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Original article

# Act like a warrior to defeat medication counselling barriers: A cross sectional study

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## ABSTRACT

**Background:** In the previous literature, patients' perceptions of medication consultation provided by pharmacists was found to poor, depending upon various factors, which may lead to poor compliance with medication instructions and, therefore, poor health outcomes. In the Kingdom of Saudi Arabia (KSA), this specific area has been overlooked to date, so this study aims to examine patients' perceptions of medication counselling and the factors that influence their likelihood of participating in medication counselling as well as determine the predictors of patients' likelihood to take part in medication counselling delivered by pharmacists in KSA.

**Materials and methods:** A cross-sectional survey was conducted involving people over 18 years of age, who had purchased or collected medicine for their own use from community and/or hospital pharmacies within the past two years and who lived in Saudi Arabia. The data were analysed using IBM SPSS Statistics version 24. Descriptive statistics were applied to each item as well as linear regression and Pearson's correlation.

**Results:** Five hundred and eleven participants (male (n = 101), female (n = 410), the majority of whom were aged 18–24-years-old) were included. Almost an equal number of participants had accessed either community (CP) (n = 228: 45%) or hospital pharmacies (HP) (n = 283: 55%) within the past two years in regards to their condition and/or medication. The perceived susceptibility construct had weak positive correlations with all of the constructs being measured ( $r < 0.3$ ). Perceived barriers had a weak negative relationship with likelihood ( $r < 0.3$ ), which means that, as the perceived barriers increase, the perceived benefits and future likelihood to participate in medication counselling decrease. Linear regression analysis found that age ( $\beta = -0.06$ ;  $P = >0.05$ ), gender ( $\beta = 0.14$ ;  $P = >0.05$ ), education level ( $\beta = -0.01$ ;  $P = >0.05$ ) and type of pharmacies accessed ( $\beta = -0.05$ ;  $P = >0.05$ ) were non-significant predictors of the participants' likelihood of participating in medication counselling.

**Conclusion:** In order to improve the medication consultation provided by pharmacists and, therefore, enhance the patients' experience and care, it is important to understand the public's views, concerns and demands regarding medication consultation, in order to provide the proper interventions and serve as a platform for developing a plan of action for good pharmacy practice.

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**Abbreviations:** ASHP, The American Society of Health-System Pharmacists; KSA, The Kingdom of Saudi Arabia; HBM, The Health Belief Model; PS, perceived susceptibility to medication counselling; S, perceived severity to medication counselling; PE, past experiences with medication counselling; PB, perceived barriers to medication counselling; PBMC, perceived benefits to medication counselling; L, the likelihood of patients' participation in medication counselling with pharmacist; SPSS, statistical package for the social sciences; SD, standard deviation;  $\beta$ , standardized beta; r, the Pearson correlation coefficient; CMR, clinical medication reviews.

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## 1. Background

Good pharmacy practice includes patient education and consultation in the context of pharmaceutical care to improve patient adherence and reduce medication-related problems (Kassam et al., 2012; Alfadl et al., 2018). According to the American Society of Health-System Pharmacists (ASHP), patient counselling entails providing medication information orally or in written form to the patient or their representative, or providing proper directions on usage and advice on side effects, storage, diet and life-style modifications. It involves a one-to-one interaction between a pharmacist and a patient and/or care giver, and is interactive in nature (ASHP, 1997).

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In the literature on research that has been previously conducted worldwide, it is reported that the medication consultation provided by pharmacists was seen as unsatisfactory for various reasons (Alanazi et al., 2016; Alhomoud et al., 2016; Alomi et al., 2016; Mukattash et al., 2018). For example, to date, pharmacists face challenges when providing one-to-one medication consultations to their patients, including patients' perceived involvement in medication consultations (Burns, 2008; Kefale et al., 2016; the US Centres for Medicare & Medicaid Services, 2019). Some patients believe that medication counselling is a major part of physicians' responsibilities, not pharmacists (Cook and Emerson, 1987; Krueger and Hermansen-Kobulnicky, 2011). Other barriers include patients' embarrassment and fear of asking questions (Krueger and Hermansen-Kobulnicky, 2011; MacLeod-Glover, 2006), rejection of counselling, and lack of time (Boeni et al., 2015), which may affect the patients' attitudes towards accessing hospital/community pharmacies to seek information and help, leading to hospitalization and potentially poorer health outcomes (Molassiotis et al., 2007).

Previous studies have strongly emphasized the importance of patient participation in medication counselling, which includes their involvement in decision making or expressing opinions (Berenguer et al., 2004; Sadek et al., 2016; Awad et al., 2017), which may have an impact on their ability to ask questions and share their concerns, as well as initiate a dialogue with the pharmacist to reach a mutual decision (Alghurair et al., 2012). These activities are important in optimizing patient outcomes and patient safety (Alarifi, 2012; Alghurair et al., 2012; Ghasoub et al., 2017).

Patients' positive perceptions of the medication consultation service provided by pharmacists have a direct impact on encouraging them to seek consultations (Khudair and Raza, 2013) and, therefore, lead to greater compliance with medication instructions and better health outcomes. Nevertheless, there has been very little research conducted in the Kingdom of Saudi Arabia (KSA) on this area and none of these studies have examined the factors influencing participation in medication counselling or the likelihood of doing so. Therefore, this study aims to examine patients' perceptions of medication counselling and the factors that influence their likelihood of participating in medication counselling to determine the predictors of patients' likelihood to participate in the medication counselling delivered by pharmacists in the KSA.

## 2. Methods

### 2.1. Study setting, recruitment and data collection

A descriptive cross-sectional survey study was conducted during between September 2018 and February 2019 to explore patients' perceptions of the medication counselling service offered by pharmacists in primary and secondary care across different regions of the KSA. Individuals aged 18-years-old or over, who had accessed, purchased or collected medication for their own use from a community and/or hospital pharmacy in the past two years and who lived in KSA, were invited to participate in this study. The data were collected using an online questionnaire service (QuestionPro). A link was generated which directed all participants to the questionnaire itself. The participants were approached by the researcher as follows; firstly, the link was distributed to people whom the researcher knew, such as friends, relatives, colleagues and neighbours, via social media platforms including WhatsApp, Facebook and Twitter. These individuals were also asked to share this questionnaire with people they know via social networking. Using an online survey distributed by social media, the participants were able to complete the questionnaires at their convenience, which may have increased the engagement and response rates. An infor-

mation page was created, explaining to potential participants the purpose of the study and the inclusion criteria. The participants were asked to read through the information carefully and, before starting the survey, a click-wrap agreement was attached at the end of the page so that they could indicate their agreement to take part by clicking a button or checking a box labelled "I agree". The survey took eight to nine minutes to complete.

### 2.2. Sample size

The sample size was estimated using the Raosoft online calculator (Raosoft, 2018). In 2018, the current population of KSA was 33,747,655 million, based on the latest United Nations estimates (World Population Review, 2018). In order to have a 95% confidence level with a plus or minus 5% margin of error in the results, a minimum sample size of 385 individuals was required.

### 2.3. Study instrument

A pre-existing questionnaire was adapted to fit the purpose of this study more closely (Brinkerhoff, 2016). The adapted questionnaire was guided by the Health Belief Model (HBM) and showed acceptable test-retest reliability and criterion validity (Brinkerhoff, 2016). These questions had already been tested at the time of their first use. Therefore, the degree of face validity was likely to be high. In this study, the questions were recycled and pre-tested during the pilot stage. They were piloted on seven randomly selected people to gain their views and feedback regarding the questionnaire's wording and ease of use. No amendments were made to the original questionnaire. This piloting also assessed the feasibility of the questionnaire and acted as a method for promoting face validity. However, the data gathered from the pilot study were not included in the final analysis. The questionnaire was distributed in English and divided into two sections. The first section concerned the demographics of the participants. The second section was divided into six sub-sections: (1) patients' perceived susceptibility (n = 4 items; a patient's perceived risk of not taking medication as directed (i.e. a lack of knowledge about how to take medication correctly, its side effects, drug interactions, or a belief that that medication would do more harm than good)); (2) perceived severity (n = 4 items; patients' understanding of the consequences of not taking medication as directed (i.e. if the medication does not work, the possible need for additional medication, unfavorable health or financial consequences such as side effects, emergency visits or hospitalizations)); (3) past experiences (n = 8 items; being involved in medication counselling with a pharmacist in the past); (4) perceived barriers (n = 9 items; patients' obstacles for consulting pharmacists regarding their medications); (5) perceived benefits (n = 7 items; the advantages patients obtain from consulting pharmacists regarding their medication); and (6) the likelihood of patients' participation in medication counselling in future (n=7 items) (see Table 1).

### 2.4. Ethical approval and considerations

Ethical approval was granted by the Imam Abdulrahman Bin Faisal University Review Board (IRB-UGS-2020-05-049). Although no ethical requirements were raised by the University Review Board, some ethical considerations were considered, regarding informed consent, voluntary participation and the right to withdraw, privacy, anonymity and confidentiality. Firstly, using an online survey distributed via social media, the participants were able to fill out the questionnaire at their convenience. An information page was created, explaining to potential participants the purpose of the study and the inclusion criteria, as well as a statement informing the participants that their participation was voluntary and that had a right

**Table 1**  
Questionnaire six-item form unselling in future (n = 7 items) (see Table 1).

N	Items	Questions
1	Susceptibility (PS)	<ol style="list-style-type: none"> <li>1. I don't understand how to take my medications correctly</li> <li>2. I worry about harmful side effects I may experience from taking my medications</li> <li>3. I worry about the possible risk of my medications interacting with each other</li> <li>4. I believe medications do more harm than good</li> </ol>
2	Severity (S)	<ol style="list-style-type: none"> <li>1. The medication will not be as effective for its purpose</li> <li>2. I may experience a need for additional medication to treat my health condition</li> <li>3. I may experience consequences to my health</li> <li>4. I may experience financial consequences</li> </ol>
3	Perceived barriers to medication counselling (PB)	<ol style="list-style-type: none"> <li>1. I am not interested in discussing my medication</li> <li>2. I do not have time to speak about my medication</li> <li>3. I trust my physician to provide me with all necessary medication</li> <li>4. I do not think I need additional information about my medication</li> <li>5. I would use the Internet for additional medication information</li> <li>6. The pharmacist is not accessible enough to discuss my medication</li> <li>7. The pharmacist does not have time to speak to me about my medication</li> <li>8. The pharmacist thinks my physician provides me with all of the necessary medication information</li> <li>9. The pharmacist does not understand how my medication will affect my health condition</li> <li>10. The pharmacist is not interested in speaking to me about my medication</li> </ol>
4	Perceived benefits to medication counselling (PBMC)	<ol style="list-style-type: none"> <li>1. It will help me improve my health, or get my disease under control</li> <li>2. I will feel more confident that I am taking the correct medication</li> <li>3. I will feel more confident that I will take my medication correctly</li> <li>4. I will be less likely to experience a need for additional medication(s) to treat my health condition(s) or disease</li> <li>5. I will be less likely to experience consequences to my health</li> <li>6. I will be less likely to experience negative financial consequences related to inappropriate medication use</li> <li>7. My physician does not provide me with enough information about my medication(s)</li> <li>8. The pharmacist is the most reliable source for medication information</li> <li>9. The pharmacist is interested in discussing my medications with me</li> </ol>
5	Past experience (PE)	<ol style="list-style-type: none"> <li>1. What the medication used for</li> <li>2. How to take the medication correctly</li> <li>3. Common side effect</li> <li>4. How to know if medication is working</li> <li>5. About medication interaction</li> <li>6. If any alternative medication could help</li> <li>7. What to do if a dose missed</li> <li>8. How often have you spoken with pharmacist</li> </ol>
6	Likelihood to participate in medication counselling (L)	<ol style="list-style-type: none"> <li>1. What the medication used for</li> <li>2. How to take the medication correctly</li> <li>3. Common side effect</li> <li>4. How to know if medication is working</li> <li>5. About medication interaction</li> <li>6. If any alternative medication could help</li> <li>7. What to do if a dose is missed</li> <li>8. In the future how likely will you be to speak with a pharmacist when picking up or purchasing a medication</li> </ol>

to withdraw from the study at any time and for any reason. The participants were asked to read through the information carefully and, before starting the survey, a click-wrap agreement was attached at the end of the page so that they could indicate their agreement to take part by clicking a button or checking a box labelled "I agree". In addition, all of the contact details of the corresponding author were provided. In terms of data confidentiality and privacy, QuestionPro concealed any personally identifiable information related to the participants. Therefore, all of the participants were anonymized. In addition, the data collected from the participants did not include any details that might make them identifiable (e.g. patients' names, contact details, etc.). However, when the data were entered into SPSS, they were given numbers, handled with confidentiality throughout the study period, kept on a password-protected laptop in a designated cabinet storage for this purpose and could only be accessed by the corresponding author.

### 2.5. Data processing and analysis

The completed survey was processed and analyzed using a quantitative procedure involving the statistical methods available in IBM SPSS Statistics version 24. All demographics were reported.

The responses to the questionnaire's six items, mentioned in the previous section, were generated using descriptive statistics and the mean scores for each item and the sub-items were generated and compared to the population mean. Linear regression was used to compare the four broad categories: age (two groups from 18–44 and 45–>85 years old, based on frequency), gender, education level, and type of accessed pharmacy. In addition, Pearson's correlation was used to assess the relationship between the summations of the scores for the constructs being measured.

### 3. Results

Of the 1064 people who viewed the questionnaire, 511 respondents completed it (the response rate = 48%). Five hundred and eleven participants (male (n = 101: 19.8%), female (n = 410: 80.2%), age ranging from 18 to 24 years, for approximately half of the sample) were enrolled. The participants were asked whether, in the past two years, they had purchased or collected medication (prescription or over-the-counter) for their own use, and 511 of participants (100%) reported that they had done so. Almost an equal number of participants accessed either community (n = 228: 45%) or hospital pharmacies (n = 283: 55%). Regarding the patients'

disease(s), the participants were able to select multiple options for all applicable diseases or conditions that they had had previously and for which they had accessed either a community or hospital pharmacy to seek a consultation. Of the 511 participants, more than one-quarter of the sample ( $n = 137$ ; 26.8%) accessed pharmacies due to acne, whilst the lowest number ( $n = 18$ ; 3.5%) was due to a psychological disorder (i.e. depression). See Table 2 for more information on the patients' characteristics.

### 3.1. Item responses

#### 3.1.1. Perceived susceptibility (PS) and severity (S)

Most of the participants strongly agreed or agreed that worrying about the harmful side effects that they might experience

due to taking medication (item PS2;  $n = 216$ ; 42%) and the possible risk of medication interactions (item PS3;  $n = 223$ ; 44%) were the two most important reasons that might stop them from taking medication as directed. On average, for both items (item PS2;  $\mu = 3 \pm 1.24$ , item PS3;  $\mu = 3 \pm 1.3$ ), the agreement was close to the overall mean ( $\mu = 2.36 \pm 0.88$ ). Regarding the perceived severity, most of the participants strongly agreed or agreed that failing to take medication as prescribed might reduce its effectiveness, so a medication might not fulfill its purpose (item S1;  $n = 386$ ; 75%) and may consequently lead to negative outcomes (item S3;  $n = 296$ ; 58%). On average, for both items (item S1;  $\mu = 3.84 \pm 1.04$ , item S3;  $\mu = 3.36 \pm 1.04$ ), the agreement was close to or higher than the overall mean ( $\mu = 3.36 \pm 0.76$ ) for perceived severity, compared to perceived susceptibility (see Table 3).

**Table 2**

Demographic characteristics of participants ( $n = 511$ ).

Percentage (%)	Number (n)	Participants characteristics	
45.8%	234	18–24	Age (years)
25.4%	130	25–34	
15.3%	78	35–44	
10.4%	53	45–54	
2.3%	12	55–64	
0.8%	4	65–74	
0%	0	75–85	
0%	0	Over 85 years old	
80.2%	410	Female	Gender
19.8%	101	Male	
99.2%	507	Arabs	Race (ethnicity)
0.8%	4	Other	
54.2%	277	Eastern province	State of residence (area)
18.4%	94	Middle province	
14.7%	75	Western province	
9.2%	47	Southern province	
3.5%	18	Northern province	
55.4%	283	Hospital pharmacy	Type of pharmacy
44.6%	228	Community pharmacy	
0.2%	1	Illiterate	Level of education
13.5%	69	High School	
75.3%	385	Undergraduate	
10.0%	51	Postgraduate	
1.0%	5	Other	
46.8%	239	None	Number of prescribed medications
32.5%	166	1–2	
15.1%	77	3–4	
3.9%	20	5–7	
1.8%	9	>7 medication	
26.8%	137	Skin condition (i.e. acne)	Type of diseases
15.9%	81	Cardiovascular problems (i.e. high blood pressure, high cholesterol and cardiovascular diseases)	
10.6%	54	Pain disorder (i.e. migraine headaches and chronic pain)	
10.5%	54	GI Problems (i.e. gastroesophageal reflux disease and peptic ulcer disease)	
10.1%	52	Endocrine (e.g. diabetes mellitus type I, II and thyroid disorders)	
8.6%	44	Respiratory problem (i.e. asthma chronic obstructive pulmonary disease)	
4.5%	23	Bone and joint disorder (i.e. rheumatoid arthritis and osteoporosis)	
3.5%	18	Psychological disorder (i.e. depression)	
0%	0	Attention deficit hyperactivity disorder	
20.0%	102	Other	
33.5%	171	Doesn't apply	

#### 3.1.2. Perceived barriers (PB) and benefits to medication counselling (PBMC)

The most commonly reported three barriers that would prevent the participants from speaking to a pharmacist is the pharmacist's assumption that the physician had already provided the patient with all of the necessary medication information (PB8;  $n = 223$ ; 44%), being able to search the Internet to look for or obtain additional information, if required (PB5;  $n = 197$ ; 38%), and a pharmacist not being sufficiently accessible to discuss medication (PB6;  $n = 171$ ; 33%). On average, for all three items (item PB8;  $\mu = 3.12 \pm 1.14$ , item PB5;  $\mu = 2.86 \pm 1.23$ , and item PB6;  $\mu = 2.86 \pm 1.16$ ), the agreement was close to the overall mean ( $\mu = 2.54 \pm 0.69$ ). Therefore, a high number of barriers were reported by the study sample. Regarding the perceived benefits of medication counselling, in general, the participants perceived more benefit for medication counselling when compared to the barriers ( $\mu = 3.72 \pm 0.62$ ). The participants tended to commonly agree or strongly agree that they would have spoken with a pharmacist about their medication because they would have felt more confident that they were taking the right medication ( $n = 428$ ; 84%), and in the right way ( $n = 433$ ; 85%).

#### 3.1.3. Past experience (PE)

Regarding the items assessing cues to action, or past experiences with medication counselling, the most common past experiences included items directly related to medication information and indications, including speaking with a pharmacist regarding how to take the medication correctly (item PE2;  $n = 329$ ; 64%) and what their medication was for (item PE8;  $n = 137$ ; 34%). In contrast, one-third of the participants ( $n = 169$ ; 33%) declared that they had never spoken with their pharmacist about how they would know if their medication were working or not. On average, for both items (item PE2;  $\mu = 3.44 \pm 0.89$ , item PE8;  $\mu = 3 \pm 0.904$ ), the agreements were close to the overall mean ( $\mu = 2.64 \pm 0.67$ ).

#### 3.1.4. The likelihood of participating in medication counselling in the future (L)

The participants reported that they would be highly likely to speak with a pharmacist in the future regarding how to take medication correctly ( $n = 476$ ; 93%) and medication indications ( $n = 420$ ; 83%), but less likely to speak to a pharmacist about how to tell if medication is working or not ( $n = 168$ ; 33%).

### 3.2. Item assessment

Linear regression was carried out to compare one dependent variable, the likelihood of participation in medication counselling, with four broad categories, age (two groups: 18–44 and 45–>85 years old, based on frequency), gender (male or female), education level (two groups: post-undergraduates and  $\leq$  high school), and type of accessed pharmacies (community or hospital).

**Table 3**  
Participants responses to the six items.

Items	Questions	Strongly disagree n (%)	Disagree n (%)	Neither agree or disagree n (%)	Agree n (%)	Strongly agree n (%)	Mean± (SD)
Susceptibility (PS)	1. I don't understand how to take my medications correctly	212 (41%)	149 (29%)	71 (14%)	65 (13%)	14 (3%)	2.1 (1.14)
	2. I worry about harmful side effects I may experience from taking my medications	85 (17%)	98 (19%)	112 (22%)	174 (34%)	42 (8%)	3 (1.24)
	3. I worry about the possible risk of my medications interacting with each other	88 (17%)	98 (19%)	102 (20%)	167 (33%)	56 (11%)	3 (1.3)
	4. I believe medications do more harm than good	109 (22%)	175 (34%)	134 (26%)	67 (13%)	26 (5%)	2.5 (1.11)
	Overall mean±(SD)						2.63 (0.88)
Severity (S)	1. The medication will not be as effective for its purpose	26 (5%)	35 (7%)	64 (13%)	257 (50%)	129 (25%)	3.84 (1.04)
	2. I may experience a need for additional medication to treat my health condition	60 (12%)	130 (26%)	139 (27%)	160 (31%)	22 (4%)	2.91 (1.09)
	3. I may experience consequences to my health	29 (6%)	78 (15%)	108 (21%)	247 (48%)	49 (10%)	3.42 (1.04)
	4. I may experience financial consequences	42 (8%)	98 (19%)	115 (23%)	194 (38%)	62 (12%)	3.27 (1.15)
	Overall mean±(SD)						3.36 (0.76)
Perceived barriers to medication counselling (PB)	1. I am not interested in discussing my medication	194 (38%)	144 (28%)	113 (22%)	51 (10%)	9 (2%)	2.09 (1.07)
	2. I do not have time to speak about my medication	154 (30%)	191 (38%)	94 (18%)	65 (13%)	7 (1%)	2.18 (1.04)
	3. I trust my physician to provide me with all necessary medication	126 (25%)	159 (31%)	89 (17%)	102 (20%)	35 (7%)	2.53 (1.25)
	4. I do not think I need additional information about my medication	108 (21%)	184 (36%)	108 (21%)	96 (19%)	15 (3%)	2.46 (1.11)
	5. I would use the Internet for additional medication information	92 (18%)	116 (23%)	106 (21%)	165 (32%)	32 (6%)	2.86 (1.23)
	6. The pharmacist is not accessible enough to discuss my medication	78 (15%)	120 (24%)	142 (28%)	140 (27%)	31 (6%)	2.86 (1.16)
	7. The pharmacist does not have time to speak to me about my medication	107 (21%)	171 (34%)	102 (20%)	104 (20%)	27 (5%)	2.56 (1.18)
	8. The pharmacist thinks my physician provides me with all of the necessary medication information	52 (10%)	104 (20%)	132 (26%)	178 (35%)	45 (9%)	3.12 (1.14)
	9. The pharmacist does not understand how my medication will affect my health condition	150 (29%)	194 (38%)	103 (20%)	51 (10%)	13 (3%)	2.18 (1.05)
	10. The pharmacist is not interested in speaking to me about my medication	103 (20%)	160 (31%)	124 (24%)	90 (18%)	34 (7%)	2.59 (1.18)
Overall mean±(SD)						2.54 (0.69)	
Perceived benefits to medication counselling (PBMC)	1. It will help me improve my health, or get my disease under control	11 (2%)	39 (8%)	92 (18%)	285 (56%)	84 (16%)	3.77 (0.89)
	2. I will feel more confident that I am taking the correct medication	6 (1%)	16 (3%)	61 (12%)	295 (58%)	133 (26%)	4.04 (0.78)
	3. I will feel more confident that I will take my medication correctly	4 (1%)	23 (4%)	51 (10%)	285 (56%)	148 (29%)	4.08 (0.79)
	4. I will be less likely to experience a need for additional medication(s) to treat my health condition(s) or disease	9 (2%)	29 (6%)	109 (21%)	257 (50%)	107 (21%)	3.83 (0.88)
	5. I will be less likely to experience consequences to my health	11 (2%)	27 (6%)	109 (21%)	267 (52%)	97 (19%)	3.81 (0.88)
	6. I will be less likely to experience negative financial consequences related to inappropriate medication use	13 (2%)	47 (9%)	106 (21%)	255 (50%)	90 (18%)	3.71 (0.95)
	7. My physician does not provide me with enough information about my medication(s)	43 (8%)	104 (21%)	142 (28%)	154 (30%)	68 (13%)	3.20 (1.16)
	8. The pharmacist is the most reliable source for medication information	12 (2%)	61 (12%)	128 (25%)	196 (39%)	114 (22%)	3.66 (1.03)
	9. The pharmacist is interested in discussing my medications with me	19 (3%)	70 (14%)	194 (38%)	167 (33%)	61 (12%)	3.35 (0.98)
Overall mean±(SD)						3.72 (0.62)	



Table 3 (continued)

Items	Questions	Strongly disagree n (%)	Disagree n (%)	Neither agree or disagree n (%)	Agree n (%)	Strongly agree n (%)	Mean± (SD)
Past experience (PE)	Questions	Never	Rarely	sometimes	often		
	1. What the medication used for	77 (15%)	96 (19%)	180 (35%)	158 (31%)		2.82 (1.03)
	2. How to take the medication correctly	34 (7%)	37 (7%)	111 (22%)	329 (64%)		3.44 (0.89)
	3. Common side effect	117 (23%)	141 (27%)	162 (32%)	91 (18%)		2.44 (1.03)
	4. How to know if medication is working	169 (33%)	126 (25%)	150 (29%)	66 (13%)		2.22 (1.05)
	5. About medication interaction	142 (28%)	131 (25%)	138 (27%)	100 (20%)		2.38 (1.09)
	6. If any alternative medication could help	104 (20%)	111 (22%)	204 (40%)	92 (18%)		2.56 (1.01)
	7. What to do if a dose missed	164 (32%)	127 (25%)	139 (27%)	81 (16%)		2.27 (1.08)
	8. How often have you spoken with pharmacist	36 (7%)	100 (20%)	202 (39%)	173 (34%)		3.00 (0.904)
	Overall mean±(SD)						2.64 (0.67)
Likelihood to participate in medication counselling with pharmacist (L)	Questions	Very unlikely	Unlikely	Likely	Very likely		
	1. What the medication used for	23 (4%)	68 (13%)	274 (54%)	146 (29%)		3.06 (0.77)
	2. How to take the medication correctly	9 (2%)	26 (5%)	228 (45%)	248 (48%)		3.40 (0.67)
	3. Common side effect	23 (5%)	83 (16%)	257 (50%)	148 (29%)		3.04 (0.79)
	4. How to know if medication is working	40 (8%)	128 (25%)	225 (44%)	118 (23%)		2.82 (0.88)
	5. About medication interaction	37 (7%)	86 (17%)	253 (50%)	135 (26%)		2.95 (0.85)
	6. If any alternative medication could help	32 (6%)	75 (15%)	254 (50%)	150 (29%)		3.02 (0.85)
	7. What to do if a dose is missed	35 (7%)	91 (18%)	248 (48%)	137 (27%)		2.95 (0.85)
	8. In the future how likely will you be to speak with a pharmacist when picking up or purchasing a medication	19 (4%)	36 (7%)	256 (50%)	200 (39%)		3.25 (0.74)
	Overall mean±(SD)						3.06 (0.56)

Compared with the older participants, the younger groups were less likely to participate in medication counselling ( $\beta = -0.06$ ). However, this difference was not significant ( $p = 0.39$ ). In addition, females were more likely to attend medication counselling than males ( $p = 0.014$ ). Compared to community the pharmacy patients, the hospital pharmacy patients were less likely to participate in medication counselling, but this was not significant ( $p = 0.79$ ). The more highly educated a participant was, the less likely they were to go for medication counselling (see Table 4).

A Pearson's correlation was used to assess the relationship between perceived susceptibility (PS), severity (S), barriers (PB), benefits (PBMC), past experience (PE) and future likelihood (L) (see Table 5). The PS construct had a weak positive correlation with S, PB, PBMC, PE, and L ( $r < 0.3$ ), which indicates that PS had a weak relationship with these constructs. S was found to have a very weak positive relationship with perceived PB and PBMC ( $r < 0.05$ ). PB had a weak negative relationship with all of the constructs, including PBMC and L ( $r < 0.3$ ), which means that, as PB

increases, the PBMC and L related to participating in medication counselling decrease. A moderate positive relationship was found between past experience and future likelihood to participate in medication counselling ( $r = 0.460$ ), which means that, if someone has had a positive past experience with medication counselling, they will be more likely to attend medication consultation in the future.

#### 4. Discussion

The only two published studies conducted in the KSA explored consumer attitudes toward community pharmacy services only (Bawazir, 2004; Altannir et al., 2016), and neglected hospital pharmacies. In addition, they assessed people's satisfaction with these services in a single region only (i.e. Riyadh), where the provided services could be different or not available in other regions. This study, on the other hand, is the first study to examine consumers' perceptions of medication counselling in both community and hospital pharmacies across all regions of the KSA and also the first to determine the predictors of patients' likelihood to attend medication counselling delivered by pharmacists in the KSA.

Concerns about harmful side effects and the possible risk of medication interactions were the two reasons that the patients reported most frequently that may stop them from taking medication as directed. These reasons were in line with one previous study of community pharmacy patients who found themselves more susceptible to not taking their medication as prescribed because of the side effects and drug interactions (Brinkerhoff, 2016). However, another study reported different reasons, such as low health literacy and consumer advertising (Khudair and Raza, 2013). In this study, the patients perceived that failing to take medication as prescribed may reduce the effectiveness of these medicines, so that a medication may not fulfill its purpose and

Table 4  
likelihood of individuals characteristics to participate in medication counselling (n = 511).

P value <sup>a</sup>	$\beta$ value <sup>b</sup>	Participants characteristics
0.39	-0.06	18–44 Over 85 Years Old Age (years)
0.83	0.14	Male Female Gender
0.79	-0.01	Community pharmacy Hospital pharmacy Type of pharmacy
0.45	-0.05	Postgraduate - undergraduate High school, illiterate and others Level of Education

<sup>a</sup> Statistically significant at  $P \leq 0.05$ .

<sup>b</sup> Standardized beta.

**Table 5**  
Pearson's correlation coefficients among the variables (n = 511).

Variables	(PS) +r (p*)	(S) +r (p*)	(PB) +r (p*)	(PBMC) +r (p*)	(PE) +r (p*)	(L) +r (p*)
Perceived susceptibility (PS)	–					
Perceived severity (S)	0.170 (0.00)	–				
Perceived barriers (PB)	0.201 (0.00)	0.029 (0.51)	–			
Perceived benefits (PBMC)	0.041 (0.36)	0.261 (0.00)	–0.259 (0.00)	–		
Past experience (PE)	0.050 (0.09)	0.050 (0.26)	–0.318 (0.00)	0.209 (0.00)	–	
Likelihood of participation (L)	0.125 (0.00)	0.131 (0.00)	–0.227 (0.00)	0.345 (0.00)	0.460 (0.00)	–

\*The Pearson correlation coefficient (Pearson's r).

\* Correlation significant at  $P \leq 0.05$  (2-tailed).

may consequently lead to negative outcomes. This finding is consistent with Brinkerhoff (2016), who reported similar consequences (Brinkerhoff, 2016). In contrast, taking a high number of medications or taking alternative medications were the two most frequently reported reasons by Huston's study for not taking medication as directed (Huston, 2013).

In this study, as an individual's perceived barriers increase, the perceived benefits and future likelihood of participating in medication counselling decrease. However, only a small number of barriers were reported by the participants, which means that they did not perceive or strongly perceive many barriers to medication counselling. The two most commonly identified barriers were pharmacists assumed that physicians had provided all of the required medication information to the patient, and using the Internet as a source of medication information and education, which were consistent with the findings of previously published studies (Huston, 2013; Brinkerhoff, 2016). In contrast, previous studies found that crowded waiting areas, long waiting times, and a lack of privacy were the most frequently reported barriers that prevented customers from attending medication consultation (Chewning and Schommer, 1996; Krueger and Hermansen-Kobulnicky, 2011; Tucker & Stewart, 2015), in addition to patient illiteracy (Layqah et al., 2018). A study conducted to identify the perceptions of pharmacists and patients regarding the advisory role of the former found that a reliance on physicians from the patients' perspective was a major barrier (Huston, 2013; Schommer & Gaither, 2014).

The majority of the participants agreed that talking with pharmacists would have made them feel more confident that they had been taking the correct medication, which was consistent with a published study which stated that the most beneficial service that a pharmacy might offer would be to explain how to use medication (Assa-eley & Kimberlin, 2005). Two previous studies showed that consulting a pharmacist improved patients' health and perceived ability to care for themselves (Assa-eley & Kimberlin, 2005; Brinkerhoff, 2016).

In this study, it was shown that, if a person has past experience of speaking with a pharmacist about their medication, they will be more likely to perceive the benefits of medication counselling. These findings were in line with Ried et al.'s (1999) and Brinkerhoff's (2016) studies, which reported that, after an individual spoke to a pharmacist about their medication, they were more likely to understand the benefits of consultation.

In this study, when the patients attended medication counselling with pharmacists, the conversations mainly focused on the indication and administration information about the medication. In contrast, they had fewer conversations about how to tell if medication is working or what to do if a dose is missed. These findings are in line with those of previously published studies,

which found that medication counselling predominantly covers what medication is used for and the directions for use (Schommer and Wiederholt, 1997; Glanz et al, 2008; Brinkerhoff, 2016), and rarely informs the patient about how to tell if medication is working (Kelly et al, 2014). This study's findings show that an individual's experience with medication counselling is a predictor of their likelihood of seeking counselling. The data indicate that, the more patients have past experience with medication counselling, the more likely they will be to perceive the benefits of counselling, have fewer barriers, and continue to seek counselling in the future. However, two studies reported that patients received a limited scope of medication counselling at pharmacies when collecting medication, particularly regarding repeat prescriptions (Schommer and Wiederholt, 1995; Kassam et al., 2012), which may minimize the individuals' perceptions of the benefits of medication counselling.

#### 4.1. Limitations

One of the limitations of this study is the use of the convenient sampling technique which may have led to the sample not being representative of the entire population. In addition, this study examined individuals' self-reported behaviors. Therefore, self-reporting bias (e.g. social desirability and recall biases) is a possibility.

#### 4.2. Recommendations

- To enhance patients' experience and care, it is important to identify patients' views and demands in regards to their medication and seek ways to encourage patients to ask questions during consultations. For example, it is important to encourage the patients to describe their history by asking questions such as, "When did the symptoms start?" and "Why did you come to the pharmacy today?" Open and closed questioning techniques should be used throughout. In addition, it is vital to clarify any information the patients give and check if anything seems unclear or if further information is needed (e.g. "Could you explain what you mean by...?" and "Can you tell me a bit more about that?"). Another beneficial technique is regularly to summarize what the patients have said to verify the pharmacists' understanding of the problem and what the patient means. Pharmacists should also give patients an opportunity to provide further information (e.g. "So what you're telling me is... Is that correct?" and "From what I understand, you've been experiencing... Is that correct?"). Pharmacists should neither assume that physicians have already explained everything about the therapy to their patients during a consultation, nor that patients understand all of the information provided.

- Pharmacists should periodically assess patients' requests for a consultation, as these incentives can change over time and in different situations, whether due to the lack of a perceived need or a lack of understanding of the pharmacist's ability to meet these needs. For example, a standardized structured tool can be developed to meet the criteria for a good assessment instrument to assess patients' needs for a consultation. The validity, reliability, and feasibility of this tool should be measured and assessed. After that, when a person visits a pharmacy to collect a prescription or get a repeat prescription, they can be assessed by the pharmacists using this tool.
- Pharmacists should open up a dialogue with patients about the disadvantages of using the Internet as the first place to look for information, as there are millions of poor-quality websites or websites containing incomplete or incorrect information. During the consultation, pharmacists may provide more comprehensive information than what may be found on the Internet, and can also help consumers to evaluate the quality of the information found online and recommend sites where the correct information might be found.
- Older adults with polypharmacy should be a priority for medication consultation, such as implementing clinical medication reviews (CMRs), which are increasingly performed in older persons with multimorbidity and polypharmacy, to ensure that safe medication practices and followed and that the patients' needs are met. However, strategies for integrating such tools into pharmacy practice have not been established in the KSA. Therefore, efforts should be made by pharmacists to help older adults to navigate and utilize the Internet more easily as well as recognize dependable online sources until this service is implemented.
- This finding may expose a curricular gap in the student pharmacist training. Therefore, the Saudi Ministry of Education should take the initiative in revising the current pharmacy curriculum to include several topics and provide training on the most appropriate counselling techniques and strategies which should be followed to improve pharmacists' counselling skills and practice.
- Counselling needs to refer back to the prescriber, when a patient presents with a prescription to be dispensed, and the physician does not follow the guidelines. In this case, the pharmacist should contact the physician to check the accuracy of the information. Moreover, if patients present with side effects or drug interactions caused by their medication, it is vital to contact a physician to identify the likely cause of this and decide on alternatives. Furthermore, some patients believe that medication counselling is a major part of the physician's responsibilities. Therefore, physicians' involvement in the medicine reconciliation process is mandatory.

#### 4.3. Suggestions for future work

- Further work needs to be carried out to examine the reasons why patients are concerned about the possible side effects and medication interactions which may stop them from seeking consultation. This is because they may become distressed or anxious when they learn about these, no matter what precautions they take. Further studies are also needed to investigate how they found out about them: is it because the principle of informed consent obligates physicians to explain any possible side effects when prescribing medications, or not? In addition, what are the possible interventions that can be implemented to reduce this issue?
- One of the reported barriers to seeking consultations was doctors providing insufficient information. Therefore, future work should examine this further and focus on medical doctors' involvement in the medicine reconciliation process.

- The patients perceived pharmacists as guardian angels and felt more relaxed when talking to them. Future studies on why patients may be more willing to talk with pharmacists rather than physicians are therefore required. For example, were pharmacists allowing sufficient time for patients, and being humbler compared to physicians? Is it a time management problem or an attitude problem?

#### 5. Conclusion

In order to improve the medication consultation provided by pharmacists and, therefore, enhance the patients' experience and care, it is important to understand the public's views, concerns and demands regarding medication consultation, in order to provide the proper interventions and serve as a platform for developing a plan of action for good pharmacy practice.

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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