Ubar Kampung: indigenous knowledge and practice of medicinal, aromatic and cosmetic (MAC) plants used for the treatment of diabetes mellitus in the Tatar Sunda Region of West Java, Indonesia

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Chapter VIII PATTERNS OF TRANSCULTURAL HEALTH CARE UTILISATION IN THE RESEARCH AREA

This chapter presents the statistical analyses for transcultural health care utilisation in the Sundanese community with regards to the belief-knowledge-practice complex of MAC plants for the treatment of diabetes mellitus. Section 8.1 explains the preparation taken to decode the answers collected in the household survey into indented variables. In general, each indicator is measured by a single question, resulting in the original answers being used in the analysis. In particular cases, it was not possible to measure the intended variable by a single question. In this case, multiple questions were used, and several answers were recoded into the intended variable, defined within the conceptual model. All the techniques and explanations of each variable are discussed in Section 8.1.

Section 8.2 discusses the quantitative analyses of the variables identified in the blocks of factors in the conceptual model. First, a descriptive analysis is made using bivariate analysis by cross-tabulations. The relationship significance of each cross-tabulation between each independent and intervening variable towards dependent variables is determined with the Chi-square calculation, while the measurement of association is defined with Cramer's V value. The bivariate analyses give the general impression of the relative impact of each of the independent and intervening variables on the dependent variables.

Subsequently, multivariate analyses are presented in Sub-section 8.2.3. The non-linear canonical analysis or OVERALS is used for the multivariate analyses. The OVERALS analysis gives valuable information on the structural relationships between the independent and intervening variables and the dependent variables. This analytical technique makes it possible to identify the independent and intervening variables which have a stronger effect in their interrelationships on transcultural health care utilisation and the relative strength of the various blocks of factors within the conceptual model.

Finally, Section 8.3 elaborates the results of the analysis and interprets the findings, including the differential utilisation of the plural medical system and determinants of health care utilisation behaviour.

8.1 Preparation of the Data Set

8.1.1 Factors and Variables

Data was gathered from a total of 833 household members in which 358 of the household members reported to have contact with one or more medical systems available in the research area. In order to prepare the statistical analysis of transcultural health care utilisation patterns, each block of factors is translated into a number of measurable variables. Table 8.1 presents a list of all the variables in the model and illustrates the block of factors to which the respective variables belong, as well as the particular label which is assigned to each variable in the statistical program for data analysis.

Table 8.1. Block of Factors, Names and Labels of All 52 Variables Identified within the Multivariate Model of Transcultural Health care Utilisation.

Block of Factors	Name of Variable	Label
Socio-Demographic Factors	Village	*VillNam*
	Household Size	*HhMember*
	Gender	*Gender*
	Relationship with Household head	*Rel*
	Age	*Age*

Table 8.1. (*continued*).

Block of Factors	Name of Variable	Label
	Place of Birth	*Pob*
	Ethnicity	*Ethnic*
	Religion	*Religion*
	Education	*Edu*
	Marital Status	*MarStat*
	Occupation	*Occup*
Psycho-Social Factors	Knowledge of the Traditional Medical System	*KnowTrd1*
	Source of Knowledge of the Traditional Medical System	*SourTrd1*
	Belief in the Traditional Medical System	*Treatrd1*
	Opinion on the Traditional Medical System	*OpTrd1*
	Knowledge of the Transitional Medical System	*KnowTrs1*
	Source of Knowledge of the Transitional Medical System	*SourTrs1*
	Belief in the Transitional Medical System	*Treatrs1*
	Opinion on the Transitional Medical System	*OpTrs1*
	Knowledge of the Modern Medical System	*KnowMod1*
	Source of Knowledge of the Modern Medical System	*SourMod1*
	Belief in the Modern Medical System	*Treatmod1*
	Opinion on the Modern Medical System	*OpTrs1*
	Knowledge of Type 2 Diabetes Mellitus	*KnowDm*
Enabling Factors	Monthly Income	*Income*
	Monthly Expenses for Health care	*Expenses*
	Insurance	*Insrnce*
	Socio-Economic Status	*SESre*
Perceived Morbidity Factors	Health Status	*Hlthcond*
	Reported Disease	*RepDis*
	Duration of the Reported Disease	*DurRepDis*
	Main Symptoms of Disease	*Symp*
	Complications of Disease	*DisComp*
Institutional Factors	Distance to Access the Institutions of the Traditional Medical System	*AccTrd*
	Distance to Access the Institutions of the Transitional Medical System	*AccTrs*
	Distance to Access the Institutions of the Modern Medical System	*AccMod*
	Cost to Access the Institutions of the Traditional Medical System	*CosTrad*
	Cost to Access the Institutions of the Transitional Medical System	*CosTrs*
	Cost to Access the Institutions of the Modern Medical System	*CosMod*
Environmental Factors	Residential Environment	*Envi*
	Residential Status	*Rsdnstat*
	Land	*Land*
	Nearest Medical Facility	*NearFac*
	Farthest Medical Facility	*FarFac*

Table 8.1. (*continued*).

Block of Factors	Name of Variable	Label
Intervening Factors	Impact of Policy on the Traditional Medical System	*PolTrad*
	Impact of Policy on the Transitional Medical System	*PolTrs*
	Impact of Policy on the Modern Medical System	*PolMod*
	Impact of Public Health Insurance	*BpjsImp*
	Impact of Promotion on the Traditional Medical System	*PromTrad*
	Impact of Promotion on the Transitional Medical System	*PromTrs*
	Impact of Promotion on the Modern Medical System	*PromMod*
	Impact of Private Health Insurance	*InscImp*

Source: Household Survey 2017

The answers provided by the respondents are assigned into numerical codes of answer categories. Hence, the variables are defined as 'categorical variables'. In general, categorical variables have two primary types of scales: one without a natural ordering (nominal scale), and the other with and ordered category (ordinal scale). Methods for ordinal variables utilize category ordering (*cf*. Agresti 2013). The categorical order of the answers is arranged from 'little' to 'much' and from 'negative' to 'positive' as well as from 'difficult' to 'easy'. Although the answer categories of ordinal variables are arranged in rank order, it was not possible to establish an equally distributed range distance among the categories. As a result, the ordinal level of measurement forms the highest level of measurement of the variables identified within the model (*cf*. Aiglsperger 2014).

In the data entry process into the statistical program, all cases are verified for the outliers and missing values. Outliers are identified using a feature of the boxplot in the SPSS ver.25. SPSS identifies outliers as cases that fall more than 1.5 box lengths from the lower or upper hinge of the box. Based on the plot, no significant outliers have been detected among cases in the dataset. For the verification of missing values, the missing data were distinguished with a unique numerical code for each variable. Consequently, eleven households were excluded from the dataset, reducing the total household number from 220 to 209 households.

8.1.2 Construction of the Data Set

The data set used in the analysis consists of independent, intervening, and dependent variables. A number of independent variables have been identified as determinants of local patterns of transcultural health care utilisation behaviour. All the variables included in the dataset have been discussed in Chapter III. For the purposes of the analyses, variable ethnicity and religion are removed from the dataset because 98% of the respondents are Muslim and belong to the Sundanese ethnic group.

In addition to independent and intervening variables as predisposing factors, the dataset for utilisation rates includes 3 dependent variables: utilisation of traditional medicine, utilisation of transitional medicine, and utilisation of modern medicine. Dependent variables determine the number of utilisations between patients and three medical systems in the research area. The patients and non-patients categories are distinguished by the household member's answer as to whether they had experienced one of the diseases listed in the questionnaire within 12 months. A respondent who gives a positive answer and chooses one of the diseases in the list is specified as a patient. Overall, there were 360 household members (43.22%, n = 833) who reported an episode of disease in the past 12 months, hereafter categorised as 'patient'. Out of 360 patients, 2 patients (0.5%, n = 360) were identified as 'non-action patients', due to not seeking any treatment and were subsequently excluded from the calculations.

All the remaining patients who admitted seeking treatment for the reported disease were asked to indicate what kind of medical system they first contacted in accordance with the plural medical system available in the research area. Since patterns of health care utilisation behaviour may include multiple contacts between patients and the plural medical system, the patients were also asked whether they have taken a further step in the process of seeking the treatment. The number of patients who answered 'no further step taken' reveals the number of patients who took only one step. Similarly, patients who answered that they took a second step were asked whether they took the third step in the process of seeking treatment. Since there are only three medical systems available in the research area, the patients could state a maximum of three steps. Therefore, preparation of the data for statistical analysis of patterns of health care utilisation is based on the number of utilisation rates of household members identified as 'action patients' (N = 358).

As a result, from 358 action patients, there are 611 utilisation rates in which 58.6% (n = 358) cases refer to respondents who took one step, 33.4% (n = 204) cases refer to respondents who took two steps, and 8.0% (n = 49) cases refer to respondents who took three steps in the utilisation of the plural medical system. To this effect, the majority of patients reported using the modern medical system (39.4%, n = 241), followed by the transitional medical system (35.0%, n = 214), and finally the traditional medical system (25.5%, n = 156), as the least frequently contacted medical system among the three medical systems available in the research area.

8.2 Quantitative Data Analysis

8.2.1 Bivariate Analysis of the Selected Variables

After the dataset was prepared including some steps such as recoding and excluding the missing values, the next step taken was to perform the statistical analysis. In order to explain the relationship between two categorical variables, bivariate analyses with the cross-tabulation technique are applied to the defined independent and intervening variables, pairing with the dependent variables. Bivariate analysis was used to examine whether one variable relates to another, pertaining more specifically to the shape, direction and strength of the relationship *(cf.* Weinberg & Abramowithz 2002). The focus of a bivariate analysis is the association between two variables; although this implies co-variation, it should not be mistaken for causation *(cf.* Rosnow & Rosenthal 2002; Field 2005). Pearson's chi-square test (χ^2) is applied to each cross-tabulation. Overall, Pearson's chi-square test analyses the relationship between two categorical variables on the basis of comparing the frequencies observed in certain categories to the frequencies expected to occur by chance. In other words, the test calculates the degree of probability, to which the relationship between the variables occurs by chance. Accordingly, the more significant the results of the chi-square test are, the less likely it is that the relationship between variables occurs by chance (*cf.* Bernard 2002).

The results of the bivariate analysis of 52 variables are presented in Table 8.2 to 8.8, arranged in accordance with the different blocks of variables in the conceptual model. The tables show the relationship of each independent variable with the dependent variables.

Bivariate Analysis of Socio-Demographic Variables and Dependent Variables (Table 8.2).

Table 8.2. Distribution of the Socio-Demographic Variables of the Respondents of the Sample over the Dependent Variables (N=611)

Variable	Traditional Medicine		Transitional Medicine		Modern Medicine		Total	
Village	N	%	N	%	N	%	N	%
Lamajang	47	29.4	72	45.0	41	25.6	160	100.0
Sukaluyu	29	27.6	46	43.8	30	28.6	105	100.0
Cipanjalu	29	24.2	51	42.5	40	33.3	120	100.0
Ciporeat	9	16.7	21	38.9	24	44.4	54	100.0
Katapang	42	24.4	24	14.0	106	61.6	172	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Source: Household Survey 2017

Pearson's χ^2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .235

Household Size
Pearson's χ^2 (Asympt. Sig., 2-sided) = .626

Gender
Pearson's χ^2 (Asympt. Sig., 2-sided) = .460

Relationship with Household Head
Pearson's χ^2 (Asympt. Sig., 2-sided) = .620

Age	N	%	N	%	N	%	N	%
0-5	2	13.3	9	60.0	4	26.7	15	100.0
6-10	2	20.0	5	50.0	3	30.0	10	100.0
11-15	4	22.2	8	44.4	6	33.3	18	100.0
16-20	5	27.8	10	55.6	3	16.7	18	100.0
21-25	5	33.3	7	46.7	3	20.0	15	100.0
26-30	1	25.0	3	75.0	0	0.0	4	100.0
31-35	5	18.5	17	63.0	5	18.5	27	100.0
36-40	10	27.8	16	44.4	10	27.8	36	100.0
41-45	15	29.4	18	35.3	18	35.3	51	100.0
46-50	22	26.5	21	25.3	40	48.2	83	100.0
51-55	15	18.5	27	33.3	39	48.1	81	100.0
56-60	21	28.4	11	14.9	42	56.8	74	100.0
61-65	19	24.7	24	31.2	34	44.2	77	100.0
66-70	16	34.0	15	31.9	16	34.0	47	100.0
71-75	7	25.0	10	35.7	11	39.3	28	100.0
76-80	2	15.4	8	61.5	3	23.1	13	100.0
81-85	4	36.4	4	36.4	3	27.3	11	100.0
> 86	1	33.3	1	33.3	1	33.3	3	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .006 / Cramer's V = .217

Place of Birth	N	%	N	%	N	%	N	%
in this village	87	25.5	135	39.6	119	34.9	341	100.0
in other village	38	27.9	40	29.4	58	42.6	136	100.0
in other district	22	24.2	30	33.0	39	42.9	91	100.0
in other province	9	20.9	9	20.9	25	58.1	43	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .047/ Cramer's V = .107

Education	N	%	N	%	N	%	N	%
Basic	66	24.0	112	40.7	97	35.3	275	100.0
Secondary	57	26.5	58	27.5	100	46.5	215	100.0
Higher	22	27.2	30	37.5	29	35.8	81	100.0
Other	11	27.5	14	35.0	15	37.5	40	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .078/ Cramer's V = .096

Marital Status
Pearson's χ^2 (Asympt. Sig., 2-sided) = .304

Occupation	N	%	N	%	N	%	N	%
Farmer	9	25.0	16	44.4	11	30.6	36	100.0
Housewife	47	26.9	60	34.3	68	38.9	175	100.0
Labour worker	25	22.9	44	40.4	40	36.7	109	100.0
Self-employed	25	34.2	16	21.9	32	43.8	73	100.0
Civil servant	5	25.0	9	45.0	6	30.0	20	100.0
Unemployed	15	30.6	8	16.3	26	53.1	49	100.0
Others	25	19.4	52	40.3	52	40.3	129	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig, 2-sided) = .106 / Cramer's V = .136

Within the socio-demographic block, 'Village' (χ^2= .000) shows to be the most strongly significant relationship among the other dependent variables, followed by 'Age' (χ^2= .006) with a very strongly significant relationship, and 'Place of Birth' (χ^2= .047) with a strongly significant relationship, while the variables 'Education' (χ^2= .078) and 'Occupation' demonstrate a weakly significant relationship with the dependent variables. Conversely, other variables including *Household Size, Gender, Relationship with Household Head,* and *Marital Status* do not reveal any degree of significant relationship with transcultural health care utilisation. This result is in contrast with the finding of Awoyemi *et al.* (2011) who report that gender and household size significantly influence the utilisation of different health services. The study reveals that a larger household size tends to use traditional health services more than modern health care facilities.

The variable 'Village' indicates the village location of the patients: Lamajang, Sukaluyu, and Cipanjalu are located in the rural and mountainous area, whereas Ciporeat and Katapang are located in the urban and lowland area. The cross-tabulation table presents that the majority of patients living in Lamajang (29.4%, n=47) contacted the traditional medical system more frequently than the average contact among the other villages (25.5%, n=156). In contrast, most patients living in Katapang, which is an urban area, have the highest contact with the modern medical system (61.6%, n=106) among all the villages.

Following the variable ‘Village’, the Asympt. Sig. exact test of the variable ‘Age’ also demonstrates a very strongly significant relationship, while Cramer’s V (V= .217) shows a moderately strong association. The majority of patients belonging to the age groups 46-50 (48.25, n=40), 51-55 (48.15, n=39), 56-60 (56.8%, n=42) and 61-65 (44.2%, n=34) used the modern medical system more frequently than average (39.4%, n=241). However, patients in the older group, i..e 66-70 (34.0%, n=16) and 81-85 (36.45, n=4) have more frequent contact with the traditional medical system than the average contact among other age groups. Age is expected to be positively related to the utilisation of health care facilities. Since the majority of the patients in the study are diabetes mellitus patients in the 40–60 age group, it is rather biased to conclude on the association of age group with the chosen health service. However, younger patients generally seek health services from the *puskesmas*, while a higher proportion of older patients utilize traditional medicine. This result is in agreement with a study conducted in Nigeria, where self-medication and traditional medicine are mostly utilized by patients above 50 years of age (*cf.* Awoyemi *et al.* 2011).

In the same way, the variable ‘Place of Birth’ demonstrates a strongly significant relationship (χ^2= .047) with a weak association (V= .107). The cross-tabulation distribution shows that patients who were born in another province have the least frequent contact with the traditional medical system (20.9%, n=9), but have the highest contact (58.1%, n=25) with the modern medical system compared with other groups within the variable.

Occupation of the respondents is in some ways likely to influence the choice of medical system as it is also related to household income. The distribution variable of ‘occupation’ over the dependent variables reveals a weakly significant relationship (χ^2= .106), in line with Cramer’s V (V= .136) which indicates a weak association between both variables. In general, self-employed (34.2%. n=15) and unemployed patients (30.6, n=15) seek treatment from the traditional medical system more frequently than average (25.5%, n=156).

Educational status helps determine whether a decision to choose one of the medical systems is influenced by this variable. Several studies indicate that education has an important impact on health care utilisation (*cf.* Goldman & Heuveline 2000; Awoyemi *et al*. 2011; Amangbey 2014). The present study finds that the variable ‘education’ shows a weakly significant relationship with the dependent variables. Cramer’s V (V= .096) indicates weak association between two variables. Although there is no considerable difference among categories within the variable ‘education’ in the utilisation of the traditional medical system, the cross-tabulation table reveals that patients with basic education (40.7%, n=112) seek treatment from the transitional medical system more frequently than average, whereas patients with secondary education (46.5%, n=100) seek treatment from the modern medical system more frequently than average. Many of those who have higher-level education beliefs and have a positive opinion of traditional medicines often prefer modern medicine due to scientific efficacy and safety. Amangbey (2014) argues that different educational backgrounds lead to different mindsets regarding the use of traditional medicines. A study based on the Basic Health Survey in Indonesia (*Riskesdas* 2013) reports that the household head who has a low level of education is more likely to use traditional health care services (Nurhayati & Widowati (2017).

The present study reveals that there is no significant difference in the propensity to use the traditional, transitional, or modern medical system based on gender. However, in terms of utilisation, a qualitative study finds that women are often reported to use more medical services or products than men. In this case, as Mustard *et al.* (1998) suggest, the frequent use of the medical system among women is influenced by their social roles. In the research area, women are primary caregivers to their children, spouse, or parents. Consequently, women have more frequent contact with health providers.

Bivariate Analysis of Psycho-social Variables and Dependent Variables (Table 8.3)

Table 8.3. Distribution of the Psycho-social Variables of the Respondents of the Sample over the Dependent Variables (N=611)

Variable	Traditional Medicine		Transitional Medicine		Modern Medicine		Total	
Knowledge of the Traditional Medical System	N	%	N	%	N	%	N	%
No knowledge	1	25.0	0	0.0	3	75.0	4	100.0
Very little knowledge	12	21.4	9	16.1	35	62.5	56	100.0
A little knowledge	19	19.2	42	42.4	38	38.4	99	100.0
Average	39	28.1	57	41.0	43	30.9	139	100.0
Much knowledge	76	27.7	93	33.9	105	38.3	274	100.0
Very much knowledge	9	23.1	13	33.3	17	43.6	39	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .006 / Cramer's V = .142

Source of Knowledge of the Traditional Medical System	N	%	N	%	N	%	N	%
None	4	21.1	9	47.4	6	31.6	19	100.0
Parents	66	28.3	105	45.1	62	26.6	233	100.0
Neighbor/friend	4	20.0	5	25.0	11	55.0	20	100.0
Traditional Healer	10	25.6	11	28.2	18	46.2	39	100.0
Health Promotion	8	40.0	5	25.0	7	35.0	20	100.0
Professional health care	5	31.3	8	50.0	3	18.8	16	100.0
Other	59	22.3	71	26.9	134	50.8	264	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .184

Belief in the Traditional Medical System	N	%	N	%	N	%	N	%
None	3	21.4	2	14.3	9	64.3	14	100.0
Very little belief	9	23.7	8	21.1	21	55.3	38	100.0
A little belief	21	23.6	26	29.2	42	47.2	89	100.0
Average	33	20.5	61	37.9	67	41.6	161	100.0
Much belief	75	30.4	91	36.8	81	32.8	247	100.0
Very much belief	15	24.2	26	41.9	21	33.9	62	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .032 / Cramer's V = .127

Source of Knowledge of the Transitional Medical System
Pearson's χ^2 (Asympt. Sig., 2-sided) = .466

Belief in the Transitional Medical System
Pearson's χ^2 (Asympt. Sig., 2-sided) = .768

Knowledge of the Modern Medical System
Pearson's χ^2 (Asympt. Sig., 2-sided) = .209

Table 8.3. (*continued*).

Opinion on the Traditional Medical System	N	%	N	%	N	%	N	%
No opinion	2	28.6	1	14.3	4	57.1	7	100.0
Very negative opinion	0	0.0	0	0.0	2	100.0	2	100.0
Negative opinion	4	23.5	2	11.8	11	64.7	17	100.0
Neutral	39	25.7	42	27.6	71	46.7	152	100.0
Positive opinion	95	25.6	143	38.5	133	35.8	371	100.0
Very positive opinion	16	25.8	26	41.9	20	32.3	62	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .037 / Cramer's V = .123

Knowledge of the Transitional Medical System	N	%	N	%	N	%	N	%
No knowledge	4	16.0	5	20.0	16	64.0	25	100.0
Very little knowledge	18	23.4	26	33.8	33	42.9	77	100.0
A little knowledge	56	26.3	84	39.4	73	34.3	213	100.0
Average	57	28.5	63	31.5	80	40.0	200	100.0
Much knowledge	20	24.4	27	32.9	35	42.7	82	100.0
Very much knowledge	1	7.7	9	64.3	4	35.7	14	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .059/Cramer's V = .127

Opinion on the Transitional Medical System	N	%	N	%	N	%	N	%
No opinion	8	25.0	8	25.0	16	50.0	32	100.0
Very negative opinion	7	43.8	4	25.0	5	31.3	16	100.0
Negative opinion	22	36.1	13	21.3	26	42.6	61	100.0
Neutral	25	18.2	53	38.7	59	43.1	137	100.0
Positive opinion	94	26.3	130	36.3	134	37.4	358	100.0
Very positive opinion	0	0.0	6	85.7	1	14.3	7	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .009 / Cramer's V = .138

Source of the Knowledge of the Modern Medical System	N	%	N	%	N	%	N	%
None	2	13.3	8	53.3	5	33.3	15	100.0
Parents	0	0.0	6	100.0	0	0.0	6	100.0
Neighbor / friend	1	33.3	2	66.7	0	0.0	3	100.0
Traditional Healer	2	16.7	6	50.0	4	33.3	12	100.0
Health Promotion	16	32.7	20	40.8	13	26.5	49	100.0
Consult with doctor	121	25.4	149	31.2	207	43.4	477	100.0
Other	14	28.6	23	46.9	12	24.5	49	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .002 / Cramer's V = .155

Belief on the Modern Medical System	N	%	N	%	N	%	N	%
None	3	30.0	5	50.0	2	20.0	10	100.0
Very little belief	3	33.3	4	44.4	2	22.2	9	100.0
A little belief	20	35.1	21	36.8	16	28.1	57	100.0
Average	44	25.3	75	43.1	55	31.6	174	100.0
Much belief	80	23.9	99	29.6	156	46.6	335	100.0
Very much belief	6	23.1	10	38.5	10	38.5	26	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .024 / Cramer's V = .129

Opinion on the Modern Medical System	N	%	N	%	N	%	N	%
No opinion	3	30.0	5	50.0	2	20.0	10	100.0
Very negative opinion	2	28.6	3	42.9	2	28.6	7	100.0
Negative opinion	6	42.9	3	21.4	5	35.7	14	100.0
Neutral	40	30.8	52	40.0	38	29.2	130	100.0
Positive opinion	97	22.7	144	33.7	186	43.6	427	100.0
Very positive opinion	8	34.8	7	30.4	8	34.8	23	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .137 / Cramer's V = .109

Knowledge of Type 2 Diabetes Mellitus	N	%	N	%	N	%	N	%
No knowledge	1	33.3	1	33.3	1	33.3	3	100.0
Very little knowledge	7	16.7	14	33.3	21	50.0	42	100.0
A little knowledge	49	29.3	70	41.9	48	28.7	167	100.0
Average	55	24.8	76	34.2	91	41.0	222	100.0
Much knowledge	43	24.7	53	30.5	78	44.8	174	100.0
Very much knowledge	1	33.3	0	0.0	2	66.7	3	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .133 / Cramer's V = .111

Table 8.3 shows the cross-tabulation of the variables within the psycho-social block over the dependent variables for transcultural health care utilisation. Over 12 variables within the psycho-social block, 10 variables demonstrate a certain degree of significant relationship: 'source of knowledge on traditional medical system' (χ^2= .000), 'source of knowledge on modern medical system' (χ^2= .002), 'knowledge on traditional medical system' (χ^2= .006), 'belief in modern medical system' (χ^2= .024), 'belief in traditional medical system' (χ^2= .032), 'opinion on traditional medical system' (χ^2= .037), 'knowledge of transitional medical system' (χ^2= .059), and 'knowledge on diabetes mellitus' (χ^2= .0133).

The variable 'knowledge of traditional medical system' reveals a strongly significant relationship (χ^2= .006), with Cramer's V (V= .142) which indicates the association between two variables. In general, patients who admitted to having average (28.1%, n= 39) and much knowledge (27.7%, n=76) about traditional medicine have more frequent contact with the traditional medical system than average (25.5%, n=156), in contrast to patients with very little knowledge (62.5%, n=35) who seek treatment from the modern medical system more frequently than average (39,4%, n=241). Likewise, the variable 'belief in the traditional medical system' reveals a strongly significant relationship (χ^2= .032), with Cramer's V (V= .127). Patients who admitted having much belief in the traditional medical system (30.4%, n=75) used it more often than average (25.5%, n=156) and have the least frequent contact with the modern medical system, while patients with little belief (47.2%, n=42), very little belief (55.3%, n=21), and no belief at all (64.3%, n=9) have more frequent contact with the modern medical system than average (39,4%, n=241). In line with this result, the distribution of the variable 'belief in the modern medical system' also demonstrates a strongly significant relationship over the dependent variables (χ^2= .024). Patients with a little belief in the modern medical system have more frequent contact with the traditional medical system (30.8%, n=40) than average (25.5%, n=156).

Furthermore, the variable 'knowledge of transitional medical system' reveals a weakly significant relationship (χ^2= .059), with Cramer's V (V= .127). It is interesting that patients who admitted having very little knowledge (33.8%, n=26) and a little knowledge (39.4%, n=84) about the transitional medical system, have contact with the transitional medical system more frequently than average (35.0%, n=214). This finding is in contrast with a study conducted in Malaysia which reports that utilisation of self-medication using OTC is significantly associated with knowledge of the respective practices (*cf.* Dawood *et al.* 2017).

Conversely, patients with much knowledge of the transitional medical system (42.7%, n=35) have more frequent contact with the modern medical system than average (39.4%, n=241). These findings are further substantiated with the bivariate analysis results for the variable 'opinion on the transitional medical system' which demonstrates a very strongly significant relationship (χ^2= .009), with Cramer's V (V= .127) over the variable 'transcultural health care utilisation.' In most cases, patients who have very negative (43.7%, n=7) and negative opinions (36.1%, n=22) on the transitional medical system have less frequent contact with it (21.3%, n=13) than average (35.5%, n=214), in contrast with contact with the traditional medical system which is more frequent than average (25.5%, n=156). In the same fashion, patients with a negative opinion also have contacts more frequently with the modern medical system (42.6, n=26), than average (29.4%, n=241).

Overall, the variable 'opinion' about the available medical systems in the research area demonstrates a certain degree of significance, in contrast to the variables 'knowledge' and 'belief'. In addition to 'opinion on the transitional medical system', 'opinion on the traditional medical system' shows a strongly significant relationship (χ^2= .037) and 'opinion on the modern medical system' indicates a significant relationship (χ^2= .037). Patients who have a neutral opinion about the traditional medical system have more frequent contact with the modern medical system (46.7%, n=71) than average (39.4%, n=241). On the other hand, patients who admitted to having a neutral opinion about the modern medical system seek treatment from the traditional medical system more frequently (30.8%, n=40) than average (25.5%, n=156).

The variable 'source of knowledge on the traditional medical system' reveals the most strongly significant relationship (χ^2= .000) with Cramer's V (V= .155). Respondents who reported having knowledge on traditional medicine from parents have contact with the traditional medical system more frequently (28.3%, n=66) than average (25.5%, n=156); moreover, they have less frequent contact with the modern medical system (26.6%, n=62), at one-tenth of the average (39.4%, n=214). While parents become the majority source of knowledge on traditional medicine, most of the respondents reported knowing about modern medicine from a doctor. In line with this result, respondents who received information about modern medicine from a doctor seek treatment from the modern medical system (43.4%, n=207) more frequently than average (39.4%, n=214). Furthermore, knowledge of diabetes mellitus also shows an indication of significance in health care utilisation. Respondents with a little knowledge of diabetes mellitus contacted transitional health care providers more frequently than average (41.9%, n=70), in contrast with respondents with much knowledge who contacted modern health care providers more frequently than average (44.8%, n=78).

Bivariate Analysis of Enabling Variables and Dependent Variables (Table 8.4).

Table 8.4. Distribution of the Enabling Variables of the Respondents of the Sample over the Dependent Variables (N=611)

Variable	Traditional Medicine		Transitional Medicine		Modern Medicine		Total	
Monthly Income								
Pearson's χ^2 (Asympt. Sig Sig., 2-sided) = .563								
Monthly Expenses for Health care	N	%	N	%	N	%	N	%
0	43	23.4	47	25.5	94	51.1	184	100.0
1 - 100.000	92	25.9	131	36.9	132	37.2	355	100.0
100.001 - 200.000	9	25.7	18	51.4	8	22.9	35	100.0
200.001- 300.000	10	33.3	14	46.7	6	20.0	30	100.0
300.001 - 400.000	2	40.0	3	60.0	0	0.0	5	100.0
> 400.001	0	0.0	1	50.0	1	50.0	2	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .002 / Cramer's V = .146

Insurance
Pearson's χ^2 (Asympt. Sig Sig., 2-sided) = .887

Socio-Economic Status
Pearson's χ^2 (Asympt. Sig., 2-sided) = .662

Within the block of enabling variables, only the distribution of the variable 'expenses for health care' demonstrates a certain degree of significance. Pearson's χ^2 value .002 indicates a very strongly significant relationship over the dependent variables. This study shows that people with higher monthly expenses for health care use transitional medicine more frequently than people with lower expenses. Previous research demonstrates that people with higher monthly medical expenses prefer self-medication, in the present study categorized as transitional medicine, as the first action in health-seeking practices (*cf.* Dawood *et al*. 2017)

Respondents who reported no expenses for health care, whereby their medical expenses are covered with public health insurance, use the modern medical system more frequently (51.1%, n=94) than average (39.4%, n=241); on the other hand, respondents who reported to spending 200.001- 300.000 Rupiah monthly for health care use the traditional medical system more frequently (33.3%, n=10) than average (25.5%, n=156).

This study finds that the socio-economic status of the household has a non-significant relationship with the propensity to use one of the medical systems. This finding may be associated with the fact that most households in the present study belong to the low income category (poor socio-economic status); consequently the distribution of socio-economic status is unequally shared among categories. Additionally, given that most of the household members in the research area participate in public insurance (i.e BPJS-Kesehatan) which covers most public health services in the primary health providers, the socio-economic gradient in terms of access to public health services may be reduced.

Bivariate Analysis of Perceived Morbidity Variables and Dependent Variables (Table 8.5)

Table 8.5. Distribution of the Perceived Morbidity Variables of the Respondents of the Sample over the Dependent Variables (N=611)

Variable	Traditional Medicine		Transitional Medicine		Modern Medicine		Total	
Healthcond								
Pearson's χ^2 (Asympt. Sig., 2-sided) = .264								
Reported disease								
Pearson's χ^2 (Asympt. Sig, 2-sided) = .005/ Cramer's V = .159								
Main Symptoms of the disease								
Pearson's χ^2 (Asympt. Sig Sig., 2-sided) = .291								
Duration of the Reported Disease	N	%	N	%	N	%	N	%
< 1 week	19	22.4	46	54.1	20	23.5	85	100.0
2 – 5 weeks	13	22.0	22	37.3	24	40.7	59	100.0
6 – 9 weeks	3	21.4	5	35.7	6	42.9	14	100.0
10 – 13 weeks	4	25.0	7	43.8	5	31.3	16	100.0
14-17 weeks	3	23.1	6	46.2	4	30.8	13	100.0
> 17 weeks	114	26.9	128	30.2	182	42.9	424	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0
Pearson's χ^2 (Asympt. Sig., 2-sided) = .019 / Cramer's V = .131								
Complications of the Disease	N	%	N	%	N	%	N	%
None	92	26.7	143	41.6	109	31.7	344	100.0
CVD	9	40.9	7	31.8	6	27.3	22	100.0
Metabolic disorder	21	22.6	24	25.8	48	51.6	93	100.0
Renal disease	3	25.0	2	16.7	7	58.3	12	100.0
Eye disease	0	0.0	2	66.7	1	33.3	3	100.0
Gangrene	3	18.8	4	25.0	9	56.3	16	100.0
Gastrointestinal disorder	5	45.5	2	18.2	4	36.4	11	100.0
Liver disease	0	0.0	0	0.0	2	100.0	2	100.0
Bacterial infection	23	21.3	30	27.8	55	50.9	108	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0
Pearson's χ^2 (Asympt. Sig., 2-sided) = .003 / Cramer's V = .172								

Based on the statistical analysis, a significant correlation also exists between the seriousness of the disease and health care utilisation behaviour. In the present study, the seriousness of the disease is measured with the duration of the disease experienced and co-morbidities or complications. The variable of perceived morbidity examines the symptomatic stage at which the patients seek to contact the medical provider and exercise the option of a particular medical system.

Within the block of perceived morbidity, the variable 'reported disease' (χ^2= .005) shows a very strongly significant relationship over the dependent variable. In general, most of the respondents have contacts with the modern medical system more frequently than average

(39.4%, n=241). However, patients with diabetes mellitus reported having more frequent contact with the traditional medical system (27.1%, n=105) than average (25.5%, n=156). Similarly, the variable ‘complication of the disease’ also demonstrates a very strongly significant relationship with the variable ‘transcultural health care utilisation’ (χ^2= .003). In most cases, patients who reported no complications in their reported disease have less frequent contact with the modern medical system (31.7%, n=109) than average (39.4%, n=241). However, patients who reported to having the complication of metabolic disorder (51.5%, n=48) and bacterial infection (50.9%, n=50.9) have more frequent contact with the modern medical system than average (39.4%, n=241). Consequently, patients who also have a metabolic disorder (22.6%, n=21) and bacterial infection (21.3%, n = 23), in addition to their main illness, have less contact with the traditional medical system than average (25.5%, n=156).

The distribution of the variable ‘duration of the reported disease’ shows a strongly significant relationship ‘(χ^2= .019) with Cramer’s V value = .131 which indicates the association over the dependent variable. Patients with a duration of the disease of less than a week used the transitional medical system (54.1%, n=46) more frequently than average (35.0%, n=214), whereas patients who experienced the disease for more than 17 weeks contacted the modern medical system (42.9%, n=182) more frequently than average (39.4%, n=241). Likewise, Larkey *et al*. (2001) found that the severity of the disease had the most effect on doctors’ visits.

Bivariate Analysis of Institutional Variables and Dependent Variables (Table 8.6)

Table 8.6. Distribution of the Institutional Variables of the Respondents of the Sample over the Dependent Variables (N=611)

Variable	Traditional Medicine		Transitional Medicine		Modern Medicine		Total	

Distance to Access the Institutions of the Traditional Medical System
Pearson’s $\chi 2$ (Asympt. Sig., 2-sided) = .531

Distance to Access the Institutions of Transitional Medical System	N	%	N	%	N	%	N	%
None	1	10.0	4	40.0	5	50.0	10	100.0
0.1 – 2.0	73	24.7	78	26.4	144	48.8	295	100.0
2.1 – 4.0	27	21.6	51	40.8	47	37.6	125	100.0
4.1 – 6.0	16	28.6	26	46.4	14	25.0	56	100.0
6.1 – 8.0	5	22.7	10	45.5	7	31.8	22	100.0
>8.1	34	33.0	45	43.7	24	23.3	103	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson’s $\chi 2$ (Asympt. Sig., 2-sided) = .0000 / Cramer’s V = .166

Distance to Access the Institutions of the Modern Medical System	N	%	N	%	N	%	N	%
None	1	20.0	3	60.0	1	20.0	5	100.0
0.1 – 2.0	46	21.5	61	28.5	107	50.0	214	100.0
2.1 – 4.0	30	22.6	43	32.3	60	45.1	133	100.0
4.1 – 6.0	18	31.0	22	37.9	18	31.0	58	100.0
6.1 – 8.0	8	24.2	18	54.5	7	21.2	33	100.0
>8.1	53	31.5	67	39.9	48	28.6	168	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Table 8.6. (*continued*).
Pearson's χ2 (Asympt. Sig., 2-sided) = .001 / Cramer's V = .157

Cost to Access the Institutions of the Traditional Medical System
Pearson's χ2 (Asympt. Sig Sig., 2-sided) = .655

Cost to Access the Institutions of the Transitional Medical System	N	%	N	%	N	%	N	%
None	23	19.7	44	37.6	50	42.7	117	100.0
1 – 10.000	68	27.4	65	26.2	115	46.4	248	100.0
10.001 – 20.000	32	25.6	53	42.4	40	32.0	125	100.0
20.001- 30.000	9	18.4	23	46.9	17	34.7	49	100.0
30.001 – 40.000	3	37.5	1	12.5	4	50.0	8	100.0
>40.001	21	32.8	28	43.8	15	23.4	64	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ2 (Asympt. Sig., 2-sided) = .003 / Cramer's V = .148

Cost to Access the Institutions of the Modern Medical System	N	%	N	%	N	%	N	%
None	5	10.9	16	34.8	25	54.3	46	100.0
1 – 10.000	31	21.8	34	23.9	77	54.2	142	100.0
10.001 – 20.000	39	25.5	52	34.0	62	40.5	153	100.0
20.001- 30.000	26	31.0	29	34.5	29	34.5	84	100.0
30.001 – 40.000	4	23.5	9	52.9	4	23.5	17	100.0
>40.001	51	30.2	74	43.8	44	26.0	169	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .174

Table 8.6 shows the distributions of independent variables with the block of institutional variables over the dependent variables. In general, the results indicate that utilisation of the available medical systems increases with proximity to the related medical facilities. Thus, households in rural villages which are closer to traditional care have more contact with traditional medicine, and *vice versa*. The variable 'Distance to Access the Institutions of Transitional Medical System' (χ^2= .000, V=.157), and 'Cost to Access the Institutions of the Modern Medical System' (χ^2= .000, V =.174) show the most strongly significant relationships, followed 'Distance to Access the Institutions of the Modern Medical System' (χ^2= .001, V=.157) and 'Cost to Access the Institutions of the Transitional Medical System' (χ^2= .003, V =.148) which demonstrate a very strongly significant relationship with the dependent variables. In general, patients who reported to spend Rp. 10.0001 – 20.000 (40.5%, n=62), Rp. 1 – 10.000 (54.2%, n = 77) or used free services (54.3%, n=25) to access the modern medical system used the modern medical system more frequently than average, whereas patients who reported to spend more than Rp. 40.001 have less frequent contact with the modern medical system than average (39.4%, n=241). Interestingly, patients who spend the most to access the modern medical system have more frequent contact with the traditional medical system (30.2%, n=51) than average (25.5%, n=156). This finding also was supported by the bivariate analysis results of the variable 'Distance to Access the Institutions of the Modern Medical System' (χ^2= .001, V =.157) which demonstrates a very strongly significant relationship with transcultural health care utilisation. Patients who reported to need a short distance (0.1 – 2.0 km) to access the modern medical system have more frequent contact with the modern medical system (50.0%, n=107), in contrast to patients who reported to be further away (> 8.1 km), with less frequent contact (28.6%, n=48) than average (39.4%, n=241). Consequently, patients who live further away from the modern medical system contacted the traditional medical system (31.5%, n=53) more frequently than average (25.5%, n=156).

On the other hand, the distribution of the variables 'distance' and 'cost' to access the transitional medical system reveals the opposite results. Patients who reported the farthest distance (> 8.1 km) to access the transitional medical institution (43.7%, n=45) have more frequent contact with the transitional medicine than average (35.0%, n=214), whereas patients with the shortest distance to access the transitional medical facility have the least frequent contact (26.4%, n=78) than average. Amangbey (2014) argues that some patients have developed trust in some health providers to the extent that they overlook distance.

Bivariate Analysis of Environmental Variables and Dependent Variables (Table 8.7)

Table 8.7. Distribution of the Environmental Variables of the Respondents of the Sample over the Dependent Variables (N=611)

Variable	Traditional Medicine		Transitional Medicine		Modern Medicine		Total	
Residential Environment								
	N	%	N	%	N	%	N	%
Rural community	131	25.3	201	38.9	185	35.8	517	100.0
Semi urban community	21	26.6	10	12.7	48	60.8	79	100.0
Urban community	4	26.7	3	20.0	8	53.3	15	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0
Pearson's $\chi 2$ (Asympt. Sig., 2-sided) = .000 / Cramer's V = .146								
Residential Status	N	%	N	%	N	%	N	%
Native inhabitant	117	25.6	176	38.5	164	35.9	457	100.0
Migrant	31	22.8	35	25.7	70	51.5	136	100.0
Temporary inhabitant	8	44.4	3	16.7	7	38.9	18	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0
Pearson's $\chi 2$ (Asympt. Sig., 2-sided) = .003 / Cramer's V = .115								
Land	N	%	N	%	N	%	N	%
Low land	31	18.2	44	25.9	95	55.9	170	100.0
Plain Land	31	28.2	22	20.0	57	51.8	110	100.0
High land	94	28.4	148	44.7	89	26.9	331	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0
Pearson's $\chi 2$ (Asympt. Sig., 2-sided) = .000 / Cramer's V = .210								

Nearest Medical System Facility
Pearson's $\chi 2$ (Asympt. Sig Sig., 2-sided) = .452

Farthest Medical System Facility
Pearson's $\chi 2$ (Asympt. Sig Sig., 2-sided) = .152

Within the block of environmental variables, the variables 'Residential Environment' (χ^2= .000, V =.146), 'Residential Status' (χ^2= .003, V =.115) and 'Land' (χ^2= .000, V =.210) reveal Pearson's $\chi 2$ value with a very strongly significant relationship over th dependent variables, but

Cramer's V value indicates only the variable 'land' which shows a moderate, acceptable association. Generally, patients who reside in semi-urban (60.8%, n=48) and urban communities (53.3%, n=8) use the modern medical system more frequently than average (39.4%, n=241).

This result is in line with the geographical characteristic of the residential area (χ^2= .000, V =.210). Patients who reside in the low land area, where most urban communities are located, have more frequent contact with the modern system (55.9%, n=95) than average (39.4%, n=241). On the other hand, patients who reside in the highlands or mountainous area contact the traditional medical system more frequently (28.4%, n=94) than average (25.5%, n=156). Kabupaten Bandung, as well as West Java, are diverse in demographic and geographical features; therefore access to health services is related to urban/rural residence. Generally, modern health care providers are concentrated in urban rather than rural areas. In situations where the accessibility of modern health providers is easier, the utilisation of this medical system is higher. In addition to accessibility, other factors such as advertising which tends to be more prominent in urban areas may also influence utilisation of the modern medical system.

This study also finds that residential status has a significant relationship with the utilisation of a medical system (χ^2= .003, V =.115). Patients who are native inhabitants in the research area contact the transitional medical system more frequently (38.5%, n=176) than average (25.5%, n=156). Conversely, temporary migrants contact the modern medical system (51.5%, n=136) more frequently than average (39.4%, n=241). There are some explanations in the significant relationship between migration status and the utilisation of medical systems. Language barriers, cultural compatibility (i.e different cultural beliefs), and access to culture-specific health information are commonly reported in relation to the utilisation of conventional medical systems (*cf.* Lai & Surood 2010)

Bivariate Analysis of Intervening Variables and Dependent Variables (Table 8.8)

Table 8.8. Distribution of the Intervening Variables of the Respondents of the Sample over the Dependent Variables (N=611)

Variable	Traditional Medicine		Transitional Medicine		Modern Medicine		Total	
Impact of Public Policy on the Traditional Medical System	N	%	N	%	N	%	N	%
None	61	18.4	134	40.5	136	41.1	331	100.0
Very little impact	7	15.6	12	26.7	26	57.8	45	100.0
A little impact	11	45.8	1	4.2	12	50.0	24	100.0
Average	8	47.1	6	35.3	3	17.6	17	100.0
Much impact	65	36.9	54	30.7	57	32.4	176	100.0
Very much impact	4	22.2	7	38.9	7	38.9	18	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's $\chi 2$ (Asympt. Sig., 2-sided) = .000 / Cramer's V = .191

Impact of Promotion on the Traditional Medical System
Pearson's $\chi 2$ (Asympt. Sig., 2-sided) = .594

Impact of Private Health Insurance
Pearson's $\chi 2$ (Asympt. Sig., 2-sided) = .807

Impact of Public Policy on the Transitional Medical System	N	%	N	%	N	%	N	%
None	94	26.9	106	30.3	150	42.9	350	100.0
Very little impact	6	40.0	2	13.3	7	46.7	15	100.0
A little impact	14	33.3	12	28.6	16	38.1	42	100.0
Average	7	23.3	14	46.7	9	30.0	30	100.0
Much impact	35	20.3	80	46.5	57	33.1	172	100.0
Very much impact	0	0.0	0	0.0	2	100.0	2	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ2 (Asympt. Sig., 2-sided) = .006 / Cramer's V = .139

Impact of Public Policy on the Modern Medical System	N	%	N	%	N	%	N	%
None	67	29.0	112	48.5	52	22.5	231	100.0
Very little impact	8	24.2	18	54.5	7	21.2	33	100.0
A little impact	6	27.3	9	40.9	7	31.8	22	100.0
Average	6	22.2	9	33.3	12	44.4	27	100.0
Much impact	67	23.8	61	21.6	154	54.6	282	100.0
Very much impact	2	12.5	5	31.3	9	56.3	16	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .240

Impact of Public Health Insurance	N	%	N	%	N	%	N	%
None	31	31.6	46	46.9	21	21.4	98	100.0
Very little impact	11	23.9	24	52.2	11	23.9	46	100.0
A little impact	14	32.6	16	37.2	13	30.2	43	100.0
Average	14	16.7	35	41.7	35	41.7	84	100.0
Much impact	70	24.3	75	26.0	143	49.7	288	100.0
Very much impact	16	30.8	18	34.6	18	34.6	52	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .183

Impact of Promotion on the Transitional Medical System	N	%	N	%	N	%	N	%
None	98	26.1	121	32.3	156	41.6	375	100.0
Very little impact	4	23.5	2	11.8	11	64.7	17	100.0
A little impact	5	20.8	14	58.3	5	20.8	24	100.0
Average	22	31.0	17	23.9	32	45.1	71	100.0
Much impact	26	22.6	54	47.0	35	30.4	115	100.0
Very much impact	1	11.1	6	66.7	2	22.2	9	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's χ2 (Asympt. Sig., 2-sided) = .006 / Cramer's V = .151

Impact of Promotion on the Modern Medical System	N	%	N	%	N	%	N	%
None	136	25.1	192	35.5	213	39.4	541	100.0
Very little impact	4	40.0	0	0.0	6	60.0	10	100.0
A little impact	0	0.0	5	100.0	0	0.0	5	100.0
Average	4	23.5	6	35.3	7	41.2	17	100.0
Much impact	7	28.5	7	28.0	11	44.0	25	100.0
Very much impact	4	38.5	4	30.8	4	30.8	13	100.0
Total	156	25.5	214	35.0	241	39.4	611	100.0

Pearson's $\chi 2$ (Asympt. Sig., 2-sided) = .076 / Cramer's V = .116

Table 8.8 presents the bivariate analysis of intervening variables with the variable of transcultural health care utilisation. Overall, the variables 'impact of public health insurance' (χ^2= .000, V =.183), 'impact of policy of modern medical system' (χ^2= .000, V =.240), and 'impact of policy of traditional medical system' (χ^2= .000, V =.191) demonstrate the most strongly significant relationship over the dependent variables with Cramer's V value indicating acceptable association.

In general, patients who admit that public policy on the modern medical system has much impact (54.6%, n=154) or very much impact (56.3%, n=9) on transcultural health care utilisation contact the modern medical system more frequently than average (39.4%, n=241). On the other hand, patients who report that public policy on the modern medical system does not impact their decision-making in the utilisation of the health care system contact the traditional medical system (29.5%, n=67) and transitional medical system (48.5%, n=112) more often than average, and consequently have less contact (22.5%, n=52) than average with theb modern medical system. Similarly, people who report that public health insurance or BPJS has much impact on the utilisation of health care systems contact the modern medical system more frequently (49.7%, n=143), in contrast to those who report no impact (21.4%, n=21) or less impact (23.9%, n=11), which have less frequent contact with the modern medical system than average (39.4%, n=241). This is consistent with findings in Ghana, of which the household head reported that the national health insurance scheme has a positive impact on the utilisation and accessibility of formal health care facilities (*cf.* Amangbey 2014).

Furthermore, the bivariate analysis results of 'public policy on the traditional medical system' emphasize these findings with a very strongly significant relationship with the dependent variables ($\chi 2$ Asympt. Sig., 2-sided = .000/Cramer's V = .191). In most cases, patients who reported much impact (36.9%, n=65) of public policy of the traditional medical system on health care utilisation used it more often than average (25.5%, n=156), whereas those who reported no impact (41.1%, n=136) or very little impact (57.8%, n=26) contacted the modern medical system more frequently than average (39.4%, n=214).

In addition to the variables of public policy, the variable 'private promotion on the transitional medical system' shows a very strongly significant relationship (χ^2= .000, V =.151) over the dependent variable with Cramer's V value indicating the minimally acceptable association. It is noteworthy that people who report much impact of promotion on the transitional medical system used transitional medicine more often (54.0%, n=47.0) than average (35.0%, n=214). However, patients who report no impact (41.6%, n=156) use the modern medical system more often than average (39.4%, n=214).

8.2.2 Mutual Relation Analysis of the Selected Variables

To present the findings in relation to the different blocks of factors within the multivariate model of transcultural health care utilisation, Table 8.9 shows the statistically significant independent variables towards the dependent variables in the utilisation of health care. Figure 8.1 displays the mutual relations between variables within the model. This mutual relation analysis provides a better understanding of the complexity of a multivariate analysis of the data. In general, a bivariate analysis provides a basic overview of the significance of the relationships that the independent variables maintain with the dependent variables. Nevertheless, additional data are required in a way to assess the overall extension of determinants of people's patterns of transcultural health care utilisation behaviour.

Table 8.9. List of the Selected Significant Variables based on Blocks of Determinant Variables

No	Variable	χ value*	Cramers V*
1	Village	0.000	0.235
2	Age	0.006	0.217
3	Place of birth	0.047	0.107
4	Education	0.078	0.096
5	Occupation	0.106	0.136
6	Source of Knowledge on Traditional Medicine	0.000	0.184
7	Source of Knowledge on Modern Medicine	0.002	0.155
8	Knowledge of Traditional Medicine	0.006	0.142
9	Opinion on Transitional Medicine	0.009	0.138
10	Belief in Modern Medicine	0.024	0.140
11	Belief in Traditional Medicine	0.032	0.127
12	Opinion on Traditional Medicine	0.037	0.123
13	Knowledge of Transitional Medicine	0.059	0.127
14	Knowledge of Diabetes Mellitus	0.133	0.111
15	Opinion on Modern Medicine	0.137	0.109
16	Expense	0.002	0.146
17	Complication of the Disease	0.003	0.172
18	Reported Disease	0.005	0.134
19	Illness duration	0.019	0.131
20	Access to the Transitional Medical System	0.000	0.166
21	Cost to Obtain Modern Medicine	0.000	0.181
22	Access to the Modern Medical System	0.001	0.157
23	Cost to Obtain Transitional Medical System	0.003	0.149
24	Environmental condition	0.000	0.146
25	Geographical condition	0.000	0.210
26	Residential status	0.003	0.115
27	Impact of Policy on Traditional Medical System	0.000	0.191
28	Impact of Policy on Modern Medical System	0.000	0.240
29	Impact of Public Health Insurance	0.000	0.183
30	Impact of Promotion on Transitional Medical System	0.002	0.151
31	Impact of Promotion on Transitional Medical System	0.006	0.139
32	Impact of Promotion on Modern Medical System	0.076	0.116

* The significance values of Pearson's chi-square test are arranged along the following scale: χ2>.15 'non-significant'; χ2=.15-.10 'indication of significance'; χ2=.10-.05 'weakly significant'; χ2=.05-.01' strongly significant'; χ2=.01-.001 'very strongly significant'; χ2<.001 'most strongly significant' (*cf.* Agung 2005; Leurs 2010; Djen Amar 2010; Ambaretnani 2012; Chirangi 2013; Aiglsperger 2014; Erwina 2019; Saefullah 2019; De Bekker 2020).

8.2.3 Nonlinear Canonical Correlation Analysis: OVERALS

The multivariate model covers the interrelationships within and between the variables in the block of factors in relation to the dependent variables. The multivariate analyses show a deeper understanding of how the variables interact and relate to one another. The present multivariate analysis, the OVERALS function developed by the Faculty of Social and Behavioural Sciences of Leiden University, is used in accordance with the findings of Slikkerveer (1990), Agung (2005), Ibui (2007), Leurs (2010), Ambaretnani (2010), Djen Amar (2012), Aiglsperger (2014), Erwina (2019), and Saefullah (2019).

As discussed in Section 3.1, the conceptual model in the present study is an adaptation of the models used by Slikkerveer (1990). The model is operationalised in seven blocks of factors.

Set of Independent and Intervening Variables

1. the predisposing socio-demographic factors consist of the variables: 'VillNam', 'Age', 'Pob', 'Edu', and 'Occup';
2. the predisposing psycho-social factors consist of the variables: 'KnowTrd1', 'SourTrd1', 'Treatrd1', 'OpTrd1', 'KnowTrs1','OpTrs1','SourMod1', 'TreatMod1', 'OpTrs1', 'KnowDm';
3. the enabling factors consist of the variable: 'Expenses',
4. the perceived morbidity factors consist of the variables: 'RepDis', 'DurDis', 'DisComp';
5. the institutional factors consist of the variables: 'AccTrd', 'AccTrs', 'AccMod', 'CosTrs' and 'CosMod';
6. the environmental factors consist of the variables: 'Envi', 'Rsdnstat', 'Land',
7. the intervening factors consist of the variables: 'PolTrad','PolTrs', 'PolMod', 'BPJSImp', 'PromTrs', 'PromMod'

Set of Dependent Variables

8. Utilisation of the Traditional Medical System: 'TradMed'
9. Utilisation of the Transitional Medical System: 'TransMed'
10. Utilisation of the Modern Medical System: 'ModMed'

OVERALS is a nonlinear, generalized canonical correlation analysis which corresponds to categorical canonical correlation analysis with optimal scaling. The variables included in an OVERALS analysis can be nominal, ordinal or interval. In this dataset, all the variables are either nominal or ordinal and there can be more than two sets of variables *(cf.* Van de Geer 1993; Garson 2008).

In the present study, seven independent sets of variables will be used towards one set of the dependent variables consisting of the three dependent variables: 'TradMed', 'TransMed' and 'ModMed'. In this case, variables must have positive integers and zeros; therefore negative values are treated as system-missing. Since all variables are categorical data, negative values and zero values did not occur in the dataset.

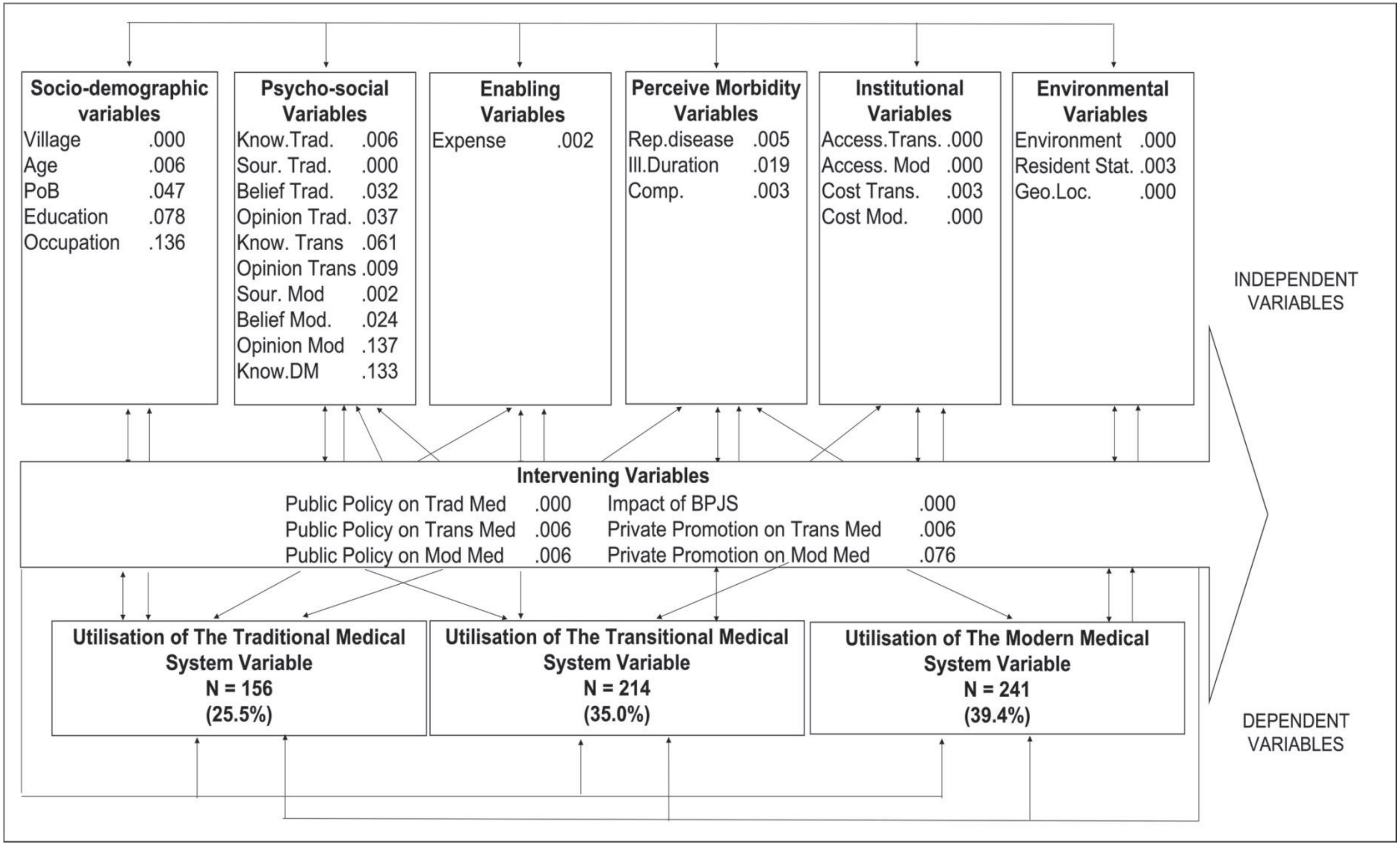

Figure 8.1 Model of the Mutual Relation Analysis of the Blocks and Variables

In OVERALS, the sets of variables are compared to an unknown compromised set defined by the object scores. OVERALS uses optimal scaling, which quantifies categorical variables and then treats them as numerical variables, applying nonlinear transformations to find the best-fitting model. The order of the categories is not retained for nominal variables, but values are created for each category so that the goodness of fit is maximised. For ordinal variables, the order is retained and values maximising fit are created. The stability of the OVERALS results can be obtained by using the Bootstrap method *(cf.* Van der Burg & De Leeuw 1988). In general, the *eigenvalues* and the canonical correlation coefficients are very stable if the sample size is not too small. In the present study, the datasets used for the multivariate analysis consist of 611 cases.

Once variables are input into the statistical program for data analysis, OVERALS will deliver the requested extensive output. Since the aim of the present study is to verify the significance of each variable identified within the multivariate model, the results of the multivariate analysis presented below focus on the correlation of each variable with the other variables in the model. In this way, Table 8.9 presents the results of the OVERALS analysis in terms of component loadings of the two sets of variables for which two dimensions have been chosen, as they adequately provide a clear indication of significant effects in the data (*cf.* Gifi 1990).

On the basis of the results gained from a bivariate analysis, one variable is assigned a multiple nominal rather than a single nominal level. In this way, the variable, which is measured on multiple nominal levels, has a different quantification on each dimension and hereby produces four instead of two component loadings. Hereafter, the variable moreover shows an additional column at the centre of the table in which the dimensions are indicated. In general, the choice of the measurement level is based on the value of significance, which is estimated during the bivariate analysis. In view of its most strongly significant chi-value as well as its overall significance for the present study, the variable 'Village' is measured on multiple nominal levels, thereby producing two dimensions of measurement. Finally, the two columns to the right display the component loadings of each variable on both dimensions. In general, the higher the component loading of the single variable, the more significant is the variable's contribution to the overall model of transcultural health care utilisation. In this respect, positive and negative values of ± .3 reveal a medium effect, while positive and negative values of ± .5 indicate a large effect in the variable. The strong and medium independent and intervening variables are highlighted in descending order for each dimension, whereby the rank of each variable is indicated with a number in brackets after the component loading.

In addition to Table 8.9, Figure 8.3 presents a graphical representation of the OVERALS solution, in which dimension 1 is presented horizontally and dimension 2 is presented vertically. The component loadings serve as coordinates of the vectors, which constitute each variable, and are projections of each variable's correlations with all other variables in the canonical space. The distance between the vector points and the origin of the scatter plot illustrates the significance of each variable within the overall model. In order to highlight the effects of the dependent variables in the model, the distance between the vector points of the three dependent variables and the origin have been marked in the graph with a straight line.

Table 8.10. Component Loadings of the two Sets of Variables with a Total of 32 Variables on two Dimensions (N=611).

Set	Variable			Dimension 1	Dimension 2
1	vill[a,b]	Dimension	1	0.505	-0.049
			2	0.007	0.123
	age[c,d]			-0.201	0.175
	pob[d,e]			-0.217	-0.009
	edu[c,d]			-0.009	-0.013
	occup[d,e]			0.104	0.139
	know[c,d]			0.164	0.005
	sourtrd1[d,e]			-0.310	0.015
	treatrd1[c,d]			0.142	0.065
	optrd1[c,d]			0.257	-0.046
	knowtrs1[c,d]			0.008	0.200
	optrs1[c,d]			0.102	0.228
	sourmod1[d,e]			-0.147	-0.055
	tretmod1[c,d]			-0.156	0.094
	KnowDM[c,d]			-0.012	-0.029
	opmod1[c,d]			-0.057	0.104
	expense[c,d]			0.262	-0.119
	dmcomp[d,e]			0.188	-0.175
	illdur[c,d]			-0.115	0.082
	illness[d,e]			0.297	0.122
	acctrs1[c,d]			0.124	-0.178
	accmod1[c,d]			0.220	-0.042
	costrs[c,d]			0.068	-0.164
	cosmod[c,d]			0.357	-0.199
	envi[d,e]			-0.361	0.110
	rsdnstat[d,e]			-0.267	-0.055
	land[d,e]			0.489	-0.182
	polimp1a[c,d]			-0.208	0.040
	polimp2a[c,d]			-0.069	0.085
	polimp3a[c,d]			-0.274	-0.016
	bpjsimp[c,d]			-0.306	0.138
	proimp2b[c,d]			-0.058	-0.012
	proimp3b[c,d]			0.016	-0.044
2	TRADMED[d,e]			0.034	-0.919
	TRANSMED[d,e]			0.644	0.534
	MODERNMED[d,e]			-0.638	0.094

a. Optimal Scaling Level: Multiple Nominal
b. Projections of the Multiple Quantified Variables in the Object Space
c. Optimal Scaling Level: Ordinal
d. Projections of the Single Quantified Variables in the Object Space
e. Optimal Scaling Level: Single Nominal

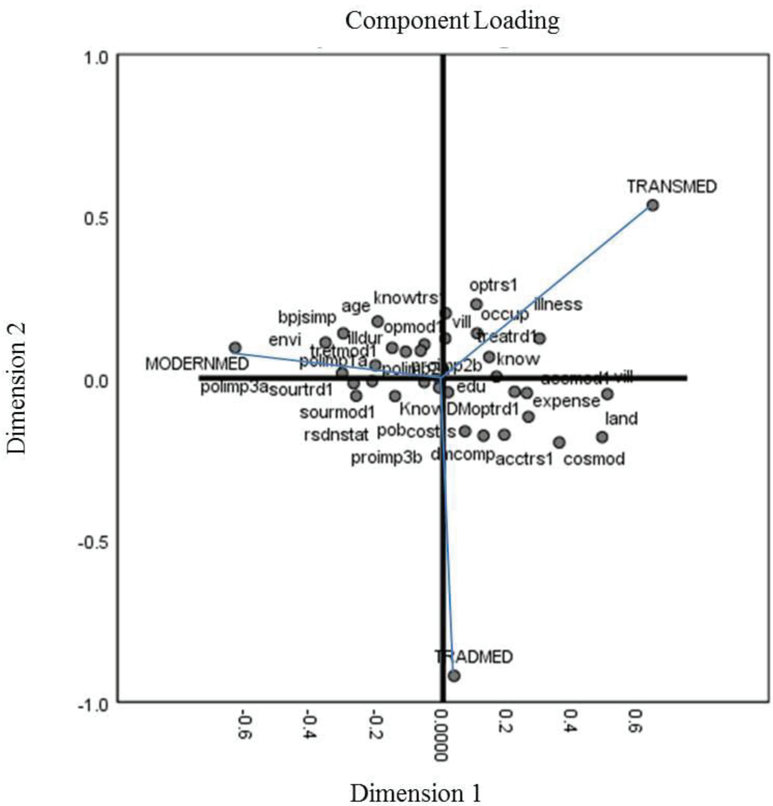

Figure 8.2 Plot of the Component Loading Analysis (OVERALS) of the Transcultural Health care Utilisation in Kabupaten Bandung

The 'Village' is the strongest variable on dimension 1 in the solution of the OVERALS analysis. In the bivariate analysis, 'Village' also emerged as one of the strong factors which was expected in an analysis of transcultural health care utilisation. This assumption is prompted because where someone lives is, practically speaking, that person's bio-cultural diversity surroundings. Each of the villages was selected in a different geographical area, indicating a difference in the surroundings between the villages, but not among them. The villages Lamajang and Sukaluyu score more highly on the use of Traditional and Transitional Medicine, whereas the village Katapang scores more highly on the use of Modern Medicine. Noting the characters of the villages, it could be assumed that in Lamajang, which is located in the mountainous area and near the *kampung adat*, people would prefer traditional and transitional medicine, and therefore score highly on the variable 'TradMed' and 'TransMed'. In Katapang, where the surrounding residentials have an urban characteristic and the modern health care facility is more accessible, Modern Medicine scores more highly.

The variable 'CosMod' shows a medium effect in the OVERALS analysis, with a correlation to the dependent variable. This confirms the indicated bivariate analysis result: the cheaper the cost to access the modern medical system, the higher the frequency of the utilisation of the respective system. Most of the residences in Katapang and Ciporeat have BPJS insurance which makes access to the modern medical system free or cheaper. The variable 'Land' is strong in dimension 1 and is situated in the same quadrant with the dependent variable 'TradMed', indicating that there is a direct relationship between the geographical location of the village with the use of the traditional medical system.

The variable ‘BPJSimp’ correlates only with the dependent variable ‘ModMed’ and is situated on the same quadrant for both dimensions. The majority of the respondents perceived the very great impact of BPJS in the decision-making in health care utilisation. Therefore, there is an indication that a high perceived impact of BPJS results in the high utilisation of the modern medical system and low utilisation of the traditional medical system. BPJS is the government's mandatory universal health care program, but to date it only covers medicinal expenses in the utilisation of conventional medicine. Traditional medicine has not been fully integrated into the formal health care system. Therefore, the positive impact of respondents can be understood as the ‘cost preference’ in the utilisation of conventional medicine, resulting in lower utilisation of traditional medicine.

8.2.4 Multiple Regression Analysis

The previous sections discussed the bivariate analyses of the independent and intervening variables towards the dependent variables and the multivariate analysis of every variable of every block of factors in relation to each other. In this multiple regression analysis, the block of factors is compared to the other block of factors to determine the relative strength of the block of factors towards each other. The relationship between different blocks of factors is assessed by means of multiple regression analysis, as it forms a most appropriate method for calculating the correlation between the observed values and the values predicted by the model. In other words, multiple regression analysis estimates the significance of the overall model by means of comparing observed to predicted values and hereafter expressing each association between blocks of factors with a multiple correlation coefficient (ρ), notably for each dimension.

Table 8.11 presents a list of all multiple correlation coefficients, which have been calculated separately for all possible combinations of blocks of factors for each dimension. Overall, a stepwise multiple regression analysis allows for a close assessment of the overall distribution of the different blocks of independent factors over the blocks of dependent factors.

The formula used to calculate the multiple correlation coefficient is presented in the third column from the left and is reconstructed for each correlation using the corresponding eigenvalues. Finally, the values of ρ are presented for each dimension in the last column to the right, whereby values of ρ = .10 reveal a weak correlation, values of ρ = .30 reveal a moderate correlation and values of ρ = .50 reveal a strong correlation (*cf.* Field 2009)

Table 8.11. List of Multiple Correlation Coefficients (ρ) calculated by means of a Multiple Regression Analysis of the Nine Blocks of Factors on two Dimensions (N=611).

Block ⟵⟶ Block	Dimension	Calculation[a] ($\rho_d = 2 \times E_d - 1$)	Multiple Correlation Coefficient (ρ)
1⟵⟶2	1	2 x 0.861 - 1 =	0.722
	2	2 x 0.817 - 1 =	0.634
1⟵⟶3	1	2 x 0.677 - 1 =	0.354
1⟵⟶4	1	2 x 0.783 - 1 =	0.566
	2	2 x 0.701 - 1 =	0.402
1⟵⟶5	1	2 x 0.857 - 1 =	0.714
	2	2 x 0.724 - 1 =	0.448

Table 8.11. (*continued*)

Block ←→ Block	Dimension	Calculation[a] ($\rho_d = 2 \times E_d - 1$)	Multiple Correlation Coefficient (ρ)
1←→6	1	2 x 0.935 - 1 =	0.870
	2	2 x 0.771 - 1 =	0.542
1←→7	1	2 x 0.823 - 1 =	0.646
	2	2 x 0.737 - 1 =	0.474
1←→8	1	2 x 0.584 - 1 =	0.168
1←→9	1	2 x 0.641 - 1 =	0.282
1←→10	1	2 x 0.675 - 1 =	0.350
2←→3	1	2 x 0.744 - 1 =	0.488
2←→4	1	2 x 0.789 - 1 =	0.578
	2	2 x 0.703 - 1 =	0.406
2←→5	1	2 x 0.834 - 1 =	0.668
	2	2 x 0.786 - 1 =	0.572
2←→6	1	2 x 0.841 - 1 =	0.682
	2	2 x 0.819 - 1 =	0.638
2←→7	1	2 x 0.915 - 1 =	0.830
	2	2 x 0.838 - 1 =	0.676
2←→8	1	2 x 0.616 - 1 =	0.232
2←→9	1	2 x 0.630 - 1 =	0.260
2←→10	1	2 x 0.676 - 1 =	0.352
3←→4	1	2 x 0.663 - 1 =	0.326
3←→5	1	2 x 0.793 - 1 =	0.586
3←→6	1	2 x 0.682 - 1 =	0.364
3←→7	1	2 x 0.683 - 1 =	0.366
3←→8	1	2 x 0.534 - 1 =	0.068
3←→9	1	2 x 0.539 - 1 =	0.078
3←→10	1	2 x 0.595 - 1 =	0.190
4←→5	1	2 x 0.711 - 1 =	0.422
	2	2 x 0.705 - 1 =	0.410
4←→6	1	2 x 0.710 - 1 =	0.420
	2	2 x 0.600 - 1 =	0.200
4←→7	1	2 x 0.725 - 1 =	0.450
	2	2 x 0.699 - 1 =	0.398
4←→8	1	2 x 0.576 - 1 =	0.152
4←→9	1	2 x 0.605 - 1 =	0.210
4←→10	1	2 x 0.606 - 1 =	0.212
5←→6	1	2 x 0.885 - 1 =	0.770
	2	2 x 0.742 - 1 =	0.484
5←→7	1	2 x 0.811 - 1 =	0.622
	2	2 x 0.785 - 1 =	0.570
5←→8	1	2 x 0.588 - 1 =	0.176
5←→9	1	2 x 0.605 - 1 =	0.210
5←→10	1	2 x 0.637 - 1 =	0.274
6←→7	1	2 x 0.788 - 1 =	0.576
	2	2 x 0.767 - 1 =	0.534

Table 8.11. (*continued*)

Block ←→ Block	Dimension	Calculation[a] ($\rho_d = 2 \times E_d - 1$)	Multiple Correlation Coefficient (ρ)
6←→8	1	2 x 0.568 - 1 =	0.136
6←→9	1	2 x 0.608 - 1 =	0.216
6←→10	1	2 x 0.644 - 1 =	0.288
7←→8	1	2 x 0.612 - 1 =	0.224
7←→9	1	2 x 0.616 - 1 =	0.232
7←→10	1	2 x 0.606 - 1 =	0.212
8←→9	1	2 x 0.715 - 1 =	0.430
8←→10	1	2 x 0.513 - 1 =	0.026
9←→10	1	2 x 0.501 - 1 =	0.002

[a] = The values in the formula are the eigenvalues for each dimension.

The relationship between Block 2 'Predisposing Psycho-social Factors' and Block 7 'Intervening Factors' result in the highest value of total fit (1.753), followed with Block 1 'Predisposing Socio-demography Factors' and Block 6 'Environmental Factors' as the second-highest of the values of total fit (1.706). The relationship between Block 1 and Block 2 'Predisposing Psycho-Social Variables' produces the third highest value of total fit (1.678).

In the context of correlation, which is shown by the correlation coefficient (ρ), the correlation between Block 1 'Predisposing Socio-demography Factors' and Block 6 'Environmental Factors' generates the strongest correlation coefficient on the first dimension (ρ_1 = .870) as well as a strong correlation coefficient on the second dimension (ρ_2 = .542). Furthermore, Block 2 'Predisposing Psycho-social Factors' and Block 7 'Intervening Factors' show the strongest correlation coefficient on the second dimension (ρ_2 = .676) and the second strongest correlation coefficient on the first dimension (ρ_1 = .870). A strong correlation coefficient on the first dimension is also presented between Block 5 'Institutional Factor' and Block 6 'Environmental Factors' (ρ_1 = .770), Block 1 and Block 2 (ρ_1 = .722), as well as Block 1 and Block 5 (ρ_1 = .714). In general, between blocks which show a strong correlation coefficient in the first dimension, they also show a strong correlation coefficient in the second dimension.

In most cases, blocks between the independent and intervening factors show strong to moderate correlation, with a mutual correlation coefficient (ρ) >.3, revealing that Socio-demography Factors, Pyscho-social Factors, Enabling Factors, Perceived Morbidity Factors, Institutional Factors, Environmental Factors, and Intervening Factors correlate with each other in the decision-making of the health care utilisation. Block 1 has a strong correlation coefficient in both dimensions with Block 2 (ρ_1 = .722; ρ_2 = .634), Block 4 (ρ_1 = .566; ρ_2 = .402), Block 5 (ρ_1 = .714; ρ_2 = .448), Block 6 (ρ_1 = .870; ρ_2 = .542), and Block 7 (ρ_1 = .646; ρ_2 = .474). In the same fashion, Block 2 also has strong correlations with all the independent and intervening factors, namely Block 3 (ρ_1 = .488), Block 4 (ρ_1 = .578; ρ_2 = .406), Block 5 (ρ_1 = .668; ρ_2 = .572), and Block 7 (ρ_1 = .830; ρ_2 = .676).

In view of the correlations between the blocks of independent factors and the blocks of dependent factors, the results of the multiple regression analysis show that all of the blocks in the independent and intervening factors have moderate and weak correlations with the blocks 'Utilisation of Traditional Medicine', 'Utilisation of Transitional Medicine' and 'Utilisation of Modern Medicine'. The highest mutual correlation coefficient is found between Block 2 and Block 10 (ρ_1 = .352), whereby the variables knowledge, belief, and opinion on the transcultural medical system are dominating the block and demonstrate a strong significant relationship with the variable 'Utilisation of Modern Medicine'. For the other dependent variables, it is revealed that Block 2 has the highest correlation coefficient with the 'Utilisation of Traditional Medicine' (ρ_1 = .232) and Block 1 has highest correlation coefficient with the 'Utilisation of Transitional Medicine' (ρ_1 = .282) among other independent factors.

On the whole, the results of the multiple regression analysis show that the block of predisposing socio-demographic factors and the block of predisposing psycho-social factors correlate strongly with all blocks of independent factors and moderately with all blocks of dependent factors. On the basis of the results gained from a multiple regression analysis, Figure 8.3 presents the final analytical model of transcultural health care utilisation behaviour. The groups of variables, which have been identified as determinants of patterns of behaviour, are shown in the respective block of factors, and the correlations (r) between the different blocks of factors, which have been identified during the multiple regression analysis, are illustrated accordingly. In this way, the correlations displayed in the model highlight the validity of the multivariate model, which is applied to the present data, and hereby produced the final, explanatory model of transcultural health care utilisation behaviour in the sample population in Kabupaten Bandung. In addition to illustrating the generally strong coherence between blocks of independent factors, Figure 8.3 moreover highlights the predictive value of the different blocks of independent factors on the blocks of dependent factors, namely on people's behaviour in transcultural health care utilisation.

8.3 Results of the Analysis and Interpretation of the Findings

Health care utilisation behaviour involves the decision-making process at the community or household level (*cf.* Tipping & Segall 1995). Understanding the pattern of people's health care utilisation behaviour helps to improve health outcomes within the population. In addition, information on health-seeking behaviour and patterns of health care utilisation will provide assistance in health care policy planning prevention and management of health conditions (*cf.* Van de Hoeven 2012).

Buschkens & Slikkerveer (1980) identify the decisive factors in health care utilisation, known as 'determinants of health care utilisation'. Various determinants such as age, gender, social status, type of illnesses, and access to health providers affect an individual's health behaviour. This identification is in agreement with Winkelman (2008) who reiterates that factors such as cultural belief, economic, political, and other social conditions have active roles in the allocation of remedies. It is the interaction of those determinants which create health care utilisation. In settings where different medical systems are co-existing alongside each other, the interaction can get complicated.

The present study collected data based on self-reported information on health care utilisation behaviour on reported illness for the past 12-month period. As Short *et al*. (2009) claim: '*self-report is one of the most widely used methods of collecting information regarding individuals' health status and utilization of health care services'*. Kjellson *et al.* (2014) observe that the appropriate length of the recall period depends on the type of health care consumption and the intended use of the information. As this study focuses on chronic non-communicable disease, a longer recall period is considered more accurate and appropriate. A review of health surveys reports that recall periods range from 2 weeks to 14 months with a significant proportion of surveys employing either 1- or 12-month recall periods (*cf.* Heijink *et al.* 2011).

A total of 209 households consisting of 833 household members participated in the present study. A total of 360 (43.22%) household members reported an episode of illness in the past twelve months. Among 360 household members, hereafter identified as patients, 2 patients refrained from seeking any treatment, while 358 patients contacted at least one medical system during an episode of illness, resulting in 611 utilisation rates (*cf.* Figure 7.1). The different socio-demographic characteristics of the study participants are discussed in Chapter V.

The findings of the study reveal that from a total of 611 utilisation of the medical system, the utilisation of modern medicine accounts for 39.4%, followed by transitional medicine 35.4%, and traditional medicine 25.5%.

According to the findings, different behaviours are considered by patients in order to diagnose, control and improve their own disease. The socio-demographic characteristics of the respondent relate to levels of utilisation. The results have established that factors such as age, place of birth, education, and occupation are significant factors in health care utilisation among community members. However, several studies have reported some inconsistent findings regarding those variables. In a review on the utilisation of traditional, complementary, and modern medicine in Indonesia, Pengpid & Peltzer (2017) conclude that several sociodemographic and health-related factors such as age (older), religion (*Muslim*), environment (urban area), health condition (unhealthy), and having chronic conditions were associated with the use of traditional, complementary and/or modern medicine.

A study conducted by Rasul *et al.* (2019) on determinants of health-seeking behaviour for non-communicable disease in Bangladesh reveals that higher education, major chronic non-communicable disease, higher socio-economic status, lower proportion of chronic household patients, and shorter distance between a household and a sub-district public referral health facility increased the likelihood of seeking a modern health care provider than its counterpart.

Age is identified as a determinant of local patterns of health care utilisation behaviour among the research community. The results show that the utilisation of traditional medicine is high among people at the age of 40 years old and more. The study conducted by Pengpid & Peltzer (2017) similarly indicates that older or middle age is associated with the use of traditional medicine. This study also finds that people at a younger age, particularly 10 years old and younger tend to use transitional health providers. This finding may be related with the phenomenon that young people generally experience acute illness; as Shafie *et al*. (2018) report, transitional medicine in the form of self-medication is highly preferred for acute ailments. As for diabetes mellitus, a study conducted in Kilimajaro reports that as age increases, study participants are more likely to use traditional medicine (*cf*. Kasole *et al*. 2017).

Furthermore, the diverse patterns of health care utilisation among community members are found across the different levels of education. In general, people with basic education generally use transitional medicine. Although there is no considerable difference among categories within the utilisation of the traditional medical system, people with a higher level of education tend to use traditional medicine more frequently than average. This finding is in contrast with a study conducted by Pengpid & Peltzer (2017) which found the association of lower education with the utilisation of traditional medicine.

Although gender has not been identified as a significant determinant in health care utilisation in the present study, several studies in different community settings report otherwise. A recent study in Malaysia reveals that women have higher utilisation rates of primary care than men (*cf.* Lim 2019). Another noteworthy finding is that while gender is not a significant determinant variable in this study, among household members, health care utilisation is generally decided by women as a mother or wife instead of men as the household head.

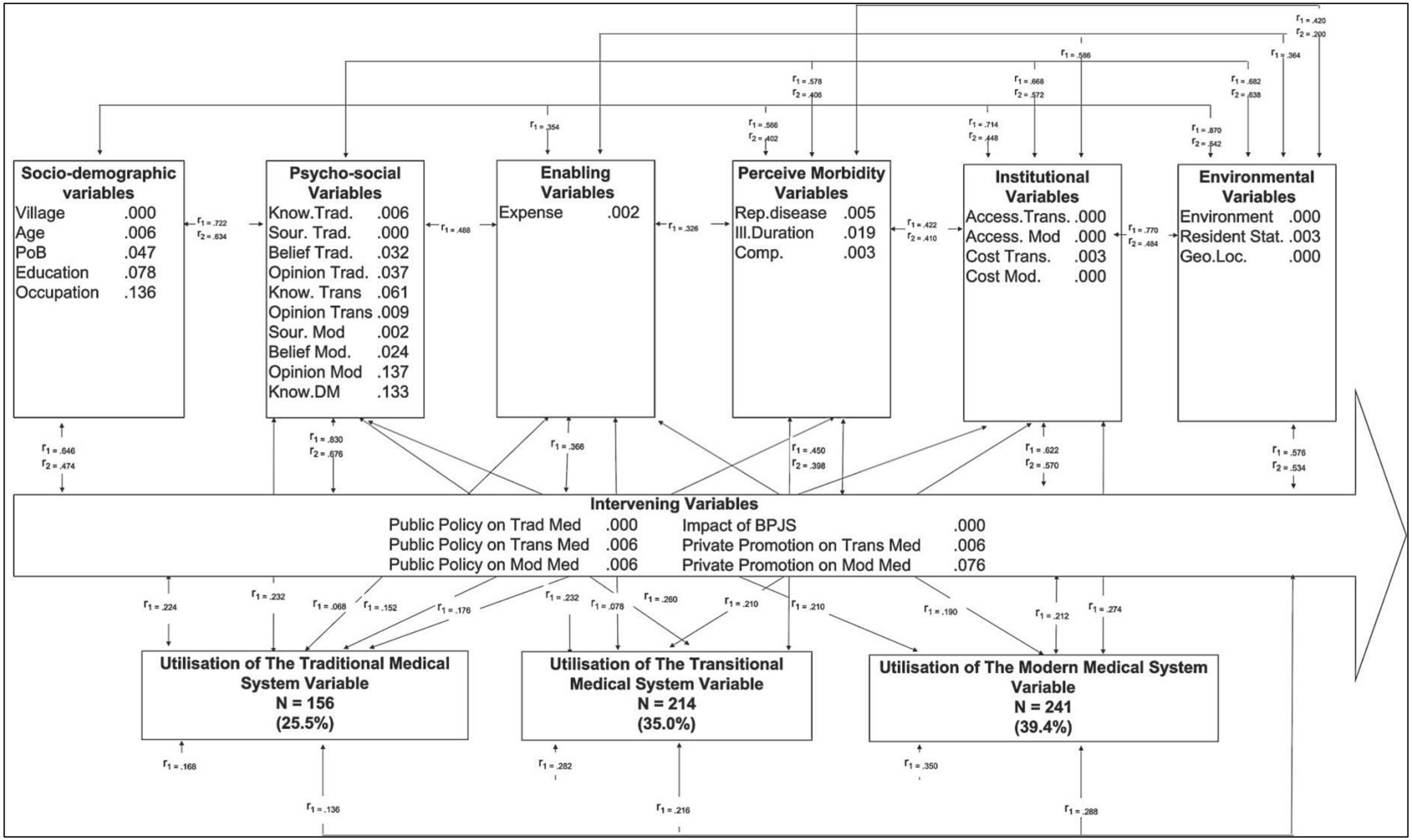

Figure 8.3 The Final Model of Transcultural Health Care Utilisation indicating the Strength of the Correlations between the Blocks of the Variables

The statistical analysis of the present data furthermore identified occupation of the patients as a significant determinant of health care utilisation behaviour. This study found that unemployed patients such as housewife, retired, or unemployed people contact traditional medicine more frequently than those who work as civil servants or are self-employed. The finding that a considerable amount of people without regular income preferred traditional medicine is understandable as traditional medicine is perceived to be cheaper than modern medicine. Nevertheless, this study also found that higher utilisation of modern medicine is presented by unemployed people. This result may be related to participation in BPJS. Patients with BPJS can obtain services from the public health service free of charge.

Following the determinants in the socio-demographic factors, the block of psychosocial factors presents as the block with the most significant variables. These results are supported by Gyasi *et al*. (2016) who stated that psycho-social variables predominantly influence health care utilisation behaviour. The present study moreover reveals that people's knowledge of the medical system significantly influenced the utilisation of the respective system. In general, people with high knowledge of traditional medicine contact traditional health providers more frequently than those with less knowledge. In the same fashion, people who hold much knowledge of transitional medicine have more contact with the system than people with little knowledge. Overall, the results suggest that the utilisation of the medical system is embedded in people's knowledge and understanding. This finding is also supported by the qualitative findings that patients who use traditional and transitional medicine rely on their knowledge of the available treatments. This finding is in contrast with the study conducted by Shafie *et al*. (2018) which report that people who have poor knowledge of self-medication were likely to practice self-medication more frequently than its counterpart.

However, this pattern is not applicable to the utilisation of modern medicine. The statistical analysis results shows that the variable 'knowledge of the modern medical system' is not a determinant in health care utilisation. In line with the discussion in Chapter V, where theh majority of people in the research area hold a little knowledge on modern medicine, utilisation of this system is not directly related to people's knowledge of modern medicine. Its utilisation is arguably influenced by health insurance and morbidity.

In addition to knowledge, people's opinions on the medical system are also identified as a determinant in health care utilisation behaviour. The statistical analysis results reveal that opinions on each medical system have a significant relationship with utilisation behaviour. In general, these findings show that the utilisation of the medical system follows people's positive attitude towards the medical system. The results also show that people who hold a negative opinion on the transitional or modern medical system contact the traditional medical system more frequently than average. The negative opinion on modern medicine appears to be held by patients with a positive opinion on traditional medicine and perceive that modern medicine is somewhat the opposite of traditional medicine.

Interestingly, belief factors only show a significant relationship in the variable of belief in traditional medicine. Overall, people who have much belief in traditional medicine contact traditional health providers more frequently than average. Similarly, in their study, Gyasi *et al*. (2016) found that socio-cultural belief is the dominant variable for motivating the consumption of traditional medicine. Furthermore, Gyasi *et al*. (2016) conclude that the use of traditional medicine is an integral part of a set of cultural beliefs which embrace the holistic orientation of life.

Furthermore, the source of knowledge on the traditional medical system also reveals to be a determinant in health care utilisation behaviour with a most strongly significant relationship. Cravey *et al*. (2001) suggest that sources of knowledge on health and diseases, which for many people comes from family and relatives, are important determinants of health care utilisation behaviour. Respondents who report having knowledge of traditional medicine from parents have contact with the traditional medical system more frequently than average and have less frequent contact with the modern medical system. This finding is in agreement with the study conducted in Suriname, where apart from the occurrence of illness, knowledge of medicinal plants, preparation methods, and sources of knowledge appeared to be the significant factors influencing the use of traditional medicines (*cf.* Andel & Carvalheiro 2013).

The present study moreover demonstrates that health care expenses have a significant relationship with health care utilisation. Patients spend up to Rp. 200.0000, equal to 10% monthly income, per month for health service costs or buying medicine. Patients who report spending less on health care contact the modern medical system more frequently than other health providers. Conversely, higher spending is reported among patients who contact the modern medical system less frequently than average. In general, patients with higher spending on health care use the transitional medical system more frequently than average. Although socioeconomic status is not shown, it has a significant influence on health care utilisation; a qualitative study reveals that those with a higher SES had a greater likelihood of using modern medical services.

In addition to the aforementioned determinants of health care utilisation behaviour, the results of the analysis also identified that duration and complication of the disease have a significant relationship with the dependent variables. In general, patients who report a longer duration of disease and a more severe complication of morbidity contact modern health care providers more often than those with a shorter duration of disease and without any complications. Furthermore, this study also indicates that the majority of patients with a short duration of disease (less than one week) and without any co-morbidity contact the transitional medical system more frequently than other systems.

Most studies found an association of residence with the use of traditional medicine (*cf.* Supardi & Suyanty 2010; Peltzer *et al*. 2016; Nurhayati & Widowati 2017). This study also finds that characteristics of external environment and community such as rural/urban community, residential status, and geographical conditions significantly influence utilisation of medical systems; being native and residing in rural areas and highlands are associated with more frequent contact with traditional rather than transitional and modern medicine. However, in their comparative study, Oyebode *et al*. (2016) report mixed results regarding the influence of external environment factors on the utilisation of traditional medicine. While in China rurality is associated with the use of traditional medicine, Ghana and India show the opposite results. A study conducted by Nurhayati & Widowati (2017) also reveals that households who reside in urban areas were more likely to use traditional medicine.

The rather easy access to traditional medicine in the village is one of the reasons it is still being used. In the past, the hospital was too far from the village. Back then only traditional medicine was used. Nowadays the roads are more accessible and thus the hospital is more easily reached. Besides that, small hospitals are being built in some villages, so even near some of the smallest villages, there is a hospital.

Furthermore, this study reveals that regardless of the proximity to health providers, people are open to whichever medical treatment they consider the best. Patients are flexible to combine different but complementary treatment to achieve better results. Similarly, in a study related to distance and health care utilisation, Mattson (2010) reveals that for chronic conditions, distance and transportation did not significantly influence number of visits to formal health care facilities.

Policy on medical systems, public insurance, and promotion on transitional medicine play key roles since policymakers are often interested in understanding the influence of health policy on utilisation of medical systems. Extensive studies on health care policies have shown that utilisation patterns vary across uninsured and insured community members.

Although the type of health insurance has not been identified as a determinant of health care utilisation behaviour among community members, the impact of health insurance, particularly BPJS, is a crucial determinant in health care utilisation. A study reports that people without health insurance are less likely to visit formal health care facilities than insured people (*cf.* Schoen & Des Roches 2000). National health insurance (JKN) minimizes the cost to access formal health services, hence increasing the utilisation of public health care providers. This finding is confirmed by the high utilisation rate of *puskesmas* and clinics among patients with BPJS. Comparatively, the study in Ghana also reports that households in both rural and urban areas who have public health insurance prefer modern medicine over traditional medicine (*cf.* Amangbey 2014)

In the research area, for the treatment of chronic diseases, people prefer conventional medicine from *puskesmas* to traditional medicine. One of the reasons is the Indonesian government program 'Kartu Sehat' which allows poor people to get free services and medication at public health care facilities. BPJS is another reason people decide to go to public health care facilities. This program offers a relatively low premium cost for the poor.

Furthermore, while earlier it was stated that traditional medicine was cheaper than modern medicine, in some cases it can be more expensive. In most countries (except China, India, Japan, and South Korea), traditional medicines are provided by private health providers (*cf.* Ros *et al* 2018). For example, the cost of traditional medicine in Kenya was higher than the Kenyan standard of living since such medications are not covered by health insurance (*cf.* Chege *et al*. 2015). A similar phenomenon is also observed in the research area, consequently resulting in less utilisation of the traditional medical system.