CHAPTER IV
INSTRUMENT & DATA COLLECTION

One way of obtaining data is simply to ask questions.The interview and the questionnaire both utilized this approach (Donald A.,Lucy C.J. and Asghar R.,1979).In study,both methods were used.

DATA COLLECTION INSTRUMENTS

1. INSTRUMENT

The instrument used in this study have been the structured questionnaire forms. The method of obtaining data was a questionnaire consisting of 98 items which were a combination of 8 parts of instrument. The instrument will be discussed separately which will be shown as this following :

PART 1 : Demographic information was obtained form 14 additional questions at the beginning of the questionnaire.

- Age
- Workplace
- Tenure(nursing position level)
- Educational level
- Kinship responsibility
  : marital status,number of children
- Experience of working
- working time of nursing
- Spouse's occupation
- Spouse's workplace

- Income
  : Salary,extra income,Family income
- Transportation

PART 2: Job satisfaction was measured with the Job SatisfactionScale developed by Hackman & Oldham (1980). The detail was shown as this following :

JOB SATISFACTION

CONTEXT SATISFACTION

Context Satisfaction or Satisfaction with specific facets of the Job was measured with a 10-item scale. The nurses indicated level of satisfaction with four job facets : job security, Compensation Co-workers, and supervision, from "extremly dissatisfied" to extremely satisfied" on a 7-point rating scale. The reliability alpha for the context satisfactions ranged from 0.56 to 0.79 (Hackman & Oldham, 1980).In the pilot study, estimates of internal consistency reliability for the four context satisfaction ranged from 0.51 to 0.85 and also the final study sample data, shown in Table 2.

GROWTH SATISFACTION

Growth Satisfaction, or Satisfaction with the opportunity for professional growth and development on the job, was measured with a subscale of 4 items by Hackman and Oldham (1980) who estimated the alpha reliability of the items to be 0.84. The items pertain to perceptions of feelings of challenge and accomplishment on the job. The nurses indicated their responses from "extremely dissatisfied" to extremely satisfied" on a seven-point

rating scale. In the pretest study, estimates of internal consistency reliability to be 0.64. The post test study an acceptable Cronbach's alpha Coefficient of (n=30).

GENERAL JOB SATISFACTION

General job satisfaction was measured by asking the nurses to indicated extent of agreement which each of five general statements developed by Hackman and Oldham, (1980) which related to their global view of overall work satisfaction. The respondents rated the extent of their agreement with statements on a 7-point rating scale ranging form "disagree strongly" to "agree strongly". Two of the three items were reverse scored. The internal consistency (alpha) reliability coefficient for this subscale was estimated at 0.76 (Hackman & Oldham, 1980).

In the pre test study, the internal consistency alpha was estimated at 0.66. The post test study an acceptable Cronbach's alpha Coefficient of 0.70 (n =30).

Table 2 Reliability Estimated for Job Satisfaction Scales Based on Pilot Study and Total Sample Data

Job Satisfaction Scale	Pre-test study Cronbach's alpha	Post-test study Cronbach's alpha
Context Satisfaction	0.80	0.87
- Job Security	0.64	0.70
- Compensation	0.85	0.85
- Co-workers	0.44	0.60
- Supervision	0.53	0.60
Growth Satisfaction	0.64	0.70
General Job Satisfaction	0.66	0.70

PART 3 : ANTICIPATED TURNOVER

Anticipated turnover was measured with the Anticipated Turnover developed by Hinshaw and Atwood (1984). This 12-item instrument uses a 7-point Likert type scale and is designed to measure two dimensions of staff nurses' perceptions of the possibility of voluntarily leaving their agency position (Hinshaw, 1980). These include the initial expectations of staying in the position, and certainty of anticipated leaving (Hinshaw, 1980).

Anticipated turnover was scored on a 1-7 scale. Agree strongly on positive items was given a score of 7 whereas agree strongly on negative items was given score of 1.The highest possible score of 84 indicated high anticipated turnover and the lowest possible score of 12

indicated low anticipated turnover. The internal consistency reliability coefficient alpha was estimated by Hinshaw and Atwood (1987) as 0.84. Hinshaw and Atwood (1987) also performed factor analysis with data from the ATS during which they identified two factor which explained 54.9% of the variance anticipated turnover.

The internal consistency reliability coefficiency coefficient was estimated during the pre-test study (n=30) as 0.63 and the post test study was 0.74(n=30).

PART 4 : AUTONOMY (JOB CHARACTERISTICS)

The purpose of the Autonomy Job Characteristics (SC) instrument is to measure the employee's perception of autonomy scale derives from Sims, Szilagyi and Keller's (1976) Job Characteristics Inventory and is one of six suggested dimension of job characteristics. Autonomy is defined as the extent to which employees have a major say in scheduling their work. Selecting the equipment they will use, and deciding on procedures to be followed (Sims, et al., 1976). The items in the Autonomy (JC) Scale focus on perceptions of independence and freedom in job performance. The SCale format is that of three-option, Likert -type. Sims, et al (1976) reported a scale reliability of 0.74 when used with 1,600 medical center employees, including nurses.

The six-item Autonomy (JC) Scale was administered to 1,597 nursing staff members in 15 urban and rural hospitals throughout Arizona (Hinshaw and atwood, 1983-85). Principle Components factor analysis was used to estimate

construct validity. When factor analyzed alone, all six items loaded on one factor with coefficient $\geq$ 0.50; however, when factor analyzed with another measure of autonomy. item # 6 did not load on the same factor. The remaining five items explained 48.8% of the variance. Therefore, item #6 was omitted the Autonomy (SC) Scale. Internal consistency reliability was estimated at alpha = 0.73 for the revised five-item scale. The item-total correlations ranged from 0.38 to 0.59; the item-item correlations met the criterion of r = 0.30-0.70 sixty-four percent of the time.

During the pre-test study,the test reliability Cronbach's alpha was 0.82 and post-test study was 0.85 (n=30).

PART 5 : INSTRUMENTAL COMMUNICATION

Instrumental Communication was operationalized as perceptions of communication down.... from the hierachy to the individual nurse.. indicated by scores on the 8 items Instrumental CommunicationScale (IC3) (Price and Mueller, 1986). The items elicit the perception of the degree to which the nurse feels informed about the relevant tasks, condition, and standards which pertain to the getting the job doneresponse options range (rom "very well informed " to "not informedat all". The alpha reliability coefficient fir this group of items was 0.93 and factor loadings for the 8 items ranged from 0.65 to 0.86 (price and Mueller, 1986).

During the pre-test study, the test reliability Cronbach's alpha was .090 and post-test study was 0.92 (n=30).

PART 6 : JOB MARKET

Opportunitiesin external labor market, or the opportunity to work elsewhere, were measure with 2 items from price and Muller (1986) which dealt with the perceived ease of finding alternative employment locally. Response options ranged from "not easy at all" to "very easy" on a 5-point scale. These items yielded an alpha of 0.84 and had individual factor loadings of 0.85 and 0.80 (Price and Mueller,1986). During the pre-test study to test reliability,Cronbach's alpha was 0.35.The post-test study, Cronbach's alpha for this scale was similar at 0.77 (n=30).The questionnaire was improved after using this study.

Perceived promotional apportunity with the organization was measured with Internal labor market Scale (ILS) from Price and Mueller (1986) which had an alpha reliability coefficient of 0.92 and individual item factor loadings ranging from 0.58 to 0.91(Price and Mueller, 1986). The 5-item scale asked for agreement with statements relating to the nurse's perception of potential for advancement within the organization itself. Response options ranged from "strongly agree" to "strongly disagree". Pilot study data revealed a test reliabity, Cronbach's alpha of 0.30. There are a number of possible explanations for the low reliability estimates on the variable. This scale was improved for the second administration and

Cronbach's coefficient alphas for this test was 0.67 and 0.90 (n=30).

PART 7 : WORKLOAD

This concept was measured with 2 items from the work of Price and Mueller (1986). These items tap into the nurse's perception of the burden of the workload as well as the time available to complete the work. The first item responses range from "often not enough to keep me busy" to "entilrely too much for me to handle". The second item responses range from "always get the work done" to "never get the work done" Price and Mueller's (1986) the alpha reliability coefficient was 0.60 (n=193).Duringthepre-test study to test reliability, Cronbach alpha was 0.27. The post-test study, internal consistency reliability was estimated to be 0.70 (n=30).

PART 8 : JOB STRESS

Job stress was measured with Version II of the Job Stress Scale developed by Hinshaw and Atwood 1985. This 28-item questionnaire tap five main categories of stressful events in general inpatient and outpatient clinical services : Competence, physical work environment, staff, team respect and time.

Version II of the Job Stress Scale is a 28-item, 4-point forced choice Likert type scale and was adapted from the Bialey and Clause Job Stress Scale for ICU nurses (Hinshaw & Atwood, 1985). Job Stress was scored on a 1-4 scale. For positive items, rarely was given a value of 1 and the the high for positive items almost always, was

scored as a 4. For negative items, almost always was scored as a 1 and and rarely was scored as a 4. The highest possible Score was 112 indicating low stress and the lowestpossible score was 28 indicating high stress.The test reliability was shown in Table 2.

2. RELIABILITY AND VALIDITY

Reliability and validity have been the essential characteristics of any measurement procedure.Reliability refers to the extent to which the procedure (or questionnaire) can yield comparable results on repeated occasions of measurement when the real phenomenon being measured has not changed.Validity refers to the degree to which a procedure (or questionnaire) measure what it is supposed to measure.Survey information may be invalid for a number of reasons,including poor understanding of the questionnaire,poor recall on the part of respondents, unintentional distortion caused by the way the questions or answers have been presented,or intentional distortion. Validity and reliability may be high in one population but very low in another,using exactly the same measures and procedures. Therefore,it is necessary to test the measures in the population of relavance. Reliability may be tested by checking for logical consistency among multiple measures of the same variable.

Sometimes this is done by looking for the internal consistency of multiple items in the same questionnaire. In case that the questions have been inadequate to be repeated in the same questionnaires, it is more likely to involve

readministering questions to some sample of respondents after enough time has elapsed that they would be unlikely to remember the answer they gave on the first administration. Validity may be checked by seeing whether other sources give information about the subjected which is consistent with they said about themselves (Johnson,1980).

In this study,testing of reliability and content validity was operated as this following:

1.The researcher had recieved the instrument which relevant to the subject that was used to study.The scale 's owner allowed to use the instrument and most of them was constructed in English version.The instrument was translated into Thai language by researcher and rechecked by 2 experts in English profession.

2.The translated questionnaire had been consulted by 6 experts in nursing profession for content validity and their suggestion.After the questionnaire had been already improved,the reseacher used this questionnaire to test with 10 subjects at Somdet memorial hospital. The purpose was to examine the clarity and appropriate of the language.

3.The test was conducted with 30 subjects in Somdet memorial hospital for two times.After finishing the pre-test study, the appropriate of the language,the clarity of content,and the sequently of the question has improved. The reliability can be found by using Cronbach's Alpha Coefficieni(α).

The formula (Hull C.H.,1981) as following

$$\alpha = \frac{K}{K-1}\left(\frac{1-Si^2}{Si^2}\right)$$

α = coefficient of reliability of questionnaire.

K = the number of the question in questionnaire.

Si = variance of each item in questionnaire.

St = variance of all item in questionnaire.

The result of reliability of the pre-test study and post test study are shown in the table 3.

TABLE 3 A COMPARATIVE RESULT OF THE COEFFICIENT OF RELIABILITY BETWEEN PRE- TEST AND POST TEST STUDY

	PRE-TEST	POST-TEST
JOB SATISFACTION	0.80	0.87
- JOB SECURITY	0.64	0.67
- GROWTH SATISFACTION	0.64	0.67
- CO-WORKER	0.44	0.51
- SUPERVISION	0.53	0.53
- GENERAL SATISFACTION	0.66	0.70
ANTICIPATED TURNOVER	0.63	0.74
AUTONOMY	0.82	0.85
INSTRUMENTAL COMMUNICATION	0.91	0.92
JOB MARKET	0.50	0.70
- INTERNAL LABOUR MARKET	0.35	0.77
- EXTERNAL LABOUR MARKET	0.67	0.90
WORKLOAD	0.27	0.70
JOB STRESS	0.71	0.78
- COMPETENCE	0.52	0.60
- PHYSICAL ENVIRONMENT	0.61	0.61
- STAFFING	0.45	0.50
- TEAM RESPECT	0.30	0.53
- TIME PRIORITIES	0.65	0.73

THE MEASUREMENT AND SCORING OF ANTICIPATED TURNOVER

The dependent variable is the anticipated turnover is defined as a nursing staff member's perception or opinion of the possibility of voluntarily terminating his or her current agency position "(Hinshaw & Atwood,1987).

TABLE 4 Anticipated turnover score

Variable	Measurement and scoring
Anticipated turnover 12 items	12 items are measured in rating scale of extent,as follow: anticipated turnover was scored on a 1-7 scale. Agree strongly = 7 Moderately agree = 6 Slighly Agree = 5 Uncertain = 4 Slighly disagree =3 Moderately disagree = 2 Disagree strongly =1

The weighted score is the simple sum of all off the items in the scale devided by the number of items in the total scale (Hinshaw & Atwood ,1987). The score of the anticipated turnover is the sum of the scores for the 12 items. The mean of the anticipated turnover score is used to predic the level of anticipated turnover.

The method of using anticipated turnover score to predict the level of anticipated turnover. The procedure is following as this step.

1. Evaluate the rate of turnover among nurses in Chulalongkorn Hospital in the year of 1991(Jan-Sep).So the number of turnover of nurse is 90.

2. Identify the Z score by using the method this following. The formula for making this transition may be obtained by solving formula (Edward W. Minium, 1970).

2.1 Calculate P(E) = Probability of event

$$= \frac{\text{number of outcome of event}}{\text{all possible of outcome}}$$

replacing $\frac{90}{1021} = 0.09$

2.2 Finding P and then compare with the area in the table.

$$P = 0.5 - .09 = 0.41$$

from the table find that the area = 0.41, the Z will be 1.341.

3. Calculated the raw score (X) by the formula for translating a Z score to a raw score.

$$X = \bar{X} + Z(SD)$$

$\bar{X}$ = Mean

SD = Standard deviation

4. The scores are located 1.341 of a standard deviation above and below of mean. In this study use the mean and SD of anticipated turnover score. The mean is 43.59 and the standard deviation is 6.7,the limits are as follow.

LOWER LIMIT		UPPER LIMIT	
Z	= -1.341	Z	= +1.341
Mean	= 43.59	Mean	= 43.59
(-1.341)(6.7)	= -8.98	(+1.341)(6.7)	= +8.98
raw score	= 34.61	raw score	= 52.57

5.Applying this value to the explaination of the level of anticipated turnover.The normal distribution curve is illustrated in figure 4.

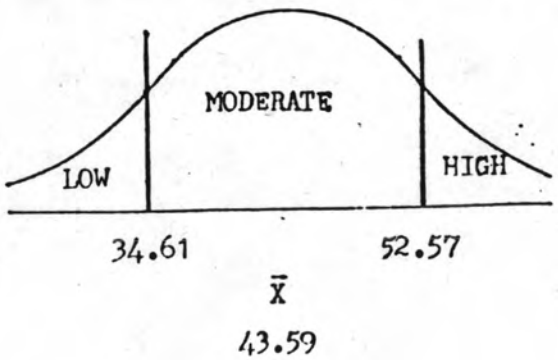

FIGURE IV

6. From the illustration above, can determine the level of anticipated and set criteria as this following.

High level	= scores $\geqslant$ 52.57
Moderate level	= scores between 34.60 to 52.56
Low level	= scores $\leqslant$ 34.61