Consumer's Opinions on Reading a Medicine Leaflet

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ABSTRACT

It is generally evident that reading a medicine leaflet can provide several improvements of medication for consumers. However, most consumers seldom perform this reading behaviour. The objective of this study was to identify factors associated with the reading behaviour from consumer's opinions. This cross-sectional study was conducted in 2003 at Chiang Mai, Thailand. A sample (n = 384) was selected by systematic random sampling from freshman students (N about 4,000) of a university in the city. The study used an open-ended questionnaire, asking the reasons for reading or not reading a medicine leaflet and comments on it. This investigation used content analysis and factor analysis to analyze the data. Factors identified were as follow. Four categories of reasons for reading contained: (1) to administer a medicine, (2) to prevent undesirable effect, (3) to know a medicine and (4) to concern medication. Similarly, four categories of reasons for not reading consisted of: (1) difficult content, (2) previous experiences, (3) small print and (4) ignorance. For comments on a medicine leaflet, there were also four categories that were: (1) difficult content, (2) dual ideas, (3) small print and (4) satisfaction. Difficult content and small print of a medicine leaflet were found to be the main shortcomings, precluding consumers from reading it. Therefore, it was necessary to improve such shortcomings in order to enable consumers to read a medicine leaflet. The study also discussed and suggested how to improve a medicine leaflet.

Key words: Consumer's opinions, A medicine leaflet, Reading a medicine leaflet

INTRODUCTION

Background

In Thailand, there is an increase of medication and there are still problems of medication (The Ninth Health Plan, 2001). A problem is that consumers have little information about a medicine they take. Thus, it is necessary to facilitate consumer to have more information when medicating. According to the Drug Act B.E. 2510, medicine manufacturers have to provide a medicine label and leaflet with a medicine package. Hence, a leaflet is an official written source of medicine information that consumers can get the advantage from it for appropriate medication. The Thai Food and Drug Administration (TFDA) has recommended that every consumer read a label and a leaflet when he purchases or takes a medicine. In addition, it is evident that reading a leaflet can provide several improvements of medication for consumers. Such improvements are increasing compliance, increasing awareness of possible adverse actions, improving knowledge of medicine instruction and

improving satisfaction with medicine information (Morris and Halperin, 1979; Gotsch and Liguori, 1982; Gibbs et al., 1989; Rosenberg et al., 1995; Deijen and Kornatt, 1997; Ciociola et al., 2001). Therefore, consumers should read, understand and follow the leaflet information because they would then obtain the appropriate medication by doing so. However, there was a report showing that only about one-fifth of consumers read a leaflet regularly when purchasing or taking a medicine (Burapadaja et al., 2003 a). Why some consumers read and some do not was the concern of this study. The objective was to identify the factors associated with the reading behaviour from consumer's opinions. This study considered both reading and not reading as a reading behaviour

Theoretical framework

Many behaviour theories were applied in health behaviour change. A theory suggested for intervention approach was Social Cognitive Theory (Elder et al., 1999). This theory proposed the dynamic interaction of a triad, consisting of a person, his behaviour and his environment (Bandura, 1986). Corresponding to the theory, this investigation described the perception, thought or attitude of consumers as the personal factor of a person, reading or not reading a medicine leaflet as the behaviour of a person, and a medicine leaflet and its character as the environmental factor of a person. Several studies reported the association of personal factors and environmental factors with individual's health behaviour (Cusatis and Shannon, 1996; Kyngas, 2000 a; Kyngas, 2000 b; Lau et al., 2000; Smith et al., 2000; Kyngas, 2001). These studies did not describe whether the personal factor or the environmental factor was stronger. However, a study indicated that the environmental factor had a stronger effect on a reading behaviour than the personal factor (Burapadaja, 2003 a). Accordingly, this study hypothesized that the personal factor and environmental factor would be the factors associated with the reading behaviour of consumers, and the environmental factor would have greater frequency than the personal factor.

MATERIALS AND METHODS

Design

This cross-sectional study was conducted in 2003 at a university in Chiang Mai, Thailand.

Sample

Freshman students of a university were the population (N about 4,000) of this study. A sample (n = 384) was selected by systematic random sampling according to student codes.

Material

An open-ended questionnaire used to collect the data consisted of 2 parts. Part one contained demographics of sample while Part two included three issues, asking for reasons and comments. Each issue was provided with enough space for writing the answers. The issues were as follow.

Issue 1   Please give important reasons that made you read a leaflet.
Issue 2   Please give important reasons that made you not read a leaflet
Issue 3   Please give comment on a medicine leaflet you used to read

This investigation asked for both Issue 1 and Issue 2 because, in fact, a subject could possibly perform both reading and not reading a leaflet. Issue 1 and 2 were likely to be a positive question and a negative question respectively, so Issue 3, a balanced question, was included in the questionnaire in order that the subject could express his neutral opinions.

Data collection

Each questionnaire was attached with a cover letter, informing the study aim and a request for participation. Each questionnaire was delivered to each subject at his/her university dormitory room. A week later, three hundred and sixty questionnaires were gathered from the student rooms.

Data analysis

This study used content analysis to analyze respondent's answers. At first, the authors read all the answers and tried to formulate the criteria for grouping similar answers into the same items. Then three item lists of each issue with its criteria were obtained. For example, a respondent's answers for Issue 1, i. e., "I want to know the medicine was used for what symptom, and how many tablets to be taken", would be recorded as being present in these items: "indication" and "dosage regimen" respectively. According to the criteria, two independent recorders analyzed thirty-six questionnaires to check the reliability of content analysis. The analysis was reliable due to a high kappa coefficient of 0.93 (Ary et al., 1996). The authors had adjusted the discrepancies of content analysis by the two recorders and further analyzed the rest of questionnaires.

For parsimony, this investigation used factor analysis to reduce several items into categories by giving a score to a presence of each reason and comment. The study employed Goodness of Fit test to compare the different frequencies of categories at the significance level of 0.05.

RESULTS

Three-hundred-and-sixty questionnaires were gathered with a returning rate of 93.7%. Among these questionnaires, nine respondents did not answer Issue 1 ($n_1 = 351$), fifty-two respondents did not give reasons to Issue 2 ($n_2 = 308$), and twenty-eight respondents did not comment on Issue 3 ($n_3 = 332$). Demographics of respondents ($n = 351$) were compared with those of population (Seumpuckdee, 2002). Both demographics were similar, indicating that this sample was a good representative of population. Demographics are shown in Table 1.

Table 1. Demographics of respondents (n = 351).

	Range (n)	Mean (N)	Mean	p value
Age in years	17-20	18.4 + .6	18.3	> .05
Grade point average	1.87-4.00	3.15 + .4	3.09	> .05
Frequency	% n	% N		
Gender				
Female	215	61.3	60.7	> .05
Male	136	38.7	39.3	> .05
Faculty				
Humanity and Social Science	119	33.9	37.8	> .05
Science and Technology	164	46.7	41.5	> .05
Medical Science	68	19.4	20.6	> .05

N = Population

Issue 1: Reasons for reading a leaflet

After analyzing the answers of Issue 1, it was found that there were ten items of reasons for reading a leaflet. Based on frequency, the most common reason was that consumers wanted to know how to take a medicine, when to take it, how many tablets for each taking and how many days to take it. These reasons were assigned to an item called dosage regimen. (f = 188, 53.6%). The next reason was that consumers felt safe if they read a leaflet and concerned the possible dangerous effect from a medicine. They read it in order to avoid or minimize such effects. So these reasons were included in an item, namely, safety (f = 139, 39.3%). In addition, consumers needed to know if a medicine was used for what symptom or what disease, and to know whether a medicine was suitable to their ailments. This reason was referred to as indication (f = 136, 38.7%). Some consumers believed that reading a leaflet would lead to the appropriate medication (f = 105, 29.9%). They also wanted to know the side effect of medicine in order that they could minimize and use it carefully (f = 73, 20.8%). As well, consumers expressed that following the leaflet would make a medicine effective for their ailments (f = 75, 21.4%). Using a medicine with caution according to the leaflet was also a reason of consumers (f = 54, 15.4%). Moreover, consumer read a leaflet because they wanted to know medicine property (f = 52, 14.8%) and medicine name (f = 50, 14.2%). The last reason was that it was necessary and essential to read a leaflet (f = 20, 5.7%). The total frequency was greater than n1 because a respondent could write more than a reason. The item list with frequencies and mean scores of reasons for reading a leaflet are shown in Table 2.

Table 2. The item list with frequencies and mean scores of reasons for reading a leaflet (n1 = 351).

Item	Frequency	%	Mean	SD
1. Dosage regimen	188	53.6	.54	.51
2. Safety	139	39.3	.40	.49
3. Indication	136	38.7	.39	.53
4. Appropriateness	105	29.9	.30	.46
5. Effectiveness	75	21.4	.21	.41
6. Side effect	73	20.8	.21	.44
7. Caution	54	15.4	.15	.38
8. Medicine property	52	14.8	.15	.41
9. Medicine name	50	14.2	.14	.37
10. Necessity	20	5.7	.06	.23

Analyzed by factor analysis, ten items were on four factors. The four factors were referred to as these categories: *to administer a medicine, to prevent undesirable effect, to know a medicine and to concern medication.* To administer a medicine covered three items, i.e., dosage regimen, indication and appropriateness. While *to prevent undesirable effect* included three items, i.e., safety, side effect and caution. Items present in to know a medicine were medicine property and medicine name, and those in *to concern medication* were effectiveness and necessity. This item list with factor loadings are presented in Table 3.

Table 3. The item list with factor loadings of reasons for reading a leaflet.

Item	Factor 1	Factor 2	Factor 3	Factor 4
1. Dosage regimen	.800			
2. Safety		.585		
3. Indication		.705		
4. Appropriateness	.599			
5. Effectiveness				.720
6. Side effect			.631	
7. Caution		.705		
8. Medicine property			.748	
9. Medicine name			.748	
10. Necessity				.720

Issue 2: Reasons for not reading a leaflet

For the second issue, there were eleven items of reasons for not reading a leaflet. According to frequency, the first item was due to the content that consumers had difficulty in understanding (f = 92, 29.9%). Little print was another complaint (f = 84, 27.3%). The next two items were using English terms (f = 80, 26%) and medical terms (f = 78, 25.3%). Some consumers expressed that they had known the medicine already (f = 62, 20.1%) and used to take it (f = 55, 17.9%). Thus it was not necessary to read a leaflet again. In addition, some consumers accepted that they were lazy to read (f = 35, 11.4%), had no time or hurried to take

a medicine (f = 29, 9.4%). Content length was also a reason for not reading. Some consumers said that the content was too short to read or nothing to read. But, some expressed that it was too long to read. These reasons were referred to as content length (f = 26, 8.4%). Told by others, such as pharmacist, physician, relatives, was a reason consumers described (f = 18, 5.8%). The last reason was the uninterested print (f = 11, 3.6%). The item list with frequencies and mean scores of reasons for not reading a leaflet are shown in Table 4.

Table 4. The item list with frequencies and mean scores of reasons for not reading a leaflet (n_2 = 308).

Item	Frequency	%	Mean	SD
1. Difficulty with understanding	92	29.9	.30	.46
2. Little print	84	27.3	.27	.45
3. English terms	80	26	.26	.44
4. Medical terms	78	25.3	.25	.44
5. Have known the medicine	62	20.1	.20	.40
6. Used to take the medicine	55	17.9	.18	.38
7. Lazy	35	11.4	.11	.32
8. Time limit	29	9.4	.09	.29
9. Content length	26	8.4	.08	.28
10. Told by professionals	18	5.8	.06	.23
11. Uninterested print	11	3.6	.04	.19

Factor analysis on these items showed that they were on four factors called *difficult content, previous experience, small print,* and *ignorance.* Items belonged to difficult content were difficulty with understanding, English terms and medical terms. Included in the previous experience were have known the medicine, used to take the medicine and told by professionals. Three items present in small print were little print, content length and uninterested print, and two items in ignorance were lazy and time limit. This item list with factor loadings are presented in Table 5.

Table 5. The item list with factor loadings of reasons for not reading a leaflet.

Item	Factor 1	Factor 2	Factor 3	Factor 4
1. Difficulty with understanding	.697			
2. Small print			.670	
3. English terms	.740			
4. Medical terms	.791			
5. Have known the medicine		.725		
6. Used to take the medicine		.741		
7. Lazy				.740
8. Time limit				.740
9. Content length			.713	
10. Told by professionals		.378		
11. Uninterested print			.454	

Issue 3: Comments on a leaflet

For the third issue, respondents gave comments on a leaflet which were analyzed as twelve items as follow. The most common item was that respondents had difficulty in understanding (f = 114, 34.3%). They also expressed that the content was insufficient for their medication (f = 106, 31.9%). Content with little print was another comment (f = 102, 30.7%). Respondents described that medical terms (f = 72, 21.7%) and English terms (f = 60, 18.1%) were usually present in the leaflet, and sometimes the content was not clear (f = 58, 17.5%). However, some respondents recognized the advantage of leaflet (f = 54, 16.3%). As well, some of them were satisfied with sufficient content (f = 40, 12%), easy content (f = 34, 10.2%) and clear content (f = 17, 5.1%). But increasing Thai text was also a request (f = 20, 6%). Some respondents demonstrated that the leaflet content usually had these characteristics: print in white-black color, long content without emphasis on some important information. They were not interested in such print (f = 12, 3.6%). This item list with frequencies and mean scores of comments on a leaflet are shown in Table 6.

Table 6. The item list with frequencies and mean scores of comments on a leaflet (n3 = 332).

Item	Frequency	%	Mean	SD
1. Difficulty with understanding	114	34.3	.34	.48
2. Insufficient content	106	31.9	.32	.47
3. Little print	102	30.7	.31	.46
4. Medical terms	72	21.7	.22	.41
5. English terms	60	18.1	.18	.39
6. Not clear content	58	17.5	.17	.38
7. Leaflet advantage	54	16.3	.16	.37
8. Sufficient content	40	12	.12	.33
9. Easy content	34	10.2	.10	.30
10. Increase Thai text	20	6.0	.06	.24
11. Clear content	17	5.1	.05	.22
12. Uninterested print	12	3.6	.04	.19

These items of comments were analyzed by factor analysis. Twelve items were found to load on four factors, namely, *difficult content, dual ideas, small print* and *satisfaction*. Difficult content contained difficulty with understanding, medical terms and English terms. Dual ideas consisted of insufficient content, not-clear content and leaflet advantage. Small print included little print, increasing Thai text and uninterested print whereas satisfaction covered sufficient content, easy content and clear content. This item list with factor loadings are presented in Table 7.

Table 7. The item list with factor loadings of comments on a leaflet.

Item	Factor 1	Factor 2	Factor 3	Factor 4
1. Difficulty with understanding	.811			
2. Insufficient content		.714		
3. Little print			.678	
4. Medical terms	.745			
5. English terms	.687			
6. Not clear content		.719		
7. Leaflet advantage		.646		
8. Sufficient content				.513
9. Easy content				.667
10. Increase Thai text			.729	
11. Clear content				.810
12. Uninterested print			.462	

Summary

Respondents expressed four categories of reasons for reading a leaflet, i.e., to administer a medicine, to prevent undesirable effect, to know a medicine and to concern medication. These categories were associated with the thoughts of respondents, so they were classified as the personal factor of them. As well, respondents described four categories of reasons for not reading, i.e., difficult content, previous experience, small print and ignorance. Difficult content and small print were related to the leaflet, hence they were classified as the environmental factor. By contrast, previous experience and ignorance were classified as the personal factor. For comments on a leaflet, respondents also reported four categories, i.e., difficult content, dual ideas, small print and satisfaction. Difficult content and small print were also referred to as the environmental factor. On the other hand, dual ideas and satisfaction were classified as the personal factor. As a result, both the personal factor and the environmental factor were associated with the reading behaviour of respondents. This finding supported the hypothesis that the personal factor and the environmental factor would be the factors associated with the reading behaviour. In other words, this finding supported the Social Cognitive Theory that described the dynamic interaction of a triad, consisting of a person, his behaviour and his environment.

The item frequencies within a category were combined to yield the category frequencies. Summary of consumer's opinions on reading a leaflet is shown in Table 8. For categories of reasons for not reading a leaflet, the category frequency of difficult content, as the environmental factor, was greater than the category frequency of previous experience, as the personal factor, significantly with $\chi^2 = 34.4$, df = 1. This finding supported the hypothesis that the environmental factor would have greater frequency than the personal factor.

Table 8. Summary of consumer's opinions on reading a leaflet.

Category of opinion	Frequency
Issue 1 Reasons for reading a leaflet	
To administer a medicine	426
To prevent undesirable effect	266
To know a medicine	102
To concern medication	95
Issue 2 Reasons for not reading a leaflet	
Difficult content	250
Previous experience	135
Small print	121
Ignorance	64
Issue 3 Comments on a leaflet	
Difficult content	246
Dual ideas	218
Small print	134
Satisfaction	91

DISCUSSION

This was the first systematic study in Thailand to recognize the personal expressions of consumers by letting them write their own reasons for reading a leaflet, reasons for not reading a leaflet, and comments on a leaflet. This study focused on consumers because they were the center of health care system (Chewning and Sleath, 1996).

Consumers gave reasons for reading a leaflet classified as four categories, i.e., to administer a medicine, to prevent undesirable effect, to know a medicine and to concern medication. This finding indicated that consumers perceived a leaflet as a source of medicine information for their medicine use. The different categories of reasons suggested that consumers would rely on a leaflet for several purposes. Among these categories, to administer a medicine was the major one. This suggested that consumers paid more attention to how to administer a medicine than to know what a medicine was. In other words, they might know how to take a medicine but not know what to take. It would be better for consumers to know the medicine name they would take as well as to know how to take it because there were several different medicines having the similar indication and dosage regimen. For example, roxithromycin and doxycycline, both could be used for respiratory tract infection and taken one tablet two times a day. A consumer might be sensitive, allergic or contradictory to either roxithromycin or doxycycline. If consumers knew the medicine before taking, they could avoid the allergic action of that medicine. Therefore, it is necessary that consumers know the medicine name as well as its regimen and indication.

Though consumers perceived a leaflet as a source of medicine information and this perception could lead them to read it, they seldom read it because of difficult content, previous experience, small print and ignorance. Difficult content was the most important

reasons precluding consumers from reading a leaflet. Consumers expressed that they had difficulty understanding a leaflet. The presence of English and medical terms in a leaflet could make consumers difficult to understand because they were unfamiliar with such terms. Several reports also indicated the comprehension problem of a leaflet among consumers (Basara and Juegens, 1994; Bradley et al., 1994; Sansgiry et al., 1997). To decrease the difficulty with understanding, the content should contain more Thai language and common terms understandable to lay consumers. Besides, arranging the leaflet content to an easily-understandable format could increase consumer's understanding. (Burapadaja et al., 2003 b). These reasons indicated the shortcomings of leaflet. It could be expected that consumer would turn to read a leaflet if it was carefully improved to be an understandable leaflet.

The next reason for not reading was the previous experience which included having known the medicine, having taken it before, and being told by professionals. It seemed that these reasons were reasonable not to read a leaflet again after those experiences. But there was a question if previous experiences occurred properly. A report described that some consumers asked other persons to purchase a medicine at a community pharmacy for their ailment symptoms, and some consumers bough a medicine they used to take by its appearance such as color, size, shape, not by its name (Burapadaja et al., 2000). These were examples of previous experiences occurring not properly. As a result, previous experiences should not be a reason for not reading a leaflet. In case of being told by professionals, consumers often received some medicine information such as dosage regimen, indication and common side effect. In this manner, consumers might not remember all verbal information and they might forget it later (Grymonpre and Steele, 1998). Therefore, it would be better for consumers to read a leaflet by themselves, if possible to do, in addition to being told by professionals.

Another reason for not reading was associated with physical defect of leaflet. Small print was a common complaint from consumers because it was unreadable. Nowadays, there is no official standard text size for readable leaflet content in our country. In some countries, private sector related to medicine production, specified the text size for a medicine label (Sansgiry et al., 1997). In our country, the governmental sector or manufacturer sector should consider this complaint and respond to it by specifying a standard text size, readable by consumers, for every label and leaflet. The length of content was also a reason for not reading a leaflet. There were two opposite ideas, i.e., too long and too short content to read. How much written medicine information in a leaflet should be sufficient for consumers was an important problem. There were arguments either minimal or maximal information was suitable for consumers (Stichele et al., 1991; Strang et al., 2001.). Now there is no answer to this problem. However, World Health Organization has suggested a guideline of information for a medicine label and leaflet (WHO, 2000). Medicine manufacturers should follow this guideline and the TFDA should concern and restrict them to do. In addition, some consumers expressed the uninterested point of the leaflet, i.e. long and continuous text without emphasizing. A more attractive leaflet was a request from consumers. The last category was due to ignorance of consumers. This group of consumers was likely at risk in taking medicine inappropriately.

When asking consumers to comment on leaflets they used to read, they gave these four categories of comments, i.e., difficult content, dual ideas, small print and satisfaction. Difficult content, the most common comments, confirmed that the major reasons for not reading a leaflet was the difficulty to understand a leaflet content. If university freshman who had higher education than most lay people found it difficult to understand, it could be expected that other consumers with lower education would have more difficulty. This expectation was based on a report which indicated that education level was usually associated with understanding ability (Culbertson et al., 1988). The higher the education, the easier the understanding. As well, the small print was another complaint from consumers. They requested a readable leaflet. A leaflet with small print should be enlarged. However, some consumers were satisfied with the leaflets they used to read. This suggested that there were both good and not so good leaflets in consumer's opinions.

CONCLUSIONS

This study aimed to identify factors associated with consumer's behaviour of reading a leaflet from their opinions. This investigation used content analysis and factor analysis to analyze and categorize the written opinions of consumers. The factor making consumers read a leaflet consisted of: to administer a medicine, to prevent undesirable effect, to know a medicine and to concern medication. In contrast, the factors making consumers not read a leaflet were: difficult content, previous experience, small print, and ignorance. The factors involving with a leaflet included: difficult content, dual ideas, small print, and satisfaction. These findings suggested that there were two main shortcomings of leaflet that could pre-clude consumers from reading a leaflet. Such shortcomings were difficult content and small print. These shortcomings should be improved to enable consumers to read a leaflet.

SUGGESTIONS

It was suggested that difficult content be decreased by using less English and medical terms, and by adding more Thai text and common language for consumers. To make the leaflet content easily understandable by arranging the content properly was another suggestion. In addition, to guarantee the understandable content, it was necessary to test the understanding. Small print was another shortcoming of the leaflet. It was essential that there should be a standard size of text for the leaflet readable by most consumers. The medicine manufacturers should know, recognize and improve these shortcomings of leaflet they have produced. As well, the TFDA should ask the medicine manufacturers to consider and try to solve these problems of consumers in order to provide an understandable and readable leaflet.

Limitation

Though there are several universities and institutes in the studied city, this study selected the freshman students of one university for the population. Selecting only one university might be a weak point, but the population selected could provide a high returning rate of questionnaire while the others could not.

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