Investigation on Patient's Self-medication, Medication Knowledge and Medication Behavior

Fen-Fen Huang* and Yi-Horng Lai

***Abstract*—Nowadays, with the development of information media, people can easily obtain information through the Internet, TV, and social media. However, the media are often full of exaggerated and false advertisements for medicines and healthy food, which induce people to spend money on products. It may have adverse effects on public health. The purpose of this study is to understand the current situation of general public's self-medication, medication knowledge and medication behavior, and to analyze the influence of public self-medication on medication behavior. The subjects of the survey were 300 people living in the Greater Taipei area, and convenience sampling was used. The study found that there are significant correlations between self-medication, medication knowledge and medication behavior. It is suggested that the government should continue to carry out various promotional activities on self-medication, medication knowledge and medication behavior, and integrate them into mass media.**

***Index Terms*—Self-medication, medication knowledge, medication behavior**

I. Introduction

Ministry of Health and Welfare (2008) pointed out that in the medical treatment situation in Taiwan, patients with chronic diseases are often found, especially the elderly who like to "visit to hospitals", hearing that a certain clinic is effective for a certain disease, even if he has seen a doctor in another hospital, he will go to that hospital again to get medicine. In Taiwan, one in four elderly people take more than three drugs a day [1]. The positive aspects of self-medication are like buying the right medicines and reducing the number of visits to the doctor; the negative aspects are like folklore therapy and buying medicines that are not suitable for an individual. In addition to the instructions of doctors and pharmacists, the public must also read the instructions for use of drugs in detail to understand the ingredients, indications, effects, usage, storage methods, and possible adverse reactions or drug interactions. The cost of seeing a doctor abroad is more expensive, but Taiwan has universal health insurance, and the cost of seeing a doctor is relatively affordable. This study wants to explore whether people have sufficient knowledge of correct medication and consult pharmacists. Therefore, this study wanted to explore the influence of self-medication and medication knowledge on people medication behavior.

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II. Literature Review

A. Self-medication

According to the World Health Organization (WHO) definition of self-medication, it means that people can choose over the counter (OTC) medicines for self-management of health conditions in the absence of medical personnel or without a doctor's diagnosis to reduce the pressure of medical service demand. In Taiwan, under the Pharmaceutical Affairs Law, over-the-counter drugs can only be sold in places with pharmacists [2].

There are still many potential and actual health risks associated with self-medication, such as self-judgment bias, leading to delays in seeking medical attention; or inappropriate medication, taking drugs not in accordance with pharmacist instructions, and using the wrong way or dosage. Self-medication is an individual autonomous behavior. The patient's own medical knowledge, educational level, health beliefs, values, attitudes, and medication ability directly affect the effect of self-medication and determine the health risks of self-medication [3].

B. Medication Behavior

A drug is a chemical that can affect human health. It is used for treatment, prevention, enhancement of physical fitness or improvement of mental state. The correct medication is not only to follow the doctor's instructions, but the doctor to give the most appropriate prescription according to the patient's condition.

Taiwan has a clear definition of the five core competencies for medication. The five core competencies for proper medication use include: 1). Articulate their medical condition: patients should express their medical condition or personal medical history in detail. 2). Read the drug label clearly: check the name of the drug pack, side effects, and other medication instructions. 3). Clarify the method and time of medication: before meals, after meals, and during meals. 4). Be the master of the body: adhere to the five no-no principles of blind faith medications, do not listen, do not believe, do not buy, do not eat, do not recommend. 5). Make friends with doctors and pharmacists: many people go to pharmacies to buy ready-made medicines, and they must follow the instructions of the pharmacists [4].

C. Relationship between Self-medication, Medication Knowledge and Medication Behavior

Past studies have found that most people use self-medication to deal with health problems, and that demographic and socioeconomic characteristics, knowledge and attitudes toward medication, sources of medical care or drug acquisition, and medication experience are significantly

associated with medication behaviors [5]. Some studies have found that men have more medication distress experiences than women, and the possible reason may be that women have more medication knowledge than men [6].

Some research results have found that most of their medication behaviors stop taking the drug after their condition improves. The lack of understanding of the drug and the poor compliance with doctor's orders have a great impact on the safety of medication. Among these respondents, only 43% take their medicines according to the time indicated on the medicine bag, 30% of the people always or often forget to take their medicines, and 27% of the people always or often stop taking their medicines [7].

III. Research Method

The subjects of the survey were 300 people living in the Greater Taipei area, and convenience sampling was used. In this study, independent samples T test and one-way analysis of variance were used to study the relationship among background variables, self-medication, medication knowledge and medication behavior. Spearman's Rank Correlation was used to understand the relationship among the subjects' self-medication, medication knowledge and medication behavior.

The self-medication scale has a total of 10 items, which are made using the Likert five-point scale (1-5 points represent strongly disagree to strongly agree), including self-medication behavior (3 questions), self-medication (3 questions), study medicine knowledge (4 questions). There are 10 questions in the medication knowledge scale. The content is based on the five cores of correct medication. It is designed with true and false questions, including clearly expressing one's physical condition (2 questions), having a clear drug label (2 questions), and clearing the way of medication (2 questions), being the master of the body (question 2), being friends with doctors (question 2). The options include "agree" and "disagree". Each question is given one point for correct answers, and zero points for incorrect or unanswered answers. There are 16 items in the drug behavior scale, which is made by Likert five-point scale (1-5 points represent strongly disagree to strongly agree), including body expression (3 items), drug labeling (3 items), drug method (3 questions), body master principle (3 questions), behavior participation (4 questions).

Then, the subjects included "gender", "age", "education level", "occupation", "income", "medication habits", "pay attention to OTC signs", "long-term use of drugs", "conscious physical condition", "disease history" , the relationship with self-medication, correct medication knowledge, and correct medication behavior. T-test was used to explore whether the sub-dimensions such as self-medication, correct medication knowledge, correct medication behavior of the research subjects were affected by "gender", "pay attention to OTC signs", "long-term use of drugs", "disease history" and other categorical variables are significantly different. This study uses one way ANOVA explores whether the sub-dimensions such as self-medication, correct medication knowledge and correct medication behavior of the research subjects are related to "age", "education level", "occupation", "income", "medication". There are significant differences in different categories of variables such as habit, "conscious physical condition", "long-term use of drugs", "disease history", and "drug source". When there is a significant level, post-hoc comparisons are made. Multiple Regression Analysis was used to study the explanatory and predictive power of background variables, self-medication, and medication knowledge on medication behavior. Before performing the multiple regression analysis, perform the collinearity diagnostics to understand whether there is a high linear correlation between the predictors. When the diagnostic results showed that none of the independent variables were highly collinear, a multiple regression analysis was performed. The research framework is as follows:

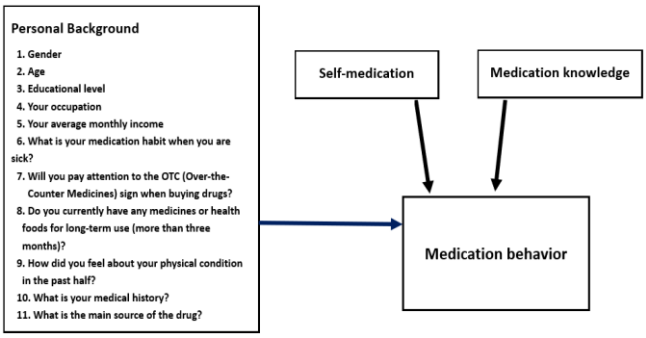

Fig. 1. Research framework.

IV. Results

A. The Distribution of the Background Variables of the Research Subject

A total of 300 subjects were investigated, of which 81 (27%) were male and 219 (73%) were female. Among the study subjects, 108 (26.3%) aged 15-24, 21 (5.1%) aged 25-34, 35 (8.5%) aged 35-44, and 108 (26.3%) aged 45-64, 28 people (6.8%) over the age of 65-74. Among the research subjects, 39 (9.5%) graduated from middle school or below, 122 (29.8%) graduated from high school, and 139 (33.9%) graduated from college or university. Among the research subjects, 37 (12.3%) long-term use of over-the-counter medicines, 82 (27.3%) long-term use of prescription, 85 (28.3%) long-term use of healthy food, and 139 (46.3%) none of the above.

Among the five core competencies for medication of subjects, the average score of core competency 1: expressing their physical condition clearly is 1.75, followed by core competency 2: reading the labels of medicines with an average score of 1.59; core competency 5: the average score of being friends with doctors and pharmacists is 1.55; the average score of core competency 3: clear medication method and time is 1.14; the average score of core competency 4: be the master of the body is 1.09.

B. Regression Analysis

The subjects' body expression of medication behavior was significantly different between gender, self-medication, and medication knowledge. C1 Body expression = 2.798+0.242* A3 Medication knowledge + 0.245* B1 Clearly express physical condition + Error term. A3 Learning medication knowledge p=0.000<0.05. After controlling for other factors, A3 Learning medication knowledge increased by 1 point, and

C1 Body expression increased by 0.242 points. B1 Clearly expresses its own physical condition p=0.009<0.05. After controlling for other factors, B1 Clearly expressing its own physical condition increases by 1 point, and C1 Body expression increases by 0.245 points.

C2 Medication labeling = 1.839+ 0.167* A2 Self-administration + 0.344* A3 medication knowledge + 0.235*B1 Clearly express physical condition + Error term. A2 Self-administration p=0.000<0.05. After controlling for other factors, A2 Self-medication increases by 1 point, C2 medication labeling increased by 0.167 points. A3 Learning medication knowledge p=0.000<0.05. After controlling other factors, A3 Learning medication knowledge increased by 1 point, C2 Medication labeling increased by 0.344 points. B1 Clearly expressed physical condition p=0.023<0.05. After controlling other factors, B1 Clearly expressed body condition increases by 1 point, and the C2 medication label increases by 0.235 points.

C3 Medication method=2.853-0.320*Gender+0.095* A2 Self-administration+0.188* A3 Learning medication knowledge + Error term. Gender p=0.000<0.05. After controlling for other factors, girls are 0.320 points more than boys. A2 Self-administration p=0.043 <0.05. After controlling for other factors, A2 Self-administration increased by 1 point, C3 Medication method increased by 0.095 points. A3 Medication knowledge learning p=0.000<0.05. After controlling other factors, A3 Medication knowledge increased by 1 point and C3 Medication method increased by 0.188 points.

C4 Body Master Principle = 3.227 +0.214* A3 Learning medication knowledge -0.187* B5 Be friends with doctors/pharmacists + Error term. A3 Learning medication knowledge p=0.000<0.05. After controlling for other factors, A3 Learning medication knowledge increases by 1 point, C4 Body master principle increased by 0.214 points. B5 Being friends with doctors/pharmacists p=0.009<0.05. After controlling for other factors, B5 Be friends with doctors/pharmacists increased by 1 point, C4 The body master principle decreased by 0.187 points.

C5 Behavioral Participation = 2.328 +0.377* A3 Medication knowledge learning + 0.098* B3 Clear medication method + Error term. A3 Medication knowledge learning p=0.000<0.05. After controlling for other factors, A3 Learning medication knowledge increased by 1 point, C5 Behavioral participation increased by 0.377 points. B3 Clear medication method p=0.045<0.05. After controlling for other factors, B3 Clear medication method increased by 1 point, C5 Behavior participation increased by 0.098 point.

In the end, there were significant differences between medication behavior, the gender, self-medication, and knowledge of medication. Medication Behavior=2.568-0.144*Gender+0.369*Self-medication behavior+0.050 Medication knowledge + Error term. Gender p=0.019<0.05. After controlling for other factors, girls were 0.144 points more than boys. Self-medication p=0.000<0.05. After controlling for other factors, self-medication increased by 1 point and medication behavior increased by 0.369 points. Medication knowledge p=0.000<0.05. After controlling for other factors, medication knowledge increased by 1 point and medication behavior increased by 0.050 points.

V. Discussion

This study found that in terms of self-medication, the level of self-medication of "female" was higher than that of "male". In terms of education level, "graduate from college or university or above" has a higher degree of autonomy in the "body master principle" than "high school (vocational) graduate". It may be that they pay more attention to health because of their higher education. In terms of perceived health status, those with "perceived better health status" had higher drug knowledge than those with "perceived good health status", because the subjects who perceived better health status paid more attention to medication-related knowledge.

It is necessary to strengthen education and publicity on self-medication, medication knowledge and medication behavior in schools and workplaces. Self-medication, medication knowledge and medication behavior are one of the current national health promotion problems in the country. Continuously carry out various self-medication, medication knowledge and medication behavior publicity activities and courses, and incorporate self-medication, medication knowledge and medication behavior into the mass media and publicize them. In addition, combine the power of community pharmacies. At present, the pharmacy has been transformed into a community service model. Through long-term oral and poster publicity by pharmacists, promoting activities such as drug safety, drug inspection, and drug care, and strengthening public consultation on pharmacists. It is very important to cultivate people's correct medication habits.

Conflict of Interest

The authors declare no competing interests.

Author Contributions

Fen-Fen Huang designed the study and wrote the research protocol, as well as the drafting and revision of the paper. Yi-Horng Lai were involved in the conception, design, analysis, and interpretation of the data.

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