

## Pharmacists' Attitudes toward Role and Perceived Barrier on Smoking Cessation Activities : A Systematic Review

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### Abstract

Pharmacists have unique position to promote smoking cessation (SC). Furthermore, smoking cessation provision is an obligation of pharmacists recommended by many professional organizations. The aims of the study were to summarize pharmacists' actual SC service provision, current knowledge about smoking cessation, attitudes toward role of pharmacist in SC, perceived role of pharmacist in SC service, and perceived barriers on SC counseling. A systematic review was undertaken. The electronic databases used to identify relevant studies were PUBMED, ScienceDirect, Cochrane Database of Systematic Reviews, and Google Scholar. Search terms used were "Smoking Cessation" [MeSH] AND "Pharmacists" [MeSH]. Reference tracking was also employed. The review was restricted only English language and publication year from 1998 to 2012. The electronic database search retrieved 112 articles while only 6 studies fulfilled the eligibility criteria. According to the review, pharmacists' involvement in SC counseling was low. Regarding knowledge about smoking cessation, pharmacists' current knowledge was adequate. However, only a few received training while many of them indicated the need for more training to improve skills. There was a consistency among studies that most pharmacists have positive attitudes toward their roles in smoking cessation counseling. Common barriers on smoking cessation service were lack of knowledge and skills, time constrain, workload, and lack of demand/expectation by patients. Opportunities exist for pharmacists to provide smoking cessation counseling. However, training and intervention aims at reducing barriers related to smoking-cessation counseling are very crucial in improving actual SC service provision.

**Keyword:** Pharmacist, Attitude, Barrier, Smoking cessation, Knowledge

### INTRODUCTION

Tobacco smoking has been recognized as a leading preventable cause of illness and death in the world.<sup>1</sup> It was estimated that tobacco smoking caused nearly 6 million deaths and led to a hundred of billions dollars of economic burden each year. To reduce the burden of death and morbidity attributable to tobacco, cessation is definitely needed. In fact, cessation can greatly reduce the risk for several diseases and premature death.<sup>2</sup>

There has been a wide endorsement at the professional level for the increased involvement of pharmacists in helping their patients to quit smoking.<sup>3-5</sup> Pharmacists are uniquely positioned to provide smoking prevention and cessation services, since they are the most easily accessed having both access to quitting medications and influential in advising patients. According to the review, pharmacists' intervention on smoking cessation (SC) have been proven to be effective<sup>6-8</sup> and cost-effective.<sup>9</sup>

Despite the important positioning

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of pharmacists with regard to SC, it is of essential to examine the actual practice of pharmacists in providing SC counseling. Pharmacist's attitude towards their role in SC counseling provision, current knowledge, need for training, perceived role, and barriers related to SC service are also deserved attention. To our knowledge, there is no systematic review on these issues exist. Objectives of our systematic review are to examine actual practice of pharmacists on SC counseling, current knowledge, need for training, perceived role, and barriers related to SC service.

## METHODS

A systematic review was undertaken to identify all relevant studies.

### *Study identification*

Three electronic databases (PUBMED, ScienceDirect, Cochrane Database of Systematic Reviews) and Google Scholar were initially searched in January 5, 2012. Search terms used were summarized in Table 1. Additional articles were identified through reference tracking.

**Table 1.** Search term used to identify relevant studies

No	Databases	Search terms
1.	PUBMED (1998-2012)	“smoking cessation” [MESH] AND “pharmacists” [MESH]
2.	Science Direct (1998-2012)	“smoking cessation” AND “pharmacist*” using advance search method, by Title, Abstract, or Keywords
3.	Cochrane Database of Systematic Reviews (1998-2012)	“smoking cessation” AND “Pharmacist*” using advance search method, by Title, Abstract, or Keywords
4.	Google Scholar	“smoking cessation” AND “attitude*” AND “community pharmacist*”

### *Eligibility criteria*

The titles and abstracts of the publications identified were assessed by two independent reviewers. If the abstracts seemed to be relevant, full text articles

were then retrieved. Inclusion criteria and exclusion criteria used in this review are shown in Table 2. Disagreement on the eligible articles was resolved by discussion until consensus was reached.

**Table 2.** Eligibility criteria

Inclusion criteria	Exclusion criteria
Studies that considered pharmacist's practice of SC service, and/or knowledge, and/or attitude, and/or perceived role, and/or perceived barrier towards SC counseling.	Conference abstract
Original study published during 1998-2012	Non-English language
Conducted in community pharmacy/drug store setting	Full-text cannot be accessed by Mahidol University database

### Study Quality Assessment

Study quality was performed by the same two authors based on Grading quality of evidence and strength of recommendation.<sup>10</sup>

### Data extraction

Data were independently extracted by 2 independent researchers, using pre-specified data extraction form that included details of study, provision of SC service (Yes/no), level of knowledge (poor, moderate, high), need for training (Yes/no), attitude towards pharmacist's role in SC counseling (negative, neutral, positive), perceived role of pharmacists in SC counseling (whether SC should be pharmacists' role), and perceived barrier in SC counseling provision. Non-agreement on the extracted data was resolved by discussion among the authors.

## RESULTS

### Search results

A diagram depicts steps of searching followed PRISMA diagram<sup>11</sup> is presented in Figure 1. As shown in the figure, electronic databases produced a total of 112 articles (67 articles from PUBMED, 15 articles from ScienceDirect, 19 articles from Cochrane Database of Systematic Review, and 11 articles from Google Scholar). Title and abstracts of the 112 identified articles were independently assessed by the two authors, of which, 102 were excluded. One additional article was retrieved from the reference tracking of the included articles. Finally, 6 articles are included in the review.

### Quality assessments

Quality of studies were assessed by reviewers follow GRADE working group<sup>10</sup> as shown in Table 3.

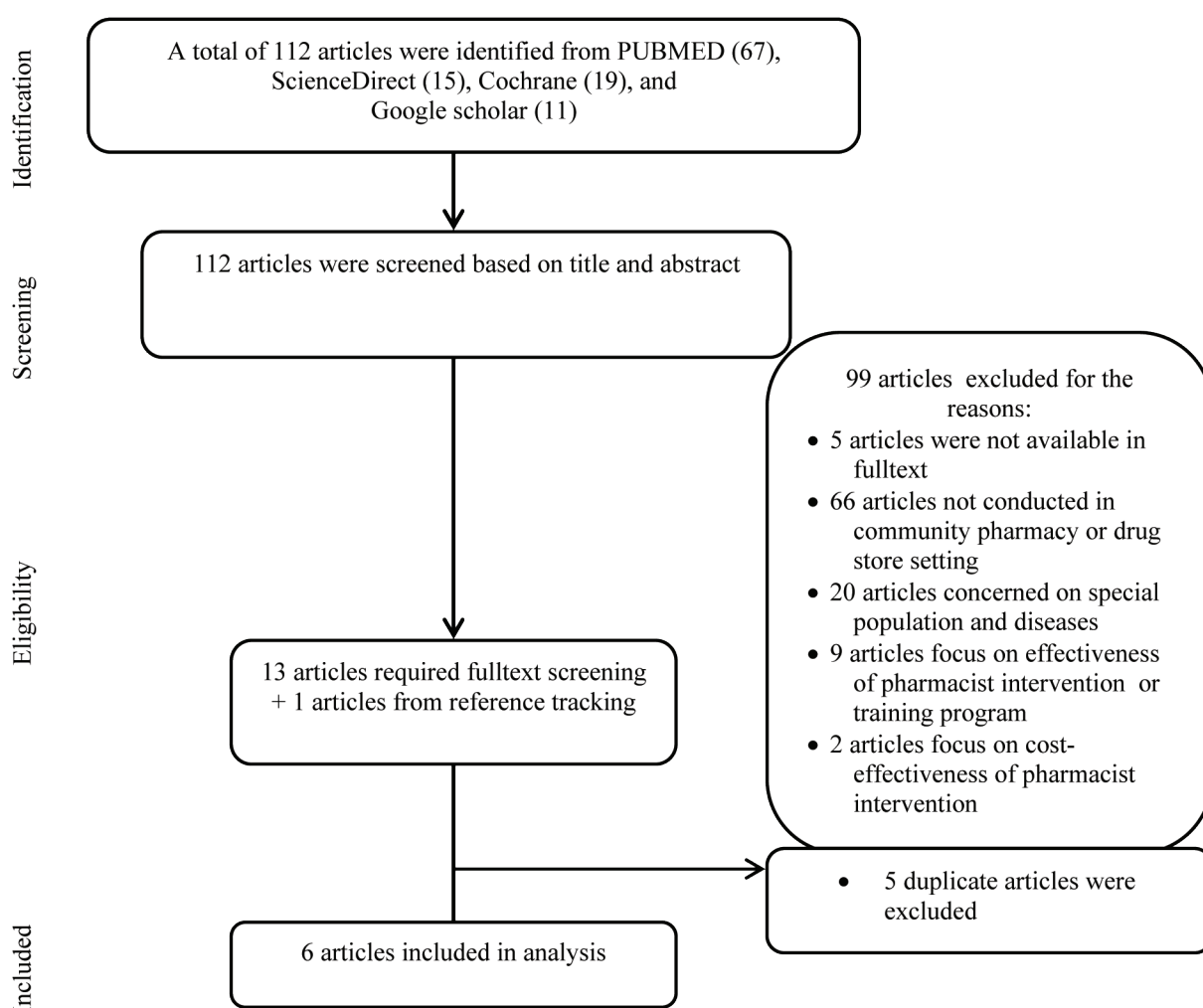


Figure 1. PRISMA diagram of retrieved studies

**Table 3.** Quality of individual studies

First Author	Study Quality*	Description
Goniewitz ML <sup>16</sup>	B3	Individual non-experiment study
Hudmon KS <sup>15</sup>	B3	Individual non-experiment study
Ashley MA <sup>17</sup>	B3	Individual non-experiment study
Thananithisak C <sup>12</sup>	B3	Individual non-experiment study
Aquilino ML <sup>13</sup>	B3	Individual non-experiment study
El Hajj MS <sup>14</sup>	B3	Individual non-experiment study

\* A1= systematic review, A2= other high quality review, B1= individual randomized trials, B2= individual non-randomized, experimental/intervention studies, B3= individual non-experimental studies, C1= descriptive studies (using convenience sampling), C2= case studies and example of good practices, D= summary review articles and discussions of relevant literature, P= professional opinion based on clinical evidence or reports of committee, U= user opinion, C=career opinion.

### **Studies characteristics**

As shown in Table 4, included studies were conducted in 5 countries. Two studies were conducted in US while four studies were conducted in Canada, Poland, Thailand, and Qatar.

Most of individual studies used their own questionnaires, which were developed based on expert panel group discussion and focus group discussion with experienced pharmacists as well as faculty members. Some of studies performed pilot testing of the questionnaire and revisions were conducted

if necessary. Regarding the validity of instruments used, most of papers did not state the detailed of validity measures. Only three studies mentioned about content validity and readability of questionnaire.<sup>12-14</sup> One study was part of Rx for Change® program by School of Pharmacy and Medicine, University of California.<sup>15</sup> However, few details were provided on how the authors constructed the self-efficacy and perceived-role toward SC measures. The two remaining studies were not explicitly stated about the validity of measures.<sup>16, 17</sup>

**Table 4.** Characteristics of individual studies

First author	Year of study	Country	Study design	N of respondents / response rate	Type of outcome	Instruments	Instrument development (Validation)
Hudmon KS <sup>15</sup>	1999-2000	US	Cross-sectional survey	1168 / 54.2%	Self-efficacy, current practice behavior, perceived barrier, perceived effectiveness of the pharmacist in SC counseling	10 pages questionnaire. 12 questions for self-efficacy and 15 questions for pros and cons. 15 specific barriers	Constructed and reviewed by nine experts, piloted and revised (n/a).
Ashley MJ <sup>17</sup>	2002	Canada	Cross-sectional survey	996 / 70.3% - 79.4%	Attitudes towards SC, perceived-role of pharmacists (assessing, motivating, assisting, referring and following up), practice in the past year	10 questions for attitudes, 11 questions for perceived-role, and 12 questions for practice in the past year	Drafted from literature review and consultation with pharmacist, pre-tested (n/a)

**Table 4.** Characteristics of individual studies (continued)

First author	Year of study	Country	Study design	N of respondents / response rate	Type of outcome	Instruments	Instrument development (Validation)
Aquilino ML <sup>13</sup>	2003	US	Cross-sectional survey	129/ 38.2%	Attitudes, perceived-barrier	30 questions for overall	Constructed and revised for content, relevance, clarity, and completion (content validity and readability)
Thananithisak C <sup>12</sup>	2004	Thailand	Cross-sectional survey	83 / 51%	Current practice, Perceived-role, perceived-barrier	5 section- questionnaires	n/a (Content validity by faculty experts)
Gonewitz ML <sup>16</sup>	2007	Poland	Cross-sectional survey	141	Knowledge about SC, Believes self to be qualified to provide SC, experience with SC counseling including amount of time spent on counseling 1 patients for SC, actual practice	9 closed end questions about experience with SC counseling	Developed by their own (n/a)
El Hajj MS <sup>14</sup>	2010	Qatar	Cross-sectional survey	127/ 40%	Current practice, Attitude towards SC, attitude towards pharmacist role in SC, perceived-barrier	24 closed and open-ended questions	n/a (Content validity and readability)

### ***Actual SC service provision***

Actual SC practice provided by pharmacists was summarized in Table 5. According to Goniewitz ML<sup>16</sup> 57% and 29% indicated that they sometimes or often recommend NRT products to patients, respectively. In the US, One study in the US found that median number of patients counseled per month was 4.0. Most pharmacists indicated that they spent between 1-2 minutes per patient counseled on the use of non-prescription NRT.<sup>15</sup> In Thailand, 34% - 36% indicated that they engaged in activities in their own pharmacies by providing

educational material and SC service, respectively. However, it should be noted that only the community pharmacy that applied for community pharmacy accreditation were studied.<sup>12</sup> In one study<sup>13</sup>, about 19% indicated that they actually offered SC service. A study in Qatar indicated that 21% indicated that they always asked their patients if they smoke.<sup>14</sup>

### ***Current knowledge and the need of training***

Current knowledge and the need of training were summarized in Table 5. A survey on Poland pharmacists<sup>16</sup> revealed that 83%

pharmacists feel that the knowledge from undergraduate courses will be adequate to provide basic information about smoking health effects. However, pharmacists felt being more able to provide information about health consequences of tobacco

smoking rather than to help patients quit smoking (85% vs 61%).<sup>16</sup> In an interview-based survey of 1168 US pharmacists revealed that only 9% of them received formal training however about 87.5% expressed an interest in receiving training.<sup>15</sup>

**Table 5.** Actual practice, knowledge, attitudes and perceived role of pharmacist in SC service

First author	Actual SC service provision	Knowledge/ need for training	Attitude towards pharmacist role in SC service	Perceived role of Pharmacist in SC service
Goniewitz ML <sup>16</sup>	57% and 29% indicated that they sometimes or often recommend NRT products to patients, respectively.	83% indicated that knowledge about SC from undergraduate courses is satisfactory	79% of pharmacists absolutely believe that his/herself is qualified to provide SC	-
Hudmon KS <sup>15</sup>	26.8% indicated that they did not counsel any patients for SC during a typical month. Median number of patients counseled per month was 4.0. Most pharmacists indicated that they spent between 1-2 minutes per patient counseled on the use of non-prescription NRT.	9% of them received formal training however about 87.5% expressed an interest in receiving training	37.3%, and 40% ranked pharmacists effectiveness in assisting patients with quitting as average and good-excellent, respectively	86.4% believed that the profession should become more active in assisting tobacco users with quitting.
Ashley MA <sup>17</sup>	-	-	70% had positive attitude towards SC service	50% thought that pharmacists have important roles in motivating patients to quit in most aspects.
Thananithisak C <sup>12</sup>	34% - 36% indicated that they engaged in activities in their own pharmacies by providing educational material and SC service, respectively.	-	-	93% agreed that they should pay a role in SC
Aquilino ML <sup>13</sup>	About 19% indicated that they actually offered SC service.	-	-	38.2% indicated that it is important to offer SC service

**Table 5.** Actual practice, knowledge, attitudes and perceived role of pharmacist in SC service (continued)

First author	Actual SC service provision	Knowledge/ need for training	Attitude towards pharmacist role in SC service	Perceived role of pharmacist in SC service
El Hajj MS <sup>14</sup>	21% indicated that they always asked their patients if they smoke. When the smokers were identified, advising quitting and assessing readiness to quit were always or most of the time performed by 66% and 52% of the pharmacists. Only 155 always or most of the time arranged follow-up with smoker and 22% always made SC referral.	-	> 84% believed that SC services provided by pharmacist will increase patients' likelihood of quitting and that SC improves relationship with patients. About 65% indicated that patients appreciate it when he/she provide SC. 41% agreed that pharmacists should discuss SC counseling with smokers even if they did not raise the subject	83% , and 86% agreed that it is important for pharmacists to ask patients if they smoke, and that it is important for pharmacist to offer SC counseling to smokers.

#### ***Attitudes toward pharmacists' role in SC***

Four studies examined attitude towards role of pharmacists in SC services were identified. All of them indicated having positive attitude towards role of pharmacist. A study in Poland<sup>16</sup> revealed that 79% of pharmacists absolutely believe that his/herself is qualified to provide SC while 70% of pharmacists in Canada indicated that they had positive attitude towards SC service.<sup>17</sup> Most pharmacists believed that SC service provided is effective.<sup>14, 15</sup>

#### ***Perceived role of pharmacists in SC counseling***

Five studies examining the perceived role of pharmacists in SC service were identified.

In 3 studies<sup>12, 14, 15</sup>, more than 80% indicated that pharmacists have an important role in SC. On the other hands, two studies found that 38.2%-50% of pharmacists indicated that it is important for pharmacists to offer SC counseling.<sup>13, 17</sup>

#### ***Perceived barriers on providing smoking cessation service***

Numerous barriers on SC service provision can be listed in 4 groups, as shown in Table 6. The most stated perceived barriers in individual studies are lack of knowledge and skills, time constrain, workload, and lack of demand/expectation by patients.

**Table 6.** Barriers towards providing smoking cessation counseling

Domain	List of barriers	Studies
Pharmacist-related barriers	Lack of knowledge and skills/ need more training	Thananithisak C , Aquilino ML, Hudmon KS. <sup>12, 13, 15</sup>
	Time constrain	Hudmon KS, El Hajj MS, Thananithisak C, Aquilino ML. <sup>12-15</sup>
	Low priority for smoking cessation counseling vs other duties	Hudmon KS. <sup>15</sup>
	Lack of follow up visit	Aquilino ML. <sup>13</sup>
Pharmacy-related barriers	Workload	Hudmon KS, Aquilino ML. <sup>13, 15</sup>
	Lack of private area of counseling	Hudmon KS. <sup>15</sup>
	Absence of adequate follow-up tools	Aquilino ML. <sup>13</sup>
	Lack of educational materials	Thananithisak C. <sup>12</sup>
Patient-related barriers	Lack of demand / expectation by patient	Thananithisak C, Aquilino ML, <sup>12, 13</sup> Hudmon KS. <sup>12, 13, 15</sup>
	Low perceived value of counseling	Hudmon KS. <sup>15</sup>
	Lack of motivation	El Hajj MS. <sup>14</sup>
Health system-related barriers	Lack of training sustainability and availability	Hudmon KS. <sup>15</sup>
	Lack of smoking cessation products	Thananithisak C, Aquilino ML. <sup>12, 13</sup>
	Lack of reimbursement	Thananithisak C, Aquilino ML. <sup>12, 13</sup>

## DISCUSSIONS

Similar to the study among general practitioners and family physicians<sup>18, 19</sup>, we found that pharmacists also have positive attitudes toward their role in SC activities. However, we found that pharmacists' involvement in SC counseling was low. This is consistent with the previous studies which also found that not many GPs reported that they actually engaged in smoking cessation service.<sup>19, 20</sup>

In general, pharmacists' current knowledge was adequate. Consistent with the previous study among GP<sup>20</sup>, only a few pharmacists received training on SC while many pharmacists indicated that they need more skills training to motivate and assist patients who want to quit. Pharmacists' education and training in SC have been shown to be pivotal intervention in shaping pharmacists' attitudes and performance in SC counseling provision.<sup>21, 22</sup> In addition, previous studies indicated that specialized training for SC provision increase pharma-

cist' likelihood of discussion tobacco use with their patients.<sup>23, 24</sup> Hence, training is definitely required in order to increase actual SC practice among pharmacists.

Common barriers identified in our study were lack of knowledge and skills, time constrain, workload, and lack of demand/expectation by patients. On the other hand, systematic review among GP and family physician indicated that most common barriers were that such SC counseling were too time-consuming and were ineffective.<sup>18, 19</sup>

This study revealed that opportunities exist for pharmacists to provide smoking cessation counseling. To enhance the smoking cessation service provision, education and training is needed. In addition, intervention aims at reducing barriers related to smoking-cessation counseling is essential.

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