Health literacy of Schizophrenic patients' caregivers in Bangkok Metropolitan

ความรอบรู้ทางสุขภาพของผู้ดูแลผู้ป่วยโรคจิตเภทในกรุงเทพมหานคร

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Abstract

The objectives of this quantity research were to develop the Health Literary Scale of Schizophrenic Patients' Caregivers in Bangkok Metropolitan, and to study the health literacy levels of the caregivers who were looking after the Schizophrenic patients. Nutbeam's Theory of Health Literacy (2008) was used as theoretical construct to develop the scale. Content validity was primarily validated by five experts and nurses in Mental Health and Psychiatry. One hundred caregivers from each of the six Public Health Service Centers, Department of Health, under the Office of Bangkok Metropolitan Administration were systematically selected as the sample from the list of psychiatric patients in the community, with the total of 600 cases. Two parts of the scale consisted of

Demography, and Health literacy scale with multiple choice and Likert's Rating Scale formats. Confirmatory Factor Analysis (CFA) was employed by Linear Structural Relationship (LISREL) program, version 8.80, to analyze its validities. Cronbach's Alpha Coefficient and KR- 20 were used to obtain the reliabilities. Frequencies and Percentage were employed to analyze the health literacy levels of the caregivers. It was found that the total reliability of the Health Literacy Scale was .87. Confirmatory Factor Analysis indicated that the Scale was acceptably consistent with the empirical data (X^2 = 6.86, df = 5, CFI = 1, GFI = 1, AGFI = .98, RMSEA = .03, SRMR = .01). The factor of Communicative/interactive level of the caregivers was found to be satisfactory, whereas the factors of Basic/functional and Critical levels were a little bit lower. Health literacy of the Schizophrenic patients' caregivers were found to be at fair level. (31.50 %). Its validity and reliability were acceptable.

Keywords: *Health Literacy, Schizophrenic patients 'caregivers*

บทคัดย่อ

การวิจัยเชิงปริมาณเรื่องนี้มีวัตถุประสงค์เพื่อพัฒนาแบบวัดความรอบรู้ทางสุขภาพของผู้ดูแลผู้ป่วยโรคจิตเภทในกรุงเทพมหานคร และเพื่อศึกษาระดับความรอบรู้ทางสุขภาพของผู้ดูแลผู้ป่วยโรคจิตเภท ดำเนินการสร้างแบบวัดโดยใช้ทฤษฎีความรอบรู้ทางสุขภาพของนัทบีม (2008) เป็นโครงสร้างพื้นฐานในการสร้างแบบวัดดังกล่าว แล้วนำแบบวัดไปวิเคราะห์ความตรงตามเนื้อหาโดยผู้เชี่ยวชาญด้านสุขภาพและด้านการพยาบาลสุขภาพจิตและจิตเวชศาสตร์ จำนวน 5 ท่าน กลุ่มตัวอย่าง เป็นผู้ดูแลผู้ป่วยโรคจิตเภทจากศูนย์บริการสาธารณสุข จำนวน 6 แห่ง ในสังกัดสำนักอนามัย กรุงเทพมหานคร ได้รับการคัดเลือกอย่างเป็นระบบตามบัญชีรายชื่อผู้ป่วยจิตเวชในชุมชนแห่งละ 100 คน รวมทั้งสิ้น 600 คน แบบวัดความรอบรู้ทางสุขภาพ ประกอบด้วย แบบสอบถามข้อมูลทั่วไปและแบบวัดความรอบรู้ทางสุขภาพที่เป็นแบบเลือกตอบ และเป็นแบบมาตรประมาณค่า 5 ระดับของลิเคิร์ท วิเคราะห์ความตรงของแบบวัดด้วยวิธีการวิเคราะห์องค์ประกอบเชิงยืนยันด้วยโปรแกรม ลิสเรล ชุดที่ 8.80 และวิเคราะห์ความเที่ยงของแบบวัดด้วยการหาค่าสัมประสิทธิ์แอลฟ่าตามวิธีของครอนบาคและตามสูตร คูเดอร์ - ริชาร์ดสัน 20 วิเคราะห์ระดับความรอบรู้ทางสุขภาพของผู้ดูแลผู้ป่วยโรคจิตเภทด้วยความถี่และร้อยละ ผลการวิจัยแสดงว่าแบบวัดความรอบรู้ทางสุขภาพของผู้ดูแลผู้ป่วยโรคจิตเภทมีค่าความเที่ยงโดยรวมเท่ากับ .87 การวิเคราะห์องค์ประกอบเชิงยืนยันแสดงว่าแบบวัดมีความกลมกลืนกับข้อมูลเชิงประจักษ์ผ่านเกณฑ์ที่ยอมรับได้ (X^2 = 6.86, df = 5, CFI = 1, GFI = 1, AGFI = .98, RMSEA = .03, SRMR = .01) องค์ประกอบความรอบรู้ทางสุขภาพของผู้ดูแลด้านการสื่อสาร/ปฏิสัมพันธ์ อยู่ในระดับน่าพึงพอใจ ส่วนองค์ประกอบด้านความรู้พื้นฐานและองค์ประกอบด้านการวิเคราะห์อยู่ในระดับต่ำเล็กน้อย สรุปได้ว่า ความรอบรู้ทางสุขภาพของผู้ดูแลผู้ป่วยโรคจิตเภทในกรุงเทพมหานคร อยู่ในระดับพอใช้ (31.50 %) แบบวัดความรอบรู้ทางสุขภาพของผู้ดูแลผู้ป่วยโรคจิตเภท มีค่าความตรงและความเที่ยงอยู่ในระดับที่สามารถยอมรับได้

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Introduction

Health literacy has been defined as the cognitive and social skills which determine the motivation and ability of individuals to access, understand and use information in ways which promote and maintain good health (WHO,1998). It implies the achievement of knowledge, personal skills and confidence to take actions to improve personal and community health. It also involves people's knowledge and competences to access, understand, appraise, and apply health information to make judgments and take decisions in everyday life, as well as disease prevention and health promotion to maintain or improve quality of life during the life course (Nutbeam, 2000). In improving people's access to health information and their capacity to use it effectively, it is dependent on more general levels of literacy. Poor literacy can directly affect people's health by limiting their personal, social and cultural development, as well as interfering the development of their health literacy.

Health literacy has been classified into three levels. They are (1). Basic/functional literacy which means sufficient basic skills in reading and writing to be able to function effectively in daily situations. (2). Communicative/ interactive literacy which means to be able to actively participate in everyday activities, to extract information and derive meaning from different forms of communication, and to apply new information to changing circumstances. (3). Critical literacy which means more advanced cognitive skills which, together with social skills, can be applied to critically analyses information, and to use this information to exert greater control over life events and situations. (Nutbeam, 2000).

There are some relationships between health literacy and general health status (Nutbeam, 2008). They are decreasing in health expenses, increasing in health literacy, shorter time of hospitalization and decreasing in health service frequencies. Low health literacy usually effects competencies in self healthcare, affected to lack of ability to take care of their own health. The numbers of chronic patients and expenses in health care will increase. General knowledge, such as critical thinking, access in computer, culture, social medias, personal rights, knowledge in diseases and personal health care were considered as factors related to personal health literacy. Lim and Ohm cited in Sriprompas, Nintajan, & Saengon (2015) also agreed that Health literacy of the caregivers directly affected to their task perceptions. Caregivers with low health literacy usually cope their stresses in negative ways, especially when they have to take care of some specific patients as Schizophrenia.

1. Schizophrenia.

Schizophrenia has been firstly introduced by Eugene Bleuler (1857-1939), a Swiss physician. (Corsini, 2002). Schizophrenia is one of the brain disorders that affects a person's thinking, language, emotions, social behavior,

and ability to perceive reality accurately. It was characterized by significant disorganization of thinking manifested by problems with communication and cognition. False perceptions of reality as seen by hallucinations and delusions, as well as bizarre behavior and inappropriate moods. Symptoms are usually first seen in adolescent or young adulthood and are often chronic and persistent. (Patricia, O'Brien, Winifred, Z., Kennedy, & Karen, A. Ballard, 2013).

Nowadays, Schizophrenia has been usually found as a mental disorder mostly occurred. The new prevalence has increased about twenty-six million cases all over the world, 90% found in the developing countries (WHO., 2018). In Thailand, there are more than 400,000 cases of schizophrenia, but only 60% of the patients have access to appropriate treatments, which can be considered as one of the significant problems of the country. (Information Center Planning Division, Department of Mental Health, 2016). Its lifetime prevalence was found at 70%, or approximately 1% worldwide with no differences related to race, social status, or culture. It is more common in males (1.4:1), and among persons growing up in Urban areas (Varcarolis, & Halter, 2010). The symptoms usually begin during the late teens and early twenties, although the onset before the age of ten has been reported. (Varcarolis, & Halter, 2010). Besides, early onset between 18-25 years occurs more often in males. The highest ages have been found in the range between ages 15-25 years. However, males and females would probably have the same chances to get sick, but males will usually show symptoms faster than females (Lortrakul, & Sukanich, 2012).

Moreover, Schizophrenia is also characterized by continuous or relapsing of psychosis. Other symptoms include social withdrawal, decreased emotional expression and apathy. Symptoms typically come on gradually, begin in young adulthood, and in many cases, never resolved. Many Schizophrenic patients have other mental disorders especially substance use disorders, depressive disorders, anxiety disorders and obsessive-compulsive disorders. Negative attitudes towards patients can interfere with the recovery and damage their qualities of life. (Varcarolis, & Halter, 2010).

2. Caregivers

The caregivers refer to the persons involved in the process of identifying, preventing, or treating an illness or disability. They include family physicians, pediatricians, nurses, social workers and indigenous nonprofessionals (Corsini, 2002). There are two kinds of caregivers; professional and nonprofessional. Professional caregivers include doctors or physicians, pediatricians, nurses, and social workers, whereas nonprofessional or lay caregivers are mostly the family members.

Lay caregivers are not only responsible for taking care of the patients, but also, must perform their own role duties as the family members, which obviously lead to their behaviors

and role conflicts in the family. They must spend plenty of time and energy in closely looking after the patients. They are expected to be able to take better care of the patients according to their own competencies as much as possible, and to prevent reoccurrence of the disease, as well as to decrease relapsing rates. Moreover, the caregivers themselves must confront with the characteristics and unwanted behaviors of the patients which affect their daily routines (Reinhard, 1994). Occasionally, the patients would have shown some bizarre perception. Eventually, the caregivers themselves will become extremely stressed, burn out, and exhausted. They will probably suffer with sleep problems such as insomnia and high level of stress which leads to improperly care for patients (Rodrigo, Fernando, Rajapakse, De Silva, & Hanwella, 2013). It was also found that one out of five of the family relatives feel extremely stressed, consequently lead to emotional outburst to each other. Family lifestyle also changes, social activities and relaxation decrease, social separation occurs, and accompanied by depression later. Besides, long-term caregiving will cause patients' negligence, or ineffective treatment (Hair, Black, Babin, & Anderson, 2010). Occasionally, some patients may have been physically assaulted or attacked unintentionally, which eventually lead to complexity of more problems and symptom relapses. Therefore, it is significant that the caregivers should possess appropriate health literacy in taking care of their patients.

Research objectives

1. To develop the Health Literacy Scale of Schizophrenic Patients' Caregivers
2. To study the level of Health Literacy of the caregivers who looked after the Schizophrenic patients in Bangkok Metropolitan.

Research Methodology

This quantitative research was designed as follows. Firstly, the Health Literacy Scale of Schizophrenic Patients' Caregivers, developed by the researchers, was constructed. The Confirmatory Factor Analysis was employed to analyze its validity by the Linear Structural Relationship (LISREL) model, version 8.80: Students' edition. (Unsuchoti, Vijitwanna, & Pinyopanuwat, 2014). The Cronbach's Alpha Coefficient and KR -20 methods were utilized to obtain the reliability. Secondly, this scale was employed to collect data of Health Literacy levels as perceived by the caregivers, who had taken care of the Schizophrenic patients at that time. Raw scores obtained from the scale were transformed into percentage to indicate the Health Literacy levels.

1. Population and sample

The samples were randomly selected from the groups of Schizophrenic patients' caregivers in Bangkok Metropolitan, by using Hair, Black, Babin and Anderson' s criteria (Hair et al., 2010). One hundred caregivers

six Health Centers in Bangkok Metropolitan, Thailand, were systematically selected from the list of psychiatric patients in the community. Six hundred sample were finally chosen as the total sample.

2. Research Instruments

The Instrument used in this research study was the Health Literacy Scale for Schizophrenic Patients' Caregivers in Bangkok Metropolitan. The scale consisted of two parts. Part one was Demography. Part two was Health Literacy Scale, modified from Thailand Health Literacy Scales Developed by the Department of Health Education, Ministry of Public Health. (Intarakamhang & Khumthong, 2017). This Scale consisted of 26 items altogether. They were (1) Health Knowledge and Understanding (items 1–5); (2) Accessing in Health Information and Services (items 6-10); (3) Health Communication (items 11-15); (4) Self-management (item 16-20); (5) Awareness in Medias and Information Technology (items 21-22), and (6) Decision Making in Proper Practices (items 23-26). The specific criteria assigned for the answering to this format were transformed in terms of percentage. They were as follows: 60% and lower = Incorrect; 60-69% = Partly correct; 70-79% = Correct; and 80% and higher = Mostly correct.

Moreover, Likert's Rating Scale format was assigned with items 6-22. (16 items) to identify the frequencies of the practices as perceived by the respondents. They were: All the time = 5, Often = 4, Sometime = 3, Rarely = 2 and Never = 1. Then the data were transformed in terms of percentage ranks to identify the Health Literacy levels as perceived by the respondents. They were as follows: 60% and lower = Unsatisfactory; 60-69% = Fair; 70-79% = Satisfactory; and 80% and higher = Excellent.

3. Ethical Considerations

Before conducting the research, the sample's rights in this study were protected by presenting research proposal along with the instrument and research design for approval and granted by the Institutional Review Board, Kuakarun Faculty of Nursing, Navamindradhiraj University, No.KFN-IRB 2017-12. Then the research was eventually conducted according to Human Research Ethical Principles.

4. Data Analysis

The Data Analysis were divided into 2 categories. :-

4.1 Confirmatory Factor Analysis (CFA) was utilized by the LISREL model, version 8.80: student's edition, to analyze the validity of the Health Literacy Scale for Schizophrenic Patient's Caregivers in Bangkok Metropolitan. (Ungsuchoti et al., 2014).

4.2 Frequencies and percentage were utilized for analyzing demography as well as health literacy levels of the sample. Percentage scores of the levels, the factors and the total were presented in terms of the Tables.

Results

The research findings would be presented into 3 parts. They were as follows:

Part I : Demography of the samples

According to the Demography of the samples, it can be summarized that, among 600 caregivers, 428 of them were females (71.33%), and 172 of them were males (28.67%). Most of them (59%) were at the age between 41-60 years. Spouses were found at 38.33%. Twenty-four percent gained the upper secondary educational level. And most of them (19.17%) were unemployed.

Part II: The Confirmatory Factor Analysis of the Health Literacy Scale of the Schizophrenic Patients' Caregivers in Bangkok Metropolitan.,

Considering the Construct Reliability (CR) based on the criteria that the reliability value must be ≥ .60, it was found that the reliability values of Basic / functional literacy level = .49. Communicative/ interactive literacy level = .84 and Critical literacy level = .45. The values of Average Variance Extracted (AVE) were found between .35–.72. They were Basic / functional literacy level = .39; Communicative/ interactive literacy level = .72; and Critical literacy level = .35. Based on Hair et al.'s criteria that the accepted values should be at ≥ .50, (Hair et al., 2010) therefore, it could be concluded that the Construct Reliability of Basic / functional literacy level and Critical literacy level were a little bit lower, whereas Communicative/ interactive literacy level was acceptable. (Shown in Table 1)

Table 1: Reliability, Average means of Variables Extracted (AVE) and the Construct Reliability (CR) of the HL Scale.

HL factors	Reliability	AVE	CR
Health Knowledge and Understanding	.61	.39	.49
Accessing in Health Information and Services	.91		
Health Communication	.88	.72	.84
Self - management	.91		
Awareness in Medias and Information Technology	.93	.35	.45
Decision Making in Choosing Proper Practices	.70		

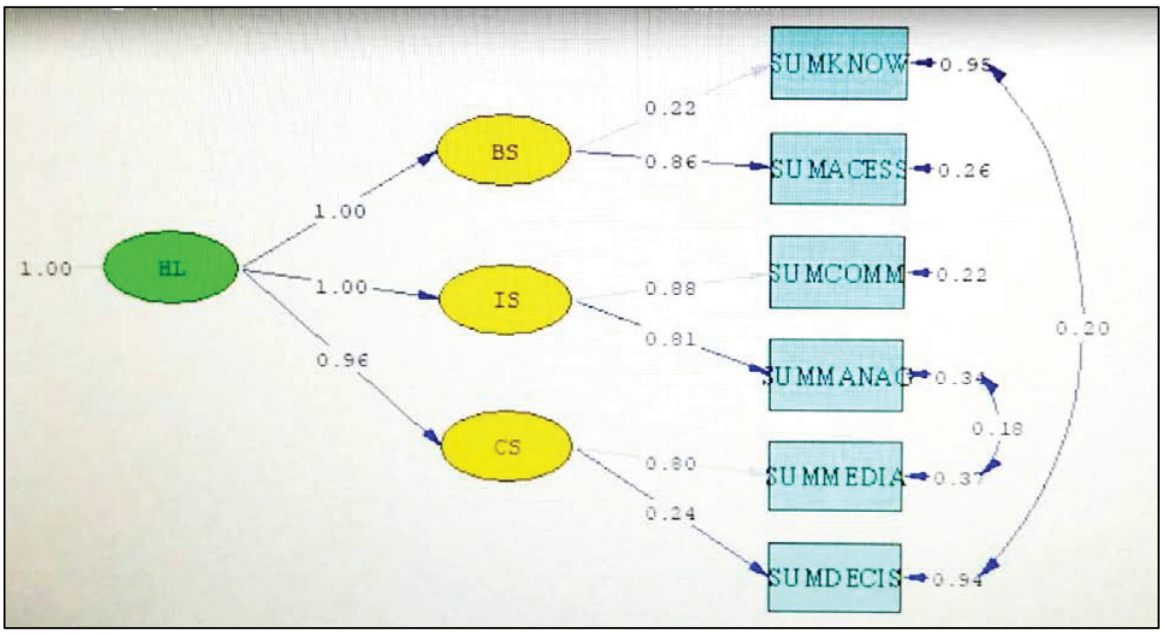
r = .87

It can be seen from Table 2 that health literacy of the Schizophrenic Patients' Caregivers which consisted of six factors, in four levels, were found as follows: (1) In the Basic / functional literacy level, the highest value was found in the factor of Accessing in Health Information and Services, with standard factor loading = .86, and the Coefficient of Variation (CV) associated with Basic/functional literacy level at 74%. (2) In the Communicative/interactive literacy level, the highest value was found in the factor of Health Communication, with standard factor loading = .88, and the Coefficient of Variation (CV) associated with Communicative/ interactive literacy level at 78%, whereas the factor of Self-management was .81, and the CV = 66%; and (3) In the Critical literacy level, the standard factor loading of Awareness in Medias and IT = .80 and CV associated with Critical level at 63 %. (Shown in Table2)

Table 2: Standard values of the factor loadings, Validity of Observable Variables, and Coefficient of Confirmatory Factor Analysis of the HL Scale of Schizophrenic Patients' Caregivers.

Levels/ Factors	Factor loadings			
	B	SE	T	CV (R^2)
Basic / functional literacy level	**1.0**			
Health Knowledge and Understanding	.22	.47	4.69	.05
Accessing in Health Information and Services	.86	.47	4.69	.74
Communicative/interactive literacy level	**1.0**			
Health Communication	.88	.07	21.34	.78
Self-management	.81	.07	21.34	.66
Critical literacy level	**.96**			
Awareness in Medias and Information Technology	.80	.05	4.86	.63
Decision Making in Choosing Proper Practices	.24	.05	4.86	.06

The second-order Confirmatory Factor Analysis showed that the model of six factors which measured together with the latent variables of HL Scale were consistent with the empirical data. ($X^2 = 6.86$, df = 5, CFI = 1, GFI = 1, AGFI = .98, RMSEA = .03, SRMR = .01) (shown in Picture 1)



X^2 = 6.86, df = 5, CFI = 1, GFI = 1, AGFI = .98, RMSEA = .03, SRMR = .0

Figure 1: Structural model of HL Scale of Schizophrenic Patients' Caregivers.

Part III : Health Literacy of Schizophrenic Patients' Caregivers.

It can be summarized that the following factors were found at excellent level. They were (1) Accessing in Health Information and Services (25.67%); (2) Health Communication (25.33%); (3) Health Knowledge and Understanding (20.83%); (4) Awareness in Medias and Information Technology (18.17%); (5) Health Self- management (16.67%) and (6) Decision Making in Proper Practices (12.50%). Whereas the unsatisfactory levels were found in the factors of (1) Awareness in Medias and Information Technology (26.00%); (2) Decision Making in Proper Practices (24.67%); (3) Health Knowledge and Understanding (20.83%); (4) Health Self- management (20.17%); (5) Health Communication (17.33%) and (6) Accessing in Health Information and Services (16.83%). When considering for the total, 25.00% of them showed their health literacy at unsatisfactory level, 31.50% at fair level, 28.17% at satisfactory level, and 15.33% at excellent level. (Shown in Table 3)

Table 3: Numbers and Percentage scores of Schizophrenic Patients' Caregivers (n= 600) who showed their perceived HL in six factors.

Health Literacy: Factors	Percentage scores of HL			
	Unsatisfactory	Fair	Satisfactory	Excellent
	n (%)	n (%)	n (%)	n (%)
Health Knowledge and Understanding	125 (20.83)	168 (28.00)	182 (30.33)	125 (20.83)
Accessing in Health Information and Services	101 (16.83)	153 (25.50)	192 (32.00)	154 (25.67)
Health Communication	104 (17.33)	174 (29.00)	170 (28.33)	152 (25.33)
Health Self- management	121 (20.17)	198 (33.00)	181(30.17)	100 (16.67)
Awareness of Medias and IT	156 (26.00)	184 (30.67)	151 (25.17)	109 (18.17)
Decision making in Proper Practice	148 (24.67)	156 (26.00)	197 (32.83)	99 (16.50)
Total	**150 (25.00)**	**189 (31.50)**	**169 (28.17)**	**92 (15.33)**

Discussion

It was found that health literacy of the schizophrenic patients' caregivers consisted of three levels with six factors altogether. They were as follows: (1) Basic/functional level which consisted of two factors as Health Knowledge and Understanding (5 items) and Accessing in Health Information and Services (5 items), the latter one was found to be the most significant with factor loading at .86 and CV = 74%.

Considering in the Construct Reliability (CR) based on the criteria that the reliability value must be ≥ .60, it was found that the reliability values of Basic / functional literacy level = .49; Communicative/ interactive literacy level = .84 and Critical literacy level= .45. The values of Average Variance Extracted (AVE) were found between .35-.72. They were Basic/ functional literacy level = .39. Communicative/ interactive literacy level= .72; and Critical literacy level = .35. Based on Hair et al.'s criteria that the accepted values should be at ≥ .50, therefore, it can be concluded that the Construct Reliability of Basic / functional literacy level and Critical literacy level were a little bit lower, whereas the Communicative/interactive literacy level was acceptable. It was supported that Health Literacy Scale of Schizophrenic Patients' Caregivers in Bangkok Metropolitan was consistent with the theory in both contents and structures. Its validity was supported by CFA, and the total reliability was .87.

When considering Construct Reliability (CR) based on the criteria that the value must be ≥.60, it was found that the Basic/functional level = .49, Communicative/interactive level = .84 and Critical level = .45, combined with Average

Variance Extracted (AVE) = .35-.72, It can be seen that among the three levels, Average Variance Extracted (AVE) were .39, .72 and .35 respectively. These findings can be explained in terms of Hare et al.'s criteria that the value must be ≥ .50. It means that the AVE of the factors of Basic/functional and Critical levels were a little bit lower. It could be concluded that the factors of Accessing in Health Information and Services, Health Communication, Self-management, and Awareness in Medias and Information Technology were essential factors in Health Literacy.

The Department of Health, Ministry of Public Health (2019) also studied Health Literacy of the Thai people, from the ages at ≥ 15 years, in order to develop and verify Health Literacy Scale for the Thai people. This Scale consisted of five dimensions as information accessing; understanding; discussing and questioning; making decision; and changing behavior. The dimension of information accessing was 75% lower than the others. These findings could be concluded that health literacy of the Schizophrenic patients' caregivers should be essentially promoted to the caregivers so that they could be highly competent in taking better care of their patients.

According to the total health literacy levels, only Satisfactory level (28.17%) was found, which could be supported that it might be because of the discrepancies between personal competency level and the complexity of health and information systems. (Department of Health. Ministry of Public Health, 2019).

Moreover, when considering the general information of the schizophrenic patients' caregivers, 71.33% were females who had to perform various roles as mothers, wives, or daughters. They have also taken some other roles assigned by the communities and society, accompanied with more duties and responsibilities. Fifty nine percent were middle aged adults, (41-60 years), and 19.17% were housewives. Twenty four percent gained only higher educational certificate level. This information could be explained that they probably had less sufficient time to seek for more knowledge and to better understand the complexities of health information and services. Lack of health communication, awareness in medias and IT would likely lead them to inappropriate decision making and self - management.

These findings might be explained that the schizophrenic patients' caregivers had to take care of the schizophrenic patients who had been sick and had to take medication for their whole lives without recovering. Besides, the symptoms of severe delusions and hallucination of the Schizophrenic patients sometimes were badly harmful to themselves and to others.

Research Suggestions

1. Suggestions / Recommendations in Findings Application

These research findings can be suggested

that :- 1. The research results should be presented to the Committees of Curriculum Administration of Kuakarun Faculty of Nursing, Navamindradhiraj University in order to reconsidered on planning /redesigning for the instructional curriculum by modifying the content of this topic into the curriculum. 2. The research results should be presented to the administrators of the Health Department, the Office of Bangkok Metropolitan Administration, as well as to the professional nurses who presently work at the Health Centers, in order to use these findings in planning and arranging of more effective projects and activities to enhance the health literacy of the caregivers, so that they will be more capable and qualified caregivers. 3. The findings should be essentially beneficial to the development of the instructional activities for nursing students to gain better knowledge and understanding in health literacy of Schizophrenic patients' caregivers, and to assist them to be highly competent with more knowledgeable, skillful and appropriate practices.

2. Recommendations for the next research studies

It was recommended that :- 1. This Health Literacy Scale should be redeveloped and improved. For example, more items in each level should be added in order to make sure that they will be more highly valid and reliable. 2. It should be highly beneficial if more empirical studies in this topic be replicated in the provinces of Thailand, where significant differences in social contexts between Bangkok Metropolitan and the provincial areas are apparent. 3. Health Literacy Scales should be developed and modified to study the health literacy of other caregivers in more various diseases, as well as in professional nurses, nursing instructors and students.

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