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Original Article

Perceptions, Attitudes and Use of Pharmacy Customers to Medicine Labels

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ABSTRACT

Background. The safe use of medicines largely relies on consumers reading the labeling and packaging carefully and accurately, and being able to comprehend and act on the information presented. We aimed to conduct local study on consumers' perceptions, attitudes and use of written drug information. **Methods**. A survey included 200 adults of the public in 13 community pharmacies and one main hospital (the University Hospital) in Tripoli city of Libya, using a structured interview technique. **Results**. The results showed that 73% of participants read drug labels with variation from always (39.72 %) to rarely (10.95%). About 42.46% of pharmacy customers read the Patients Package Inserts (PPIs) routinely, however; 53.42% of them faced difficulties in understanding the labelling. Foreign languages and small font sizes of written information were the most barriers to participants` comprehensibility (44.69 %, 34%) respectively. The findings indicated that 59 % of the respondents were used to obtain information from pharmacists. Despite the relatively high rate of reading to drug labels among pharmacy customers; more than half of them were unable to interpret information correctly. **Conclusion**. The study demonstrated the need for the implementation of educational and awareness programs for patients by pharmacists to improve the health literacy of medication labels. Steps must be taken to ensure that medicines in Libyan market are supplied with bilingual and non-technical language labels.

Keywords: Drug Labeling, Package Inserts, Medicine Information, Pharmacy Customers, Public Opinion.

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INTRODUCTION

Worldwide, patients and drugs customers require more detailed information about medicines they consume. Patients' comprehensibility to written drug information is very crucial in long term management of diseases and in determining drugs outcome. Several studies have evaluated the drug labels and Patients Package Inserts (PPIs) from patient perspective around the globe such as the U.S.A, Malaysia, Ethiopia, Si Lanka and Brazil [1- 6]. Also, various studies conducted from Arabic regions such as Saudi Arabia and Egypt [7,8]. However, little is known about whether patients can read medication labels or are able to use this information properly in Libya.

It was documented that physicians and pharmacists are the most commonly sources of drug information used by patients [9-11]. In addition, for patients who seek more details about their medicines, they can use written drug information such as PPIs [12-15]. Moreover, it has been established that while noncompliance can be traced frequently to the failure of communication between the health care providers and patients, PPIs may contribute to improved compliance with

drug regimens, increase patient's awareness to avoid certain foods and drugs which can cause hazardous interactions, and aid in early recognition and proper interpretation of drug side effects [16-18].

According to the U.S. Department of Health and Human Services, health literacy (HL) is defined as: "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" [19,20]. Low HL is associated with poor communication between patients and health care providers and poor health outcomes; since it leads to increased rates of hospitalization, improper management of chronic conditions, higher morbidity and mortality rates [21,22]. On the other hand, many researchers approved that patients (especially older patients) usually lack the knowledge about their medicines in general [23,24]. In addition, poor HL comprised a main barrier that limits patient's knowledge on prescribed medications [25].

Therefore, the currently study conducted to shed some light on the level of HL of Libyans and to evaluate the contribution of PPIs as dugs information sources to Libyan patients. In addition, to explore the readability, understandability and usefulness of the available written drug information to the local consumers and to identify factors influencing their knowledge on used medicines. To the best of authors' knowledge, no such study has been conducted in Libya.

METHODS

This study was approved by the dean of the faculty of pharmacy at University of Tripoli and the managers of the selected hospital, permitting for data collection.

An earlier survey has been carried out in Tripoli city during the year 2001 and revealed that analgesics and cough/cold products were the most frequently used self–medications followed by antacid medications [26]. Based on this, two OTC medications which are: Panadol® tablets (contains Paracetmol 500mg/ Caffeine 65mg, Glasxo SmithKline, Ireland), and Gaviscon® original aniseed relief (contains 250mg sodium alginate, 133.5mg sodium bicarbonate and 80mg calcium carbonate per 5ml, liquid / 200 ml, Reckitt Benckiser Healthcare Limited, Uk); were used in the study. Atenolol 50mg Film-coated Tablets (Bristol Laboratories Limited, UK.) which is a β1-adrenoceptor antagonist that is often prescribed for asymptomatic hypertension was also used in this study. The choice of an anti-hypertensive medicine in the study was based upon the recent WHO data published in April 2011 (was the latest and just ahead of our study) which documented that hypertension deaths in Libya reached 1,496 (6.05%) of total deaths. The age adjusted death Rates 47.77 per 100,000 of population ranks Libya the thirty-sixth in the world [27].

All drugs were gathered from one main hospital pharmacy [the university hospital] and thirteen community pharmacies across Tripoli city center areas. Different labels of the tested drugs (immediate containers, outer packages and patient package inserts) were used. The survey questions were collected from previous studies about the societal attitudes toward medication labels and the questions were modified to fit our culture. [1, 2, 7, 12, 27] This three -page questionnaire was designed in Arabic and consisted of 20 questions with closed, open-ended and multiple-choice formats.

The questionnaire was divided into three sections; the first part including demographic and clinical data on the subjects (age, gender, educational level, medical family history, and number of prescription medications currently taken daily). This section also included questions about readability, importance of written drug information, and clarity of drug labels. In addition, it included questions about whether the drug users read risk-related topics in their PPIs, specifically the side effects, warnings and drug-drug interactions; and whether they check the expiry date before using their medications. The second part surveyed the depth of consumers' knowledge to the three tested drugs, problems to understand the labels, their sources of drug information beyond PPIs. The third section comprised items about the usefulness of the available drug information and the adherence to the used medication labels in a real-world setting from consumers' perspective. The

questionnaires randomly distributed to the consumers buying drugs from the selected community pharmacies or to outpatients getting medications from Tripoli university hospital free of charge. Subjects who were 20 years old or more and who agreed to participate in the study were included.

The interviews were held by Two trained personnel and confidentiality of participant's data was assured. In cases where consumers were illiterate; the interview was recorded and the questionnaire was completed on their behalf. The study carried out for 16 weeks (period of May to October 2011).
The collected data were entered Microsoft Excel software, and descriptively analyzed by means of counts and percentages.

RESULTS

Socio-Demographic Characteristics of Respondent

A total of 200 subjects were participated in this study; out of which 82 (41%) were males and 118 (59%) were females. The distribution of all 200 participants upon their ages was: ≤ 29 (32.5%), 30-39 (21.5%), 40-49 (19%), 50-59 (18%) and 60 ≥ (9%). More than half of sample population 58.5% had completed university, 36% of them had either a primary or secondary level of education while 5.5% of the participants had never been to school. Most of the participants (86.5%) were healthy and 27 (13.5%) had chronic diseases as shown in (Table 1).

Table 1. Socio-demographic characteristics of the study population.

Demographic Characteristics	Respondents N	Percentage (%)
Gender		
Male	82	41
Female	118	59
Age groups		
≤ 29	65	32.5
30-39	43	21.5
40-49	38	19
50-59	36	18
≥ 60	18	9
Education		
Never had been school	11	5.50
Less than high school	28	14
High school graduate	44	22
University graduate	117	58.5
Health status		
Healthy	137	86.5
Un-healthy	27	13.5

Out of patients with chronic diseases in the interviewed sample, 48.14% were on treatment for hypertension and/or diabetes and were regularly receiving Atenolol 50mg or 100mg Film-coated Tablets.

Reading Medication Label

Out of 200 participants, about 27% of pharmacy customers responded that they never read the PPIs or any information presented on medicine containers while approximately 73% of them reported that they read written drug information, however they showed variation in frequency of readings.

Approximately 40% of the sample population answered that they always read drug labels, 30.8 % said that they read information most of the time, about 18.5% of them replied that they read it some of the time, and only about 11% of respondents answered that they rarely read drug labels. We found that 65.22% of the people who aged 50 to 59 always read drug labels but the frequency of drug information readability in the other age groups was distributed between always, most of the time and some of time frequencies.

Table 2.: The extent of reading of medicine labels.

A- Frequency of reading of labels	**Reading of labels in each group, N (%)**					
	20-29	**30-39**	**40-49**	**50-59**	**≥ 60**	**Total**
Total N in each group	**57 (39.04)**	**31 (21.23**	**28 (19.17)**	**23 (15.75)**	**7 (4.79)**	146 (73)
Always	24 (42.10)	7 (22.58)	9 (32.14)	15 (65.22)	3 (42.85)	58 (39.72)
Often	21 (36.90)	12 (38.71)	5 (17.85)	6 (26.10)	1 (14.29)	45(30.82)
Sometimes	8 (14.10)	9 (29.04)	8 (28.57)	1 (4.34)	1(14.29)	27 (18.49)
Rarely	4 (7.00)	3 (9.67)	6 (21.43)	1 (4.34)	2 (28.57)	16 (10.95)
b- Routinely of reading labels						
Outer and/immediate labels	24(42.10)	7 (22.58)	7 (25.71)	8 (34.78)	1(14.2)	47(32.19)
PPIs only	19(33.34)	15 (48.38)	20 (71.42)	5 (21.73)	3(42.86)	62(42.46)
All written drug information	14(24.56)	9 (29.03)	1 (3.57)	10 (43.47)	3(42.86)	37(25.34)
c- The most readable parts of labels (%) , * some respondents had more than one answer						
Drug name, strength, form	30 (52.63)	19 (61.29)	17 (60.71)	16 (69.56)	5 (71.42)	87 (59.58)
Purposes of therapy	56 (98.24)	31 (100)	24 (85.71)	19 (82.60)	7 (100)	137 (93.83)
Dose & dosage regimen	38 (66.66)	20 (64.51)	18 (64.28)	14 (60.86)	3 (42.85)	93 (63.69)
Side effects & warnings	22 (38.59)	13 (41.93)	15 (53.57)	10 (43.47)	7 (100)	67 (45.89)
Drug interactions	18 (31.57)	8 (25.80)	11 (39.28)	7 (30.43)	4 (57.14)	48 (32.87)
Expiry date	48 (84.21)	28 (90.32)	22 (78.57)	21 (91.30)	3 (42.85)	106 (72.60)
Storage conditions	14 (24.56)	9 (29.030	1 (3.57)	10 (43.47)	3 (42.85)	37 (25.34)

Pharmacy customers who are younger than 29 years old showed that they tend to read the information presented only on the outer and/or immediate package of the products (42%) or in the patient leaflets (33.34%). People aged (30 -39) and (40- 49) were more likely to read information written in the PPIs rather than the whole written drug information (48.38% and 71.42% respectively). People aged (50-59) tend to read the whole drug label and those aged over 60 read either the PPIs or the whole drug label as shown in Table 2.

The findings revealed that the most frequently readable information reported by the respondents in all ages was the purpose of therapy (indication) 93.83% (n= 137 out of 146), followed by expiry date 72.60% (n=106) and dose of the medicine and dosage regimen (63.69%). More than half of the pharmacy clients (59.58 %) who read medication label, said that they read name of medicine and its dosage form.

The findings indicated that our study population was less interested in reading side effects, drug interactions with other concurrent medications or food. In addition, storage conditions of the medicine were the least information being read by the respondents (25.34%). However; it was found that the purpose of the therapy and the side effects of the drug were the most readable information of the labels for the older people ≥ 60 in our sample (100%).

Understanding Medication Label

Figure 1 shows the percentages of pharmacy customers with respect to understandability of the information written in the three drug packages and their leaflets. After 15 minutes of reading, the participants were asked to explain the written information in their own words without referral to their medication labels. Among 146 who read the PPIs, only sixty-eight individuals (46.57%) were able to understand the written information while more than half of the public 53.42% were unable to fully interpret the labels.

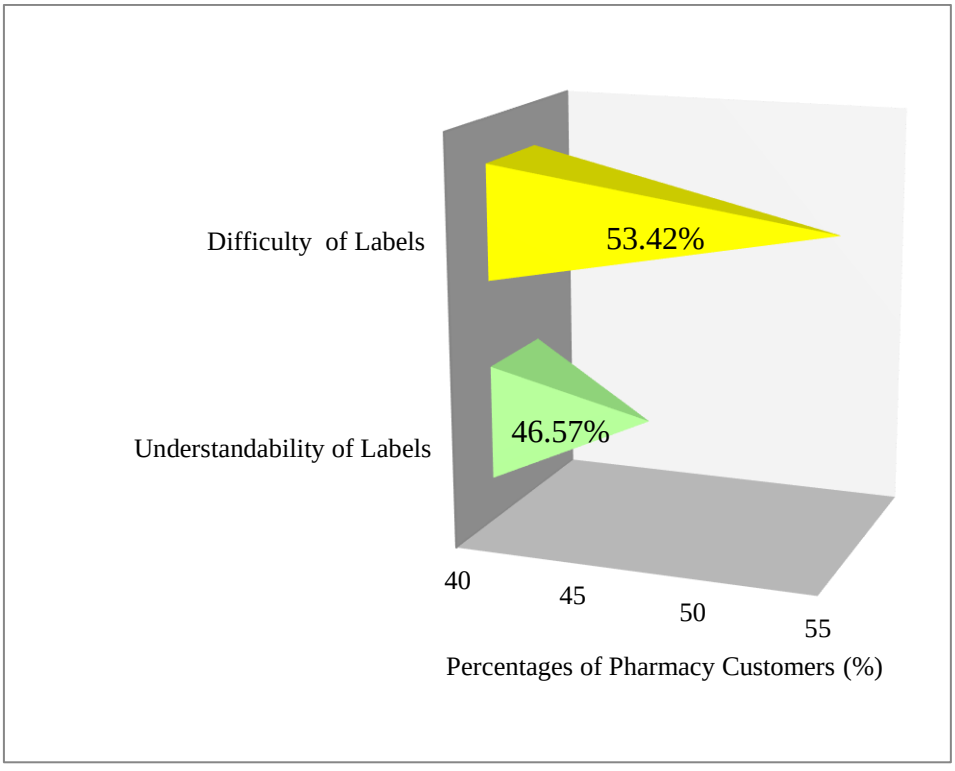

Figure 1: Pharmacy customers-Understanding to medicine labels.

When the interviewees requested to give their reasons for not comprehending the written medicine information, they replied that the foreign language was the most hinders to understand the PPIs. For example for the study drug sample Gaviscon®, only few Arabic translations such as the name of medication and purposes of use are available in the package label, while all other important

information were written in English. For the prescription-only medicine Atenolol® 50 mg, the detailed label was available only in English. The low English (or other foreign languages) proficiency was also the top reason for not reading medication labels at all by the 54 of the respondents. The participants also pointed out to that even with the label written in Arabic (Panadol Extra® in our study drug sample), the language used in medication instructions (terminology) was often difficult for patients to understand and should be made clearer. The percentages of these barriers and the other reasons are given in (Table 3).

Table 3: Barriers hinder pharmacy customers to understand medicine labels and their counseling with medical professionals.

Barriers to understandability to medicine labels	**Reasons of pharmacy customers for not understanding of labels, their action to solve the barriers & satisfaction with community pharmacists in each group**					
	20-29	**30-39**	**40-49**	**50-59**	**≥ 60**	**Total**
Color	Nil (0)	Nil (0)	1 (5.88)	1 (8.33)	Nil (0)	2 (2.56)
Font size	7 (20.58)	2 (16.66)	3 (17.64)	4 (33.33)	3 (100)	19(24.35)
Syntax (long phrases)	5 (14.70)	Nil (0)	3 (17.64)	2 (16.66)	Nil (0)	10 (12.82)
Terminology	6 (17.64)	3 (25.00)	6 (21.43)	2 (16.66)	Nil (0)	15 (19.23)
Languages	10 (29.41)	4 (33.33)	4 (23.52)	3 (25.00)	Nil (0)	21 (26.92)
Lack of information	6 (17.64)	3 (25.00)	4 (23.52)	Nil (0)	Nil (0)	11 (14.10)
Total of N	**34**	**12**	**21**	**12**	**3**	
What patients do if they do not read a drug label or if they have a problem with their medicine, N= 132						
Return to prescribing doctor	15(35.71)	11 (45.83)	10 (37.03)	8 (32.00)	8(57.14)	52(39. 40)
Counsel a pharmacist	20(47.61)	13 (54.16)	11 (40.74)	10 (40.00)	1(7.14)	55(41.66)
Family members	7(16.66)	Nil (0)	6 (22.222)	7 (28.00)	5(35.71)	25(18.93)
Patients` satisfaction with information received by the dispensing pharmacists, N=200						
Satisfied	42 (64.61)	25 (58.13)	24 (63.15)	22 (61.11)	5 (27.77)	118 (59.00)
Dissatisfied	23 (35.39)	18 (41.87)	14 (36.85)	14 (38.89)	13 (72.22)	82 (41.00)

Although the barriers for not interpreting drug labels correctly were similar in all age groups; our literate participants older than ≥ 50 years ranked the small font size of texts was the top barrier affecting their understandability to medicine labels as shown in (Table 3).

We sought to ask the study population what action they would take if they are unable to read the written information or if the label is non-comprehending, 41.66 % of them (55 out of 132) reported that they would go to the nearest local pharmacy and ask the pharmacist to translate the important written drug information into Arabic and to illustrate them verbally or to write them down in hand.

About a third of the drug users (39.40%) answered that they would return to their prescribing doctor rather than to counsel a pharmacist, whereas 18.93% responded that they ask for a help from a relative or a friend who is good at English. Older patients (≥ 60) are more likely to get drug information from their prescribing doctors (57.14%) or their caregivers (35.71%) rather than to return to the pharmacy (only 7.14 %).

With regard to respondents' views on the role of pharmacists in providing medicine information, more than half (59.0%) felt that they were satisfied with information received by the dispensing pharmacists and more likely to trust their consultation. In contrast, around 41% of the pharmacy clients were dissatisfied regarding the way of communication with the pharmacists, and they believed that the pharmacist does not ask the patients about the other medications they use at home at the time of purchasing medications, never provide information on drug interactions for the medicines they bought and their current medications. Moreover, those consumers felt that most pharmacies did not provide information in the patient's preferred language, or when they did, it was only upon request. The study revealed that our patients were non-adherents to their dose regimen or they do not care about the proper storage conditions of their medicine; 24.65% and 20.68%, respectively. This was true particularly in ages younger than 29 (Table 4).

Table 4: Usability of written information of the three-tested medicines.

Use of medicine labels	Respondents N	Percentage (%)
Adherence to dose a, duration of therapy	57	24.56
Adherence to expiry date	127	54.74
Adherence to storage conditions	48	20.68
*Some respondents had more than one answer, n=232		

DISCUSSION

Medicine labels and packets play a major role in providing important information about the safe use of medicine. However, information contained in the package insert is written in dense technical jargon and assumes the reader is a health professional. As a result, the information may be viewed negatively by consumers and lead to adherence problems. The focus of this study was to assess perceptions, attitudes and the use of pharmacy customers to written medicine information in Tripoli city. The main findings indicated that 73% of pharmacy consumers could read drug labels with variations in the rate of reading. Around 40% said that they always read drug labels, 30.8% reported they read it most of time. Similarly to previous European researches, one study conducted in Turkey showed the rate of reading of medicine leaflets was 78.2% , another in Denmark study surveyed 111 and revealed that eighty-eight patients (79%) always or often read the patient information leaflets [28,29]. These results are consistent with studies in some Arab countries in Jordan and Palestine, where more than half of the investigated Jordanian populations (56.8%) stated that they always read and follow the directions on the packet of the OTC products they take, 45.0% of Palestinians reported that they always read the information in the PPIs and 29.3% said that they read them most of the time [30,31].

In the current study, we found that young people under 29 years old were more likely to read either the information presented on container labels or in the package inserts. This may be attributed to most of the young consumers were university students or they were employees and they did not have plenty of time to read all medicine instructions. Our middle-aged pharmacy customers (30-39, 40-49)

were more likely to read the PPIs and considered it the only source for medicine information. The importance of PPIs for consumers has been documented in a variety of literatures [32,33]. It is interesting to find that 62.71% (74 out of 118) of our participants were middle aged females who felt that the inserts include detailed information and thought that the longer leaflet was preferred over the shorter insert as a model of drug information. One explanation might be that, females usually take the responsibility for caring for their family members in case of sickness, and thus need to look for the information more than males. In fact, this reflects what other cultures documented, an old FDA's survey approved that women prefer longer and more elaborate drug inserts [34]. Two recent studies demonstrated that females read drug-information leaflets in higher numbers than males and the results were also similar to ours [9,15]. We observed that the majority of participants selected the purpose of therapy (indication), expiry date and dosage of the medicine as the top three topics in the labels (93.83%, 72.60% and 63.69 %) respectively. A survey from Saudi Arabia showed that 88% of the respondents tended to read the package inserts. From the list of information contained therein, respondents listed indications (47.1%), adverse drug effects (46.6%) and dosage (27.1%) as the principal sections of interest [7]. Al-Ramahi and his co-workers found that 82.1% (183 of the 223) of Palestinian consumers were read the expiry dates of the medications before using them and 30 of them (13.5%) read it sometimes [31]. Another Malaysian study tested health literacy on medication and nutritional labeling and revealed that the expiry date was the most readable parts in the label [35]. Our data suggest that more than half of the drug users lack knowledge about their medicines, especially in side effects and drug interactions .This was evident from the low rate of reading for such specific topics but those in the 40 - 60 or older years age groups expressed high rates of reading of adverse drug effects compared with the younger cohort. It is probable that due to the majority of the seniors within these groups had chronic medical conditions, and they were reporting on their own medication given by their physician for condition they had. Consequently, the patients were identified their actual drug-taking behaviors.

In 2002, Hughes and his research group reported that patients had poor knowledge of the potential side-effects of their medication and found patients only read the leaflets if they had experienced a side-effect or if their medicine was new [36]. It was not surprising that our respondents were more likely to read the side effects than drug interactions (45.89% and 32.87%), respectively. These results are in line with those published in Egypt in which 65.3% of the Egyptians focused on reading the side effects of their prescribed medicines and to a lower extent on contraindication or drug-drug interactions (36.1%) [8]. In addition, a study conducted in Belgium estimated that 89% of the Belgian public read the PI; focusing their attention principally on adverse effects 88 % and contraindications 82 % [12].

Only a quarter of our respondents (n=37 out of 146) indicated the desire to read the storage conditions. This may be attributed to a limited effort by physicians or pharmacists to counsel patients about the importance of medicine storage. In the present study, (53.4%) of the participants who read the labels indicated that information was difficult to understand. Among of them, 41% reported inability to read English as the most reasons for comprehensibility problems. This is comparable with researches conducted worldwide in USA and in Asian regions (Sri Lanka) to investigate the language and its impact on reading information on labels. Those studies have shown that the inability to communicate in English is the primary barrier to accessing health information and services, thus leading to low health literacy levels and poor health outcome [37,38].

David Jones has also found that Limited English Proficiency (LEP) is associated with increased risks to patient safety, ineffective use of health care facilities and discrimination even in English speaking nations [39]. The difficulty to understand the medication labels would be assumed to decrease with increase respondents' level in the education because with corresponding increases in educational status, individuals ought to be more knowledgeable and more proficient in English. The Libyan Health Law act number 106 of 1973 and its explanatory notes of 1975 states that the container labels for special and pharmacopeia preparations and their package inserts must have the data and comply

with these international standards [40]. Additionally, the Libyan Ministry of Health recommends that all marketed medications be supplied with a PPI that is written in Arabic or both Arabic and English. But the Libyan pharmaceutical market has opened for the drugs from all over the world as a result not only English written information is available in the Libyan pharmacies but also PPTs written in French, German, Italian, Turkish, Chinese, Sinhala and Tamil. It must be borne in mind that the presence of different foreign languages labels also has been rising an obstacle among professional health providers. However, it was not of the authors` interest to discuss it in this study.

The current data showed that 19 out of 78(24.35%) individuals in particular those are older than ≥ 50 yrs were complained from the print on labeling is too small to read this might be due to vision weakness as they are progressing in age. One UK study on using OTC medicines showed that the elderly patients may be less likely to read product information leaflets as they are frequently unable to read the small printed material on OTC medications [41]. In addition to this, a few people (10 out of 78, 12.82%) answered that the phrases of the inserts were long and sometimes confusing to read. It was seen that only 19.23 % (15 out of 78) of the respondents who read the labels said that they had a problem with the medical terminology written in their native language. The problem of written medicines information using language at a level greater than the reading skill level of the typical patient was well documented [11,42].

About 41.66 % of the responders who found problems with understanding of medicine labels preferred to ask the pharmacists and 59.0% of them felt satisfied in receiving drug information directly from a pharmacist while 39.40% of respondents referred back to their prescribing doctors rather than to seek advice from a pharmacist. In fact, this recognition of both pharmacists and physicians as sources of drug information beyond medication labels and leaflets in line with findings from other developed and developing countries [8,43]. A few numbers of participants (18.93%) replied they ask for a help from their family member or a friend.

Despite to opinions pertaining to a pharmacist role in clarification of written medicine labels, 82 out of 200 of subjects (41%) thought that the pharmacy lack privacy or the pharmacist may be perceived as unapproachable and that was consistent with what was published elsewhere. Those studies found that pharmacists were not the main sources of information for pharmacy customers to learn about drugs or complementary medicines [44,45]. Interestingly, our older patients group considered their prescribing doctors as the only professional experts in medicines (57.1%) and they felt that physicians were more aware of their medical conditions and their prescribed medicines than pharmacists. 35.71% of our older participants confided in their family member or a friend about their medications instead of contacting a pharmacist. These findings also supported by an American research which suggested that the pharmacist yet is an underutilized member of the healthcare team and the participating older patients noted that poor pharmacists' ability to provide more complete medication-related care [46].

The present findings reported that 24.56 % of the sample population were adherent to their dose regimen and 20.68% of them cared to take their drug before expiration of the tested prescribed medicine. In other words; they have read and used information (dose, frequency, time of taking and expiry date) presented on their drug package or PPIs.

CONCLUSION

To date, little information has been gathered in Libya on involvement of pharmacy customers in giving their opinions on medicine labels. The present study indicate that drug labels were readable by most of the pharmacy customers and suggest that people preferred to read their medicine's label for the purpose of therapy and expiry date. However; over fifty percent of the respondents had an alarmingly low level of understanding of medicine labels. Our results show that patients' knowledge on basic information was unsatisfactory, particularly their knowledge on side effects, drug-drug interactions and storage conditions. Despite of this, the PPI (the leaflet) was appreciated as a useful

source of information among the middle –aged groups pharmacy customers. It appears that labels written in English or other foreign languages ranked the main reason for patients' inability to read information; in addition to small font sizes even with labels wrote in Arabic. It was shown that the older patients have poor perception towards pharmacists` roles in provision of information; since they are still depending on their prescribed physicians and still are using non-professional sources about medicines, such as friends and family. Nevertheless, the importance of pharmacists was recognized by the majority of our respondents. Thus, it is essential that for pharmacists to provide consumers with detailed counseling, to compensate for the missing information in some of the medicine labels and pharmacists should encourage reading the labels and to evaluate patient comprehension. Furthermore, drugs providers in Libyan market should pay extra attention when importing medicines and PPIs should be a priority for all medicine regulatory authorities.

Limitations

Opinions expressed in our study may not be generalized for large population of Libya; since the number of the study participants was small and the sample population was drawn from one city (Tripoli) and as not all hospitals or all community pharmacies in Tripoli were included.

Authors Contributions

Eman Elmahjoubi, contributed to all aspects of producing this article including the conceptualization, research, interpreting of the data, writing, editing and drafting the manuscript. **Mufida Yamane**, contributed to data analysis and critically revised the manuscript. Both authors have read and approved the final version of the manuscript.

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Competing interests

The authors declare that they have no competing interests.

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