# CHAPTER V

# SURVEY OF MENTAL HEALTH MEASUREMENTS FOR ALLOCATION

Development of casemix classification needs patient characteristic data. Due to the unavailability of clinical information of psychiatric inpatient in the current system, this study was developed to serve the use of mental health measurement tool to collect clinical data. Many steps in the developing process were implemented to make a measurement consisting of Thai's situation of mental health measurements' usage, materials and methods, results, and conclusions as shown below.

## 1. Background of mental health measurements' usage and allocation

Psychiatric measurements are important and have benefits towards psychiatric treatment in many areas such as helping in diagnosis, screening patient into activity group, evaluating treatment, and planning treatment (Phatrarayutawan, 2002); (Rush Jr, Pincus, First, Blacker, Endicott, Keith, et al., 2000). Moreover, scores from measurement can be used to classify patient group for government subsidy as already been implemented in Australia (Buckingham et al., 2003) and Sweden (Pfeiffer & Hofdijk, (Eds.). 2002). Budget allocation by severity of symptom and working capability level is more appropriate and more equitable than system without measurement.

Currently, there are several psychiatric measurements used in Thailand. Capability Assessment developed by the Mental Health Department (Mental Health Department, 1998) is used for screening patient into activity therapy. Global Assessment of Functioning Scale (GAF) (Guy, 1976); (Endicott, Spitzes, Fleiss, & et al., 1976. pp. 766-71), originally used without translation and adjustment, is used for drug addict patient in Metric Project under the Mental Health Department. Additionally, other measurements e.g. General Health Questionnaires (Nilchaikovit, Sukying & Silpakit, 1996, p. 2-17), Hospital Anxiety and Depression Scale (Nilchaikovit, Lotrakul &

Phisansuthideth, 1996, p.18-30), and Behavior and Symptom Identification Scale (BASIS-32) (Kongsakon, 1999, p. 298-307).

However, there are many measurements in various domains of mental health, but no particular measurement is appropriate in every aspect in the field (Rush et al, 2000). Outcome measures widely used for budget allocation in many countries are the Global Assessment of Functioning (GAF) Scale (Rush et al, 2000), and the Health of the Nation Outcome Scales (HoNOS) (Wing et al, 1996). While Thailand has not set the overall picture of what measurements psychiatric hospitals should use on limited relevant academic knowledge especially budget allocation system and outcome measurement aggravated the need for comprehensive clinical picture of psychiatric measurement. Therefore, study of various relevant factors is needed before using measurements for general purposes.

From the above reasons, there should be a survey on psychiatric measurement usage for budget allocation in Thailand. This study was aimed to study mental health doctor's and nurse's characteristics, their behaviour, and opinions towards mental health measurements as tools for psychiatric budget allocation system. The results were used to develop measurement as a tool for mental health casemix classification in the next chapters.

## 2. Materials and methods

### 2.1 Study design

This study was a cross-sectional survey study. Subjects were doctors and nurses of a total of 1,793 people, working in public psychiatric hospitals (17 psychiatric hospitals under the Mental Health Department and 8 teaching hospitals under medical schools) in Thailand. The study was conducted in 2004.

## 2.2 Instruments

Questionnaire structured in 4 sections comprised of respondent's qualifications, behavior of using psychiatric measurement, opinions regarding budget allocation, and recommendations towards budget allocation. Data were collected by postal questionnaires to individuals after a remind questionnaire approval from head offices of the subjects. If there was case of no response in a given period, was mailed.

## 2.3 Statistical analysis

Inferential statistics were used to test research hypothesis. Arithmetic mean of dependent variables and independent variables tested for distribution condition by histogram and Kolmogorov-Smirnov test. In case of two groups of continuous data, unpaired t-test was performed found to be normally distributed and Mann-Whitney U test if found to be not normal. In case of more than 2 groups of continuous data, one–way ANOVA was used for normal distribution data and Kruskul-Wallis H test, was used for abnormal distribution data.

## 3. Subjects' characteristics

Table 23 shows overview of respondents by hospital type and career. In all 1,793 doctors and nurses, 905 of them returned the questionnaires, accounting for 50.5%. The response rate by nurses was higher than the rate by doctor (52.5% vs. 41.3%, $x^2$=9.965, p = .002). Subjects from psychiatric hospitals had higher response rate than that from medical school hospitals (60.0% vs. 15.6% $x^2$=225.620, p = .000).

Table 23  Response rate by hospital type and career

| Hospital type | Doctors | | Nurses | | Total | |
|---|---|---|---|---|---|---|
| | N | % of N. | N | % of N. | N | % of N. |
| - Psychiatric hospitals | 133 | 51.1 | 1302 | 60.9 | 1435 | 60.0 |
| - Medical school hospitals | 90 | 26.7 | 268 | 11.9 | 358 | 15.6 |
| Total | 223 | 41.3 | 1,570 | 52.5 | 1,793 | 50.5 |

Most respondents were female, approximately 4.6 folds over male. Average age of respondents was 39.4 years (SD = 8.23, min. = 19, max. = 60) with professional practice experiences at 15.8 years (SD = 0.88, min. = 1, max. = 14). Married and single status was 59.5% and 33.9%, respectively. Bachelor degree 62.0%, followed by master degree 19.9%. 30.1% had monthly income between 10,001-20,000 baht, followed by 10.7% of between 20,001-30,000 baht. Only 9.0% of the total samples were involved in mental health budget allocation.

## 4. The use of mental health measurement

Table 24 shows respondent's behavior of using mental health measurement. Approximately 75.7% of respondents worked with inpatient. Around 78.6% experienced using the measurement to incorporate with inpatient treatment. Screening patient for activity therapy was the main purpose of using a measurement. Most spent time 5-10 minutes. While for respondents working with outpatient, 34.5% have been working with outpatients. Around 71.1% has experienced using a measurement to incorporate with treatment. Most spent more than 10 minutes, followed by 5-10 minutes, respectively. Clinical practice and objective of measurement use were significantly different between career and hospital type. While there were no significant difference among measure usage and time consumption.

Table 24 Percentage of measurement use with inpatient and outpatient services

| | Total | Career | | Hospital type | |
|---|---|---|---|---|---|
| | | Doctor | Nurse | Psychiatric | Medical |
| IP | | | | | |
| Clinical practice* | 75.7 | 90.2 | 74.1 | 74.9 | 87.5 |
| Using measure | 78.6 | 73.5 | 79.4 | 78.1 | 85.4 |
| Objective* | | | | | |
| -diagnosis | 8.9 | 30.1 | 6.1 | 7.9 | 22.4 |
| -screening | 49.3 | 14.5 | 54.0 | 51.0 | 26.5 |
| -etc. | 41.8 | 55.4 | 39.9 | 18.8 | 36.7 |
| -unknown | 21.8 | 25.3 | 21.3 | 22.3 | 14.3 |
| Time | | | | | |
| - < 5 min. | 12.8 | 15.7 | 12.4 | 12.6 | 16.3 |
| - 5-10 min. | 32.1 | 21.7 | 33.6 | 32.9 | 22.4 |
| - >10 min. | 26.7 | 28.9 | 26.4 | 25.9 | 36.7 |
| OP | | | | | |
| Clinical practice* | 34.5 | 93.5 | 25.3 | 32.8 | 56.0 |
| Using measure | 71.1 | 67.4 | 73.3 | 70.1 | 78.6 |
| Objective* | | | | | |
| -diagnosis | 25.8 | 45.3 | 14.7 | 23.6 | 42.9 |
| -screening | 27.5 | 2.3 | 42.0 | 29.8 | 10.7 |
| -etc. | 17.8 | 19.8 | 16.7 | 16.8 | 25.0 |
| Time | | | | | |
| - < 5 min. | 15.3 | 17.4 | 14.0 | 14.9 | 17.9 |
| - 5-10 min. | 24.6 | 18.6 | 28.0 | 26.4 | 10.7 |
| - >10 min. | 26.3 | 27.9 | 25.3 | 24.0 | 42.9 |

*= $p < 0.05$

The ratio of 'not sure respondent group', who were not sure whether they understand psychiatric budget allocation system or not (42.57%, n=338), was significantly different from that of 'understanding respondents group' (29.09%, n=231) and 'non-understanding respondents group', who did not understand the system (28.34%, n=225) ($X^2$=30.547, df=2, Sig.=0.000). The ratio of understanding group was equal to 'non-understanding respondents group' ($X^2$=0.079, df=1, Sig.=0.777).

By Kolmogorov-Smirnov test, data distribution was non-normal abnormal distribution. Therefore, nonparametric test was used to calculate and to compare difference mean rank of opinion towards budget allocation by psychiatric measurement.

Understanding level of agreed group towards psychiatric budget allocation system was significantly different that of disagreed. Most of 'understanding respondent group' (76.03%) agreed with budget allocation system. While 'non-understanding respondent group' (59.63%) disagreed with budget allocation system.

Additionally, 'agreed with using measurement' group, who agreed with using measurement as a tool for budget allocation, has significant difference with 'disagreed with using measurement'.

Most 'understanding respondent group' (62.09% of inpatient, 60.34% of outpatient) agreed with using measurement as a tool, while 'non-understanding respondent group' (78.26% of inpatient, 75.00% of outpatient) disagreed with using measurements as a tool. Opinion towards understanding outpatient budget allocation system by agreed group has not significant difference from that of disagreed group.

Outpatient budget allocation system of 'understanding group' and 'non-understanding group' was significant similar opinion (Sig.=0.05).

Table 25 shows statistic test by Mann-Whitney U and Kruskal-Wallis H between respondent's opinion towards budget allocation system and individual factors.

Doctors and nurses, owning differences in career, sex, education level, and income, were significantly different towards budget allocation system for inpatient (p-value < 0.05). Career was also influential factor towards budget allocation for outpatient.

Personal factors created insignificantly different towards using measurement for budget allocation (but influential to outpatient budget allocation).

Table 25 P-value of opinion on budget allocation system by subjects' characteristic

| Respondents characteristic | Understanding on allocation system | IP allocation system | | OP allocation system | |
|---|---|---|---|---|---|
| | | budget | Using measure | budget | Using measure |
| Career[a] | 0.953 | 0.001* | 0.064 | 0.575 | 0.031* |
| Working office[a] | 0.190 | 0.072 | 0.208 | 0.152 | 0.380 |
| Respondent type[b] | 0.400 | 0.006* | 0.084 | 0.386 | 0.110 |
| Gender[a] | 0.921 | 0.028* | 0.235 | 0.920 | 0.223 |
| Age[b] | 0.000* | 0.936 | 0.610 | 0.219 | 0.223 |
| Working experience[b] | 0.000* | 0.827 | 0.704 | 0.152 | 0.285 |
| Marital status[b] | 0.420 | 0.252 | 0.459 | 0.272 | 0.287 |
| Education level[b] | 0.211 | 0.008* | 0.394 | 0.846 | 0.115 |
| Income per month[b] | 0.022* | 0.041* | 0.354 | 0.112 | 0.132 |
| Using measure in routine practice | 0.227 | 0.236 | 0.825 | 0.746 | 0.062 |

[a] Mann-Whitney U,  [b] Kruskal-Wallis H Test,  * $p < 0.05$

5. Opinions towards determinants of budget

Table 26 shows respondents' opinion towards 11 factors that influencing psychiatric treatment cost, ranged from 1, least agreed to 5, highest agreed. Respondents' opinion highly agreed that cost was the influence of illness time duration, severity of symptom, risk to harm (oneself and others), complication and comorbidity, and working capability, respectively. Patient's diagnosis provider's ethics, patients' socioeconomic status, and patient's age were the respective influencers factors while gender and marital status had the least influence.

However, there were significant differences between opinion of nurse and doctor towards factors influencing psychiatric treatment cost (p-valve=.05). Nurses agreed in higher level than doctors. But there was no significant difference between opinion of respondents from psychiatric hospitals and teaching hospitals.

Table 26 Mean (SD) on subjects' view towards influential factor to psychiatric care cost

| Factor | Total | Doctor | Nurse | psychiatric hospital | teaching hospital |
|---|---|---|---|---|---|
| 1. Illness time duration | 4.5(0.84) | 4.4(0.98) | 4.5(0.82) | 4.5(0.82) | 4.3(1.08) |
| 2. Severity of Symptoms | 4.3(0.83) | 4.4(0.81)* | 4.3(0.83)* | 4.3(0.82) | 4.4(1.01) |
| 3. Risks to harm | 4.3(0.90) | 4.3(0.95) | 4.3(0.89) | 4.3(0.89) | 4.3(1.01) |
| 4. Complication/ comorbidity | 4.3(0.91) | 4.3(1.00)** | 4.3(0.90)** | 4.3(0.89) | 4.2(1.14) |
| 5. Working capability | 4.0(1.00) | 4.0(0.99) | 4.0(1.00) | 4.0(0.99) | 4.0(1.10) |
| 6. Diagnosis disease | 3.9(1.04) | 4.1(0.92) | 4.0(1.05) | 3.9(1.03) | 3.9(1.13) |
| 7. Ethics of providers | 3.8(1.11) | 3.4(1.21)* | 3.8(1.09)* | 3.8(1.10) | 3.3(1.20) |
| 8. Socioeconomic Status | 3.4(1.16) | 3.0(1.09)* | 3.5(1.15)* | 3.4(1.15) | 3.2(1.22) |
| 9. age | 3.4(0.96) | 3.1(0.92)* | 3.4(0.96)* | 3.4(0.95) | 3.3(1.07) |
| 10. gender | 3.0(0.99) | 2.4(0.93)** | 3.1(0.97)** | 3.0(0.98) | 2.7(1.01) |
| 11. Marriage Status | 2.8(1.06) | 2.4(0.93)** | 2.9(1.06)** | 2.9(1.06) | 2.5(0.91) |

0= unknown, 1=least agree, 2=little agree, 3=moderate agree, 4=high agree, 5=highest agree

** = p > 0.001,        * = p > 0.05

6. Opinions towards mental health measurement as a tool for budget allocation

Table 27 stated that respondents highly agreed (score >4) with budget allocation of inpatient by severity of symptom, and moderately agreed with inpatient system. In overall view, nurses had higher agreed levels than doctors (p=.05). But there was insignificant difference between score from psychiatric hospital group or from teaching

hospital group. In opinions towards budget allocation by working capability, respondents' opinion was in moderate to high level in outpatient setting.

Respondents highly agreed if doctor is rater (for outpatient = 4.35, for inpatient = 4.23); if doctor and nurse is rater (for outpatient = 4.19, for inpatient = 4.02); if nurse is rater (for outpatient = 3.99, for inpatient = 3.88).

For outpatient service, respondents highly agreed if time spending was between 5-10 minutes, moderately agreed if time spending was less than 5 minutes, and little agreed if time spending was more than 10 minutes. For inpatient service, respondents highly agreed if time spending was less than 10 minutes, and little agreed if time spending was more than 10 minutes.

Respondents highly agreed to use other measurements (except GAF, CGI, and HoNOS) to be a tool for budget allocation. Nurse respondents highly agreed with GAF while doctor group had moderately agreed. Both doctor and nurse groups had moderately agree with CGI. While HoNOS had the lowest score with little to moderately level.
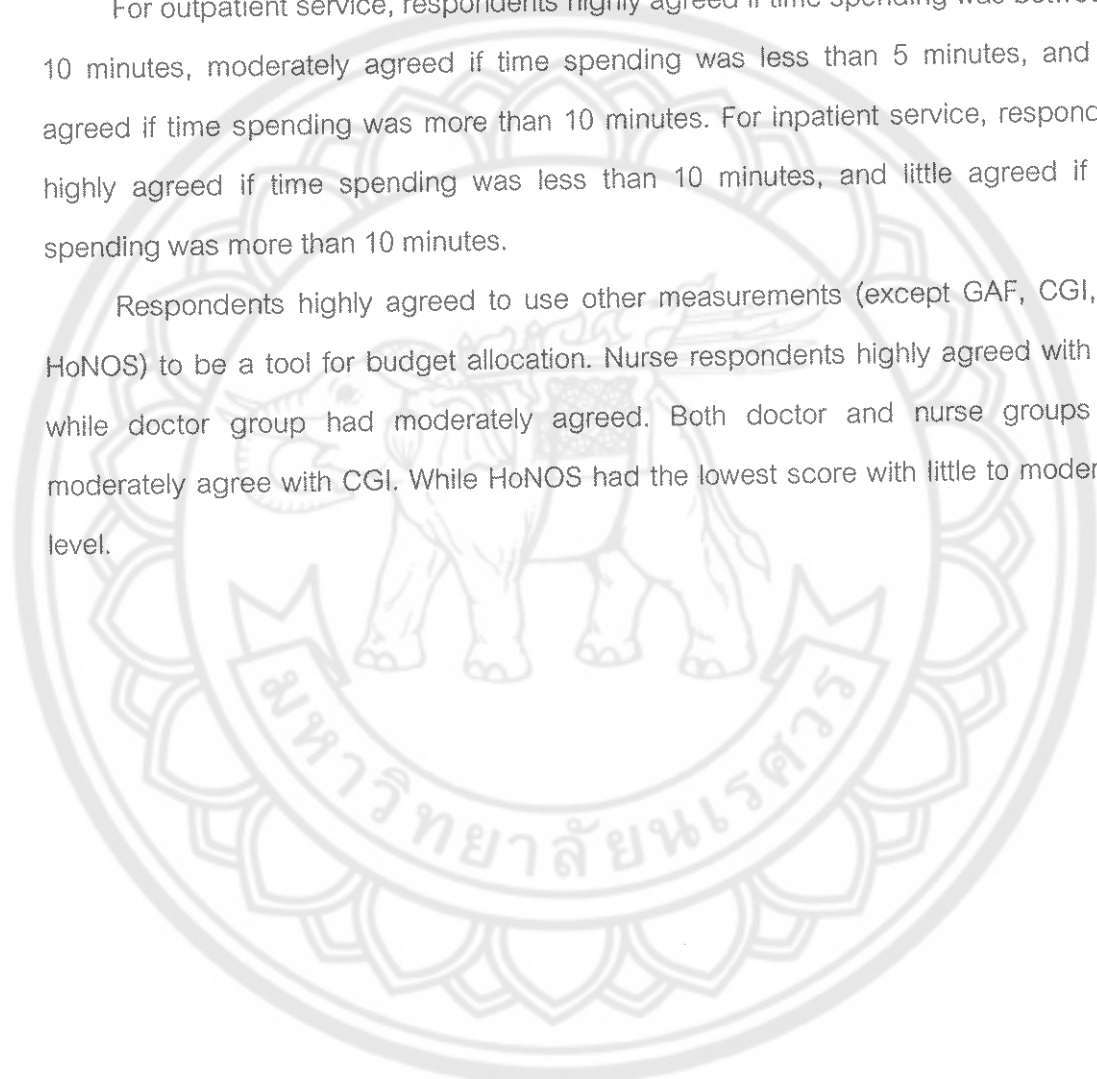
Table 27 Mean (SD) on subjects' view towards mental health measurements

| Opinion | Total | | Career | Hospital type | |
|---|---|---|---|---|---|
| | | Doctor | Nurse | psychiatric hospital | teaching hospital |
| 1. Rate symptom [a] | | | | | |
| - Intpatient | 4.2(0.77) | 4.0(0.95)* | 4.2(0.75)* | 4.2(0.77) | 4.1(0.89) |
| - Outpatient | 4.1(0.89) | 3.7(1.00)** | 4.2(0.86)** | 4.1(0.89) | 3.9(0.98) |
| 2. Rate function [a] | | | | | |
| - Intpatient | 4.1(0.81) | 3.8(1.03)** | 4.1(0.78)** | 4.1(0.80)* | 3.8(0.94)* |
| - Outpatient | 3.9(0.92) | 3.6(1.03)* | 4.0(0.88)* | 3.9(0.91) | 3.8(0.98) |
| 3. Corporation [a] | | | | | |
| - Intpatient | 4.2(0.75) | 3.8(0.99)** | 4.2(0.70)** | 4.2(0.75)* | 3.9(0.79)* |
| - Outpatient | 4.0(0.88) | 3.5(1.07)** | 4.1(0.81)** | 4.0(0.87)* | 3.7(0.93)* |
| 4. Rater [b] | | | | | |
| IP:    -doctor | 4.4(0.83) | 3.5(1.01)** | 4.5(0.73)** | 4.4(0.84) | 4.2(0.70) |
| -nurse | 4.0(0.85) | 3.8(0.87) | 4.0(0.85) | 4.0(0.87) | 3.9(0.69) |
| -both | 4.2(0.82) | 4.0(0.82) | 4.2(0.82) | 4.2(0.82) | 3.9(0.81) |
| -unknown | 4.2(1.01) | 3.9(1.36) | 4.3(0.94) | 4.2(1.02) | 4.7(0.49) |
| OP:    -doctor | 4.2(0.97) | 3.2(1.28) | 4.4(0.78) | 4.3(0.97) | 4.0(1.06) |
| -nurse | 3.9(0.85) | 3.7(0.98) | 4.0(0.82) | 3.9(0.85) | 3.6(0.81) |
| -both | 4.0(0.89) | 3.7(1.03) | 4.1(0.85) | 4.0(0.89) | 3.9(0.85) |
| -unknown | 4.2(1.02) | 4.0(1.19) | 4.3(0.98) | 4.2(1.03) | 4.8(0.45) |
| 5. Time [b] | | | | | |
| IP:    < 5 min. | 3.8(1.26) | 3.8(1.20) | 3.8(1.27) | 3.8(1.27) | 3.9(1.08) |
| 5-10 min. | 4.1(0.96) | 3.8(1.18) | 4.1(0.92) | 4.1(0.96) | 3.9(0.90) |
| >10 min. | 2.9(1.33) | 2.4(1.31) | 3.0(1.31) | 2.9(1.33) | 2.5(1.24) |
| OP:    < 5 min. | 3.9(1.21) | 4.1(1.18) | 3.9(1.22) | 3.9(1.22) | 4.1(1.09) |
| 5-10 min. | 3.9(1.09) | 3.3(1.29) | 4.0(1.02) | 3.9(1.08) | 3.3(1.19) |
| >10 min. | 2.7(1.32) | 2.0(1.22) | 2.9(1.30) | 2.7(1.33) | 2.5(1.23) |
| 6. Measure [b] | | | | | |
| IP:    -GAF | 4.0(0.84) | 3.6(1.07)** | 4.1(0.78)** | 4.05 (0.81)** | 3.6(1.11)** |
| -CGI | 3.9(0.82) | 3.7(0.96)* | 3.9(0.78)* | 3.91 (0.80) | 3.6(0.92) |
| -HoNOS | 3.6(0.96) | 2.9(1.16)** | 3.8(0.86)** | 3.68 (0.92)** | 3.0(1.14)** |
| OP:    -GAF | 3.9(0.91) | 3.6(1.08)* | 4.0(0.85)* | 3.95 (0.90)** | 3.7(0.97)** |
| -CGI | 3.9(0.88) | 3.7(0.98) | 3.9(0.85) | 3.84 (0.88) | 3.9(0.86) |
| -HoNOS | 3.5(0.93) | 2.8(1.05)** | 3.7(0.83)** | 3.53 (0.92) | 3.3(1.08) |

0 = unknown, 1=least agree, 2=little agree, 3=moderate agree, 4=high agree, 5=highest agree;

[a] Mann-Whitney U,   [b] Kruskal-Wallis H Test          **p < 0.001, *p < 0.05

# 7. Discussion and conclusions

## 7.1 Summary

In this research, questionnaires were sent to population and received them back accounting for 50.5%. The returning rate of this study was concordant with Newman (2000) (Newman, 2000) that mail survey returning rate was in between 10%-50%. In Babbie (2002) (Babbie, 2002) criteria, the returning rate of this study was acceptable in moderate level (>50%). However, only returning rate can not confirm the consistency of the study.

In all respondents, female was higher than male because major respondents were nurses dominated by female. Most respondents held at least bachelor degree with an average experience of 16 years. All did not work with inpatient care treatment. They have been highly experiencing in using measurement in several ways, but there were no exact direction of what appropriate measures, what aims, etc.

Most doctor and nurses highly agreed with budget allocation method based upon severity of symptoms and physical potential of patient. This is in line and consistent with the study conducted by the Mental Health Classification and Service Costs (MH-CASC) project supported by the Australian Government (Buckingham et al., 2003). The study had combined patients who have similar symptoms together, called "casemix" and found that "severity of symptoms and physical potential had highest effect to caring resources". Additionally, respondents view that illness duration is the most influential factor towards caring cost. The result from this research was compatible with the study of "Cost of psychiatric care by casemix approach, Suan Prung psychiatric hospital", which illness duration can predict caring cost of inpatient up to 97%.

The influential factors to caring cost by doctors and nurses of this study were similar to other studies such as the MH-CASC (Buckingham et al., 2003). The study has combined patients who have similar symptom together and called "casemix" and found that "severity of symptom and physical potential has highest effect to caring resources" (Newman, 2000).

Majority of doctors and nurses highly agreed to allocate budget based on severity of symptom and working capability and highly agreed to give cooperation if budget allocation measurement is needed. However, some influential factors, hard to measure and not recorded in hospital reports, are inappropriate to incorporate for budget allocation such as working capability and social support, socioeconomic status, and ethics of service providers. Most doctors and nurses view appropriate measurement should create lowest expense when rating. Therefore, it should possess the following characteristics. Firstly, it should be short enough with time spending less than 10 minutes. It should not have too many items, be easy to understand, and be likely to compatible with data from other sources. Secondly, majority of doctors and nurses agreed that doctors are appropriate to assess patient. However, this is impossible in routine practice because there were limited numbers of doctors and in the real setting nurses were closer to patients than doctors. Nurses are appropriate to be raters especially if a measurement is used as a routine work. Thirdly, most respondents voted measurements with their preferences from high to low as follows: GAF, CGI, and HoNOS, respectively. This might be from their long familiarity with GAF and CGI while HoNOS has just been introduced to Thailand (Phuaphanprasert, Sanichwannakul, Kittirattanapaiboon & Pannarunothai, 2004. pp. 125-45)

### 7.2 Limitations

This study has some limitations. Firstly, it covers subjects in public special psychiatric service setting excluding doctors and nurses from general hospitals, provincial hospitals, and private hospitals. Therefore, this study can not be a good representative of the whole picture of psychiatric service in Thailand. Secondly, if additional in-depth interview with the top management or budget allocation participants was made, this result will be a good representative for the overall picture.

### 7.3 Implementations

If mental health measurement has been supported and implemented in psychiatric hospital, many key issues should be identified. Firstly, information should be dissimulated to the management and operation levels, especially to whom in relation to measurement (benefit, use, etc.), budget allocation system. Secondly, measurement

should be selected based on usage and rater type. For example, measurement should possess acceptable characteristics and less than 10 minutes to measure patients. Thirdly, nurse respondents generally gave higher cooperation than doctors. Therefore, If nurse is a rater, she should be trained and prepared.

## 7.4 Recommendations

Doctors and nurses recommend on budget allocation. Most view mental health budget allocation should be sufficient for psychiatric services because most patients were poor and treatment time was long. While they think budget was insufficient and needed more budget.

According to the study, most have not known, realized, and used mental health measurement. Mental health measurement should be developed or created in Thai by emphasizing on convenience to use and time spending.

Budget allocation for mental health should concern on real situation that some patients are likely to be abandoned by relatives and others have not been accepted by society. Mental health staffs should be sufficient, quality medicine should be concerned when using public hospitals.

According to respondents' recommendations on limit of budget and medical personals, few knowledge and realization of using measurement, view of burden to relatives and society, low quality medicine drug, related government agencies should promptly act to respond with aforementioned.