paying visits to the pharmacy on a daily basis: one pharmacy was visited by < 250 customers daily, two pharmacies were visited by 250–500 customers daily, two pharmacies were visited by 500–750 customers daily, and one pharmacy was visited by 750–1000 customers daily. The participating pharmacies were located across Denmark, representing both rural and urban areas. Each pharmacy selected four employees who each collected data for a total of five days. The five days could be either consecutive or non-consecutive, depending on the wishes of the individual pharmacy. The selected employees had to be trained staff i.e., fully educated pharmacists or pharmaconomists (comparable to pharmacy technicians). The pharmacy staff invited customers to participate in the study, asked them the questions in the survey, and registered customer answers in addition to delivering counselling on the medication and other products.

The Danish Network for research and development of Pharmacy Practice

The network comprises a network of Danish community pharmacies that are interested in participating in research and development projects. An open invitation to join the network was published in the Danish pharmacy periodical, "Farmaci" and on the LinkedIn page of the Danish College of Pharmacy Practice when the network was

established. Additionally, all Danish community pharmacies were invited to join the network from the stage at the biennial community pharmacy conference shortly after the network was established. Any community pharmacy owner who wants his/her pharmacy to join the network contacts the network secretary to be registered as a member. The network members come from all five Danish regions and they vary in size, footfall, and location (urban or rural). Being a member of the network is free of charge.

Survey

The survey was developed in a two-step process. First, a group of pharmacy students asked seven customers in a number of community pharmacies several open-ended questions about their information seeking behavior prior to visiting the community pharmacy. Additionally, a pharmacy student asked pharmacy staff from one community pharmacy about their experiences with customers' information seeking behavior. Subsequently, an initial draft of the survey was developed based on the answers from both customers and pharmacy staff. Hereafter, the survey was piloted in two community pharmacies. Each pharmacy selected three employees who each collected data on customers' information seeking behavior for a total of two days during a two-week period. A total of 376 customers completed the survey out of 409 customers who were asked to participate. Pharmacy staff asked each customer the questions from the survey and the customer answered directly. Pharmacy staff did not list answer options for the customer to choose from. The average time to complete the survey was 2.5 min. Based on the results from the pilot test as well as subsequent interviews with the project managers from the two pharmacies, the survey was adjusted into a final version. The final 10-item survey explored information about the customers (although containing no personally identifiable data), whether the customers had sought information prior to visiting the pharmacy, type of information the customers had sought, sources and motivations for the search, and how pharmacy staff handled the information in the counselling situation. An English version of the survey is provided in [Appendix 1](#). REDCap, a secure web platform for building and managing online databases and surveys¹⁶ was used for configuration of the survey as well as storage of the collected data.

Data collection and analysis

The data collection was conducted during a three-week period in November 2018. One week prior to the data collection, two authors conducted an introductory webinar with the project managers from each of the six pharmacies. The project managers were informed about the results from the pilot test as well as instructed in how to fill in the online survey. They also received information and project training material, in order to prepare pharmacy staff for data collection. Additionally, staff from each participating community pharmacy was provided with a test-link for the survey, through which they could rehearse the process of filling it in.

During the data collection period, the four employees selected from each pharmacy filled in the questionnaire for all customers they served at the counter for a total of five days. For customers who declined to participate, only the first two questions in the survey were filled in ([Appendix 1](#)). Nursing staff was the only exclusion criterion applied during data collection. All other customers were asked to participate in the study. Consequently, customers collecting medication on behalf of others e.g., family members, were also included. These participants reported on their own information seeking behavior regarding their errand at the pharmacy that day.

Results were reported using descriptive statistics. Exact confidence intervals for proportions were calculated based on the binomial distribution. Data analysis was performed using STATA IC v15.1 (StataCorp).

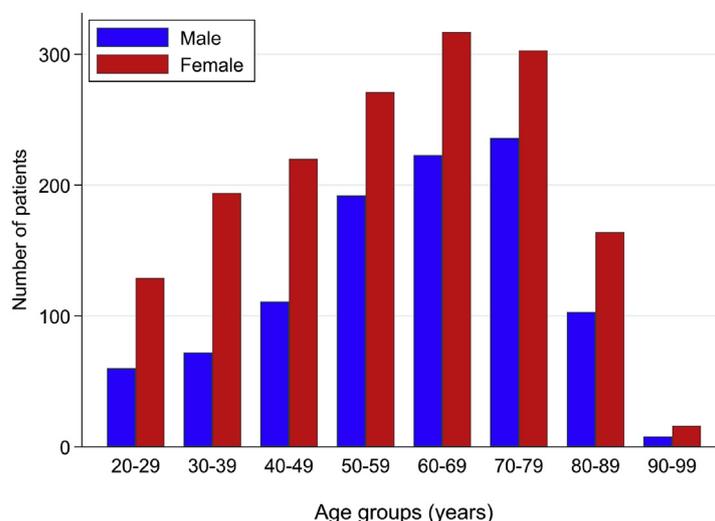


Fig. 1. The age and sex distribution of the patients that participated in the study.

Ethics

According to Danish legislation this study did not include any personally identifiable data. Consequently, no approval was required in terms of either data protection or ethics.

Results

A total of 3424 customers were invited to participate in the study, of which 77% ($n = 2623$) agreed. Of the participants, 62% were female, and the median age category was 50–59 years (Fig. 1). Considering each community pharmacy individually, the proportion of customers who agreed to participate ranged from 62% to 93%.

The overall proportion of customers that obtained information prior to their community pharmacy visit was 14.4% (95% confidence interval [CI]: 13.1%–15.8%; $n = 377$). Considering the individual pharmacies, this proportion varied between 5% and 29%. Standardizing the pharmacies by sex and age composition of their respondents had no bearing on these results (supplementary data). The proportion of customers who sought information varied according to sex and across age groups (Fig. 2), from 22% among those aged < 40 years, over 17% among those aged between 40 and 60 years, to 10% among those aged > 60 years ($p = 0.02$ for age group 40–60 compared to age group < 40

years, $p < 0.001$) for remaining pairwise comparisons. Across age groups, women more commonly obtained information (overall 17%) compared to men (11%) ($p < 0.001$).

The leading motivational factor (Table 1) for customers to seek and obtain information before visiting the community pharmacy was to determine what they could do themselves to solve the problem/question (42%, $n = 162$). This was the most frequent category for both men and women and across all age groups. Other frequent motivational factors were customers wanting to know more about the product before using it (35%, $n = 132$) and customers wanting to determine what others could do to help solve their problem/question (29%, $n = 111$).

A total of 44% ($n = 164$) of the customers used official sources i.e., reliable sources of health information (Table 2), while Google was the second most used source of information (41%, $n = 156$), followed by other health care professionals than pharmacy staff (28%, $n = 105$). This applied to all users overall, across both sexes, in addition to the age groups 40–60 years and > 60 years. Customers aged < 40 years used Google as their leading source of information (43%, $n = 43$), followed by official sources (38%, $n = 38$) and another health care professional than pharmacy staff (29%, $n = 29$).

Pharmacy staff answered that either they confirmed the information obtained by the customer prior to the pharmacy visit or they used the information in their counselling of 70% of the customers. In an

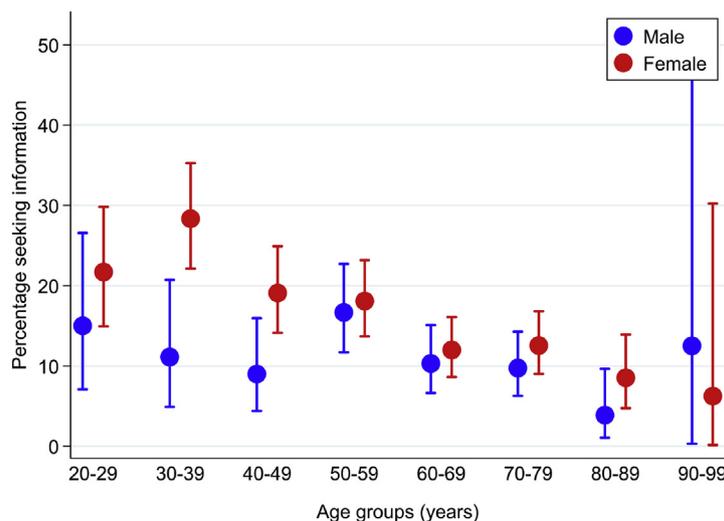


Fig. 2. The proportion of patients who sought information prior to visiting the community pharmacy divided by sex and age.

Table 1
Motivational factors for seeking information prior to visiting the community pharmacy. Patients could choose multiple answers.

Motivation	Overall (n = 377) % (n)	Men (n = 110) % (n)	Women (n = 267) % (n)	< 40 years (n = 100) % (n)	40–60 years (n = 133) % (n)	> 60 years (n = 142) % (n)
To determine what others can do to help with my problem/question	29% (111)	32% (35)	28% (76)	31% (31)	25% (33)	30% (43)
To determine what I can do to solve the problem/question myself	42% (162)	45% (50)	41% (112)	42% (42)	42% (56)	42% (60)
I want to know more about the product before starting to use it	35% (132)	36% (40)	33% (92)	36% (36)	31% (41)	39% (55)
To learn more about the illness/condition	21% (81)	25% (29)	19% (52)	18% (18)	17% (22)	26% (37)
To find information on side effects	23% (89)	26% (30)	21% (59)	16% (16)	26% (34)	25% (36)
I want to find the information personally first, and then have it confirmed at the pharmacy	8% (31)	5% (5)	9% (26)	12% (12)	8% (10)	6% (8)
Ensure that I understood the information I got from another health care professional correctly	6% (24)	10% (11)	5% (13)	5% (5)	7% (9)	6% (9)
I was wondering about a treatment that I did not receive	2% (6)	2% (2)	1% (4)	2% (6)	0% (0)	3% (4)
Distrust in health care professionals	1% (4)	3% (3)	0% (1)	0% (0)	2% (2)	1% (2)
Lack of time by health care professionals	2% (8)	0% (0)	3% (8)	2% (2)	3% (4)	1% (2)
I do not want to be burdensome to health care professionals	4% (14)	1% (1)	5% (13)	3% (3)	5% (6)	4% (5)
Other	8% (32)	5% (6)	9% (26)	9% (9)	11% (15)	5% (7)

additional 25% of the cases, pharmacy staff did not use the obtained information, and in 5% of the cases, staff disconfirmed the information obtained by the customer.

Post hoc analysis restricted to those having used Google as a source of information revealed that 36% of the customers had also used official sources (compared to 43% in the main analysis), while this proportion was 49% of those who did not list Google as a source for information. Further, customers who used Google in their search listed 'To find information on side effects' as their third largest motivation (28%) compared to 19% for those who did not use Google.

Discussion

A total of 14.4% of participating customers reported that they sought information prior to visiting the community pharmacy. The group most likely to search for information prior to visiting the pharmacy was women < 40 years of age. The main reason for seeking information before visiting the community pharmacy was to obtain information on self-management. Further, the majority of the customers who obtained information before visiting the community pharmacy used official and reliable sources of health information. Finally, the results showed that community pharmacy staff confirmed information obtained by the customer or used it in their counselling for the majority of customers.

Previous studies on patients' health and medicines information seeking behavior have, among other things, examined the internet as a source of medicines information,¹² patients' experiences in searching for internet-based information on medicines⁹ and the effect of internet searching on doctor-patient relationship in adult emergency department-patients.¹³ These studies have found that well-educated, young women were most likely to search the internet for medicines information,¹² that patients had a range of search and appraisal skills which might lead to poor interpretation of written information and poor medication compliance.⁹ Additionally, a systematic review examined the influence of patients' internet health information seeking on the patient-physician relationship and found that internet health information seeking can improve the patient-physician relationship.¹⁴

One community pharmacy based study on this subject was found. This study investigated the use of the internet for searching on information on medicines and disease in adults.¹¹ Unlike our study, the authors asked about patients' information seeking behavior on medicines in general, as opposed to asking about patients' information seeking behavior regarding their errand at the community pharmacy. Further, the study focused on patients' information seeking behavior on the internet as a source, specifically. The authors reported, in accordance with our findings, that information seeking is more common amongst women compared to men.

As our study, to the best of our knowledge, is the first study to explore patients' information seeking behavior about health and medicines prior to visiting the community pharmacy, comparison to previous studies is difficult. However, our results contradict our own initial hypothesis, because a smaller proportion of patients have used the internet as a source for information before visiting the community pharmacy than originally anticipated. Of note, this hypothesis was informed by previous studies, since the literature is scarce. For comparison, one study found that 35% of patients in an adult emergency department searched for information regarding their current problem before presenting to the emergency department.¹³ Furthermore, and similar to our findings, another study¹² reported that younger women use the internet to obtain medicines information most frequently. Google was treated separately from reliable/reputable information sources in the analysis to examine whether Google-users were more or less likely to use reliable and official sources of information than other searchers, because Google can lead the patient to a vast array of information sources, some more reliable than others.

The principal strength of our study is the large number of

Table 2

Sources of information used by customers prior to visiting community pharmacy divided by sex and age. Customers could choose multiple answers.

Source	Overall (n = 377) % (n)	Men (n = 110) %(n)	Women (n = 267) %(n)	< 40 years (n = 100) %(n)	40–60 years (n = 133) %(n)	> 60 years (n = 142) %(n)
Official sources	44% (164)	44% (48)	43% (116)	38% (38)	45% (60)	45% (64)
Google	41% (156)	38% (42)	43% (119)	43% (43)	44% (59)	38% (54)
Social media (including Wikipedia)	6% (23)	3% (4)	7% (20)	10% (10)	8% (11)	1% (2)
Other people, non-health care professionals	10% (37)	8% (9)	10% (31)	9% (9)	9% (12)	11% (16)
Another health care professional than pharmacy staff	27% (105)	31% (35)	27% (71)	29% (29)	27% (36)	28% (40)

participants and the fact that the participating community pharmacies were distributed across Denmark. Further, this is the first study to investigate patients' health and medicines information seeking behavior regarding their errand in the community pharmacy prior to their visit. The main limitations of the study are: First, the findings are most likely inherently dependent on the health care system. Thus, the transferability of these findings to other health care settings is unknown. Second, compared to the composition of users of Danish pharmacies (data obtained by personal communication with The Association of Danish Pharmacies), our responders were less often men (38% vs 42%), and were slightly older (proportion < 40 years 22% vs 27%). This indicates minor selection bias, which might have biased the observed overall rate of patients seeking information slightly upwards with regards to the sex composition and slightly downwards with regards to the age composition. Third, data on how pharmacy staff dealt with the obtained information was self-reported and not observed by a third party. Fourth, the survey used in this study was not subjected to validation, e.g. for face and content validity. Last, data on demographic factors were not collected. Thus, so it is not possible based on the present data to stratify patients based on sociodemographic data, except sex and age.

In conclusion, customers do not rely to any major extent on the internet or other sources of information before visiting the community pharmacy, and those who do, use official and reliable sources of health information. Furthermore, community pharmacy staff confirmed information obtained by customers and found the information it to be useful in their counselling.

CRedit authorship contribution statement

Alaa Burghle: Writing - original draft, Formal analysis, Project administration, Writing - review & editing. **Bjarke Abrahamsen:** Formal analysis, Writing - original draft, Writing - review & editing. **Carina Lundby:** Formal analysis, Writing - original draft, Writing - review & editing. **Charlotte Rossing:** Conceptualization, Methodology, Formal analysis, Writing - review & editing. **Rikke Nørgaard Hansen:** Conceptualization, Formal analysis, Project administration, Writing - review & editing. **Lotte Stig Nørgaard:** Conceptualization, Methodology, Formal analysis, Writing - original draft, Writing - review & editing. **Anton Pottegård:** Conceptualization, Methodology, Formal analysis, Software, Supervision, Writing - original draft, Writing - review & editing.

Declaration of competing interest

All authors declare no conflict of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.sapharm.2019.12.021>.

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