## CHAPTER VII QUANTITATIVE DATA ANALYSIS

### 7.1. Sample Build Up, from Household Level to Action Patients

Table 15 shows the build-up of household member action patients (N=564) in steps in utilisation of the Plural Medical System (N=715), identical to the flow-diagramme in figure 4.

Table 15. Utilisation Rate of the Plural Medical System (N=715).

| Step 1 | | Flo-thru | | Step 2 | | Flo-thru | | Step 3 | | System | Util. Rate | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | % | N | % | N | % | N | % | N | % | | N | % |
| 214 | 37,9% | 39 | 27,5% | 78 | 54,9% | 4 | 44,4% | 6 | 66,7% | Trad. | 298 | 41,7% |
| 142 | 25,2% | 24 | 16,9% | 12 | 8,5% | 1 | 11,1% | 0 | 0,0% | Trans. | 154 | 21,5% |
| 208 | 36,9% | 79 | 55,6% | 52 | 36,6% | 4 | 44,4% | 3 | 33,3% | Modern | 263 | 36,8% |
| 564 | 100,0% | 142 | 100,0% | 142 | 100,0% | 9 | 100,0% | 9 | 100,0% | | 715 | 100,0% |

*Source:* Fieldwork data 2016

When reversing the axes, it shows the total rates per system as used in the bivariate analysis:

Table 16. Stepwise Utilisation of the Plural Medical System (N=715).

| Patient | Steps | Trad. Med. Syst. | | Trans. Med. Syst. | | Modern Med. Syst. | | Rates | |
|---|---|---|---|---|---|---|---|---|---|
| N | | N | % | N | % | N | % | N | % |
| 422 | 1 | 17 | 41,5% | 118 | 28,0% | 129 | 30,6% | 422 | 100 |
| 133 | 2 | 11 | 42,1% | 31 | 11,7% | 123 | 46,2% | 266 | 100 |
| 9 | 3 | 11 | 40,7% | 5 | 18,5% | 11 | 40,7% | 27 | 100 |
| 564 | | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 | 100 |

*Pearson $\chi^2$ = 0,000 Cramer's V =0,148. Source:* Fieldwork data 2016

*Source:* Fieldwork data 2016

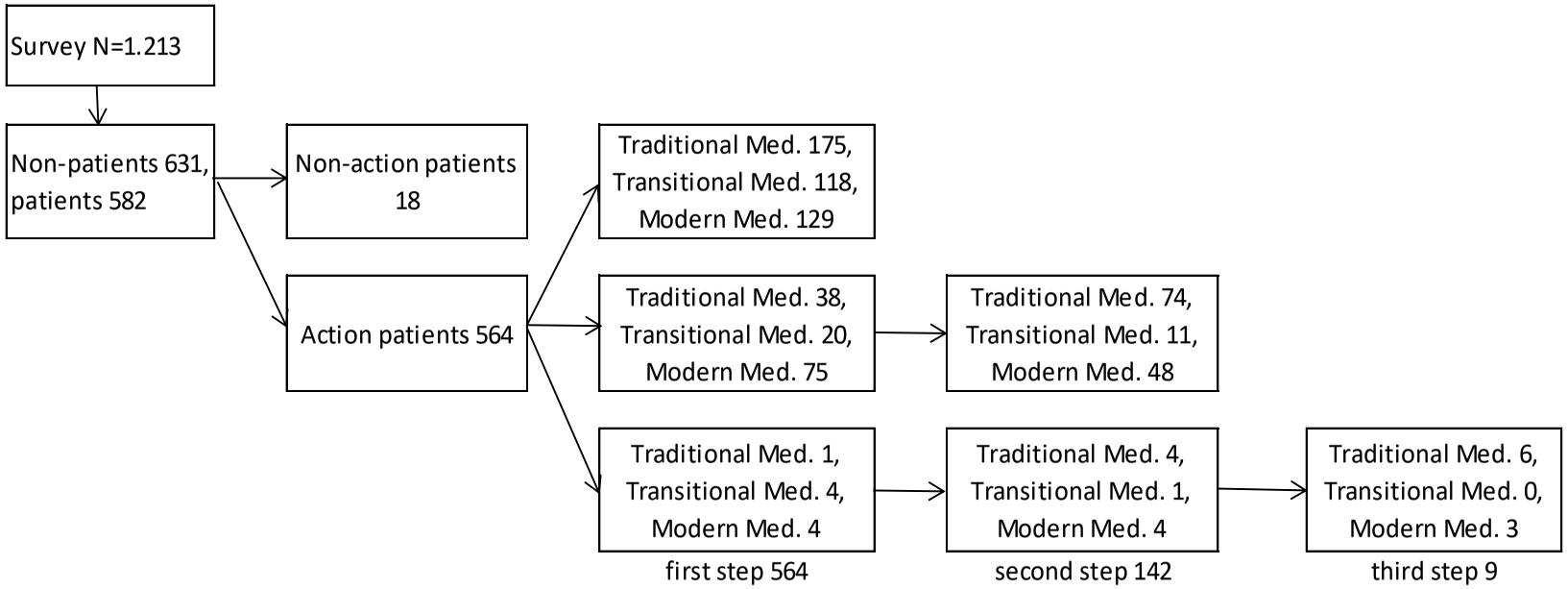
The overview shows how 133 patients who took two steps end up with 266 actions and 9 patients taking three steps make up 27, making up a total 715 actions for all 564 action patients. The primary reference was the general health status as perceived by the household head (*cf.* Table 17). Although 27,4% (48) said they were not able to make such assessment for lack of knowledge, a majority of 64% (112) fill the top three categories from average to very good.

Table 17. Assessment of Health Status by Household Heads (N=175).

| General health status | **N** | **%** |
|---|---|---|
| Cannot assess | 48 | 27,4% |
| Very bad | 1 | 0,6% |
| Bad | 14 | 8,0% |
| Average | 61 | 34,9% |
| Good | 50 | 28,6% |
| Very good | 1 | 0,6% |
| Total | 175 | 100,0% |

*Source:* Fieldwork data 2016

Figure 4. Flow-scheme: number of steps per action patient.




| Action patients | steps | Tradtional Medicine | Transitional Medicine | Modern Medicine | steps |
|---|---|---|---|---|---|
| 422 | 1 | 175 | 118 | 129 | 422 |
| 133 | 2 | 112 | 31 | 123 | 266 |
| 9 | 3 | 11 | 5 | 11 | 27 |
| 564 | | 298 | 154 | 263 | 715 |
| | | 41,7% | 21,5% | 36,8% | 100,0% |

*Source:* Fieldwork data 2016

In addition to this status perception, the duration of the illness as reported by the action patients was taken into account, and put into an interval category of days, weeks and months. The majority of the diseases subsides within two weeks 64,8% (366), whereas 9,8% (55) linger for more than a year. In relating chronic diseases to age categories, only 21,8% (12) patients of the long duration illness category come out to be older than 55 years.

Table 18. Duration of Illness reported by Action Patients (N=564)

| Period | N | % | cum |
|---|---|---|---|
| no recollection | 8 | 1,4% | 1,4% |
| 1 to 3 days | 68 | 12,1% | 13,5% |
| 4 to 6 days | 124 | 22,0% | 35,5% |
| 1 to 2 weeks | 166 | 29,4% | 64,8% |
| 2 to 4 weeks | 51 | 9,0% | 73,9% |
| 1 to 12 months | 93 | 16,5% | 90,4% |
| more than 1 year | 55 | 9,8% | 100% |
| Total | 564 | 100,0% | |

*Source:* Fieldwork data 2016

Preceding the bivariate analysis, the relationship between the consecutive steps taken by the action patients and their use of the medical systems is examined. The data show that the number of times people switch from modern to traditional (n=58) is higher than the other way around (n=30). The volume of two steps (*cf.* Table 16) and the use of the modern system (MM) is due to people making a second step because of the referral system, which is more frequent than within the traditional system. The secondary use of traditional medicine (TM) is found with people indicating long and chronic illness duration, or as a lack of result with the prescribed medicine or preceding therapy.

### 7.2 Bivariate Analysis and Mutual Relations Analysis

This section shows the distribution of the variables which correlation proved to be significant in the bivariate analysis and the utilisation per medical system. They are listed in order of the questionnaire sequence, not by the significance levels. The applied criteria are listed as follows;

| The values of Pearson Chi-Sq. are: | |
|---|---|
| > 0.15 | non-significant |
| 0.15 – 0.10 | indication of significance |
| 0.10 – 0.05 | weakly significant |
| 0.05 – 0.01 | strongly significant |
| 0.01 - 0.001 | very strongly significant |
| < 0.001 | most strongly significant |

| The values of Cramer's V are: | |
|---|---|
| 0.00 - 0.15 | very weak not generally acceptable |
| 0.15 - 0.20 | weak, minimally acceptable |
| 0.20 - 0.25 | moderate, acceptable |
| 0.25 - 0.30 | moderately strong, desirable |
| 0.30 – 0.35 | strong, very desirable |
| 0.35 – 0.40 | very strong, extremely desirable |
| 0.40 – 0.50 | extremely strong, suspect collinearity |

On the basis of the combination of the highest values, variables are identified in the bivariate analysis and used in the multiple regression analysis in the second stage. The tables are presented with row percentages per variable value over the three columns representing the utilisation of the three medical systems.

Table 19. Distribution of Illness Duration over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Illness duration | N | % | N | % | N | % | total |
| 1_3 days | 30 | 37,5% | 26 | 32,5% | 24 | 30,0% | 80 |
| 4_6 days | 43 | 29,1% | 41 | 27,7% | 64 | 43,2% | 148 |
| 1_2 weeks | 76 | 37,8% | 52 | 25,9% | 73 | 36,3% | 201 |
| 2_4 weeks | 30 | 49,2% | 7 | 11,5% | 24 | 39,3% | 61 |
| 1_12 months | 69 | 53,1% | 20 | 15,4% | 41 | 31,5% | 130 |
| 1 year > | 44 | 50,6% | 8 | 9,2% | 35 | 40,2% | 87 |
| no recollection | 6 | 75,0% | 0 | 0,0% | 2 | 25,0% | 8 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,171*
*Source:* Fieldwork data 2016

The first correlation to show significance from the questionnaire's household status sheet is the duration of the illness as reported by the action patients, leading up to seeking treatment. As established before, the majority subsides within two weeks, and both the traditional and the modern system show equally high cell counts in the two-week row. The highest proportion however is 53,1% (69) for people with chronic diseases up to twelve months and the use of TM. That is consistent with the statement made by several respondents that a lack of result leads to seek alternative treatment, *i.e.* to move from MM to TM (n=58) instead of vice versa (n=30).

Table 20. Distribution of Land Owned over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Land owned | N | % | N | % | N | % | total |
| <1 acre | 23 | 53,5% | 3 | 7,0% | 17 | 39,5% | 43 |
| 1_1.5 acres | 36 | 48,0% | 14 | 18,7% | 25 | 33,3% | 75 |
| 1.5_2 acres | 25 | 31,3% | 29 | 36,3% | 26 | 32,5% | 80 |
| 5 acres > | 203 | 43,4% | 86 | 18,4% | 179 | 38,2% | 468 |
| None | 11 | 26,2% | 22 | 52,4% | 9 | 21,4% | 42 |
| no reg. | 0 | 0,0% | 0 | 0,0% | 7 | 100,0% | 7 |
| Total | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,198*
*Source:* Fieldwork data 2016

The next variable from the socio-demographic factors (Block 1 in the model) is the area of land owned and worked on by the respondent's family. The difference between owning more than 5 acres and using TM 43,3% (203) or MM 38,2% (179) is narrow, whereas the highest proportional value is 53,5% (23) for people with less than 1 acre and using TM. The proportion of people with no ownership and using the Transitional Medical system is 52,4% (22), which is consistent with the reports of self-medication to avoid cost, followed by the argument of insufficient supplies at MM facilities.

Table 21. Distribution of Religion over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | Util. rate |
|---|---|---|---|---|---|---|---|
| Religion | N | % | N | % | N | % | Total |
| Christian | 230 | 43,0% | 117 | 21,9% | 188 | 35,1% | 535 |
| None | 47 | 50,0% | 22 | 23,4% | 25 | 26,6% | 94 |
| Afr. trad. rel. | 18 | 22,2% | 14 | 17,3% | 49 | 60,5% | 81 |
| Muslim | 3 | 60,0% | 1 | 20,0% | 1 | 20,0% | 5 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,135*
*Source:* Fieldwork data 2016

The highest proportional score is among African traditional religion with 60,5% (49) using MM. The majority of these action patients take a first step there but they are not morbidity related. This is unexpected, considering that 43% (230) of the Christians and 50% (47) of the pagans more often opt for the traditional system. The correlation does not reach the threshold for Cramer's V of 0,150.

Table 22. Distribution of Cattle Owned over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Cattle owned | N | % | N | % | N | % | total |
| < 10 | 188 | 45,3% | 83 | 20,0% | 144 | 34,7% | 415 |
| 11_20 | 48 | 31,2% | 37 | 24,0% | 69 | 44,8% | 154 |
| 21_30 | 12 | 42,9% | 3 | 10,7% | 13 | 46,4% | 28 |
| None | 50 | 45,5% | 24 | 21,8% | 36 | 32,7% | 110 |
| no reg. | 0 | 0,0% | 7 | 87,5% | 1 | 12,5% | 8 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,153*
*Source:* Fieldwork data 2016

In view of the importance of cattle, both economically and status wise, the relationship with using TM is expressed by the lower rows, no ownership and <10, which provide the highest score, 45,5% (50) and 45,3% (188) respectively. Having established that, the highest cell count for MM is also within the <10 row with 144. In that respect it does not prove socio-economic status influence through cattle ownership convincingly, as the 21> category is equally distributed.

Table 23. Distribution of Media Use over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Media use | N | % | N | % | N | % | Total |
| Radio | 90 | 39,6% | 49 | 21,6% | 88 | 38,8% | 227 |
| two mod. media | 65 | 42,2% | 43 | 27,9% | 46 | 29,9% | 154 |
| no media use | 55 | 38,7% | 42 | 29,6% | 45 | 31,7% | 142 |
| mobile phone | 58 | 49,2% | 11 | 9,3% | 49 | 41,5% | 118 |
| oral transmission | 21 | 55,3% | 7 | 18,4% | 10 | 26,3% | 38 |
| multiple media | 7 | 26,9% | 1 | 3,8% | 18 | 69,2% | 26 |
| TV | 2 | 20,0% | 1 | 10,0% | 7 | 70,0% | 10 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,171. Source:* Fieldwork data 2016

The purpose of measuring media use (block 3) was for it to be linked to the intervening variables indicating health education campaign awareness and recollection (block 6). Consistent with expectations is mainly the aspect of 'oral transmission' and TM use with 55,3%, indicating no direct media influence. The top score of 69,2% (18) is for multiple modern media and MM use, although the cell count is low, as is TV with 70% (7). Contradicting may seem that the TM users show more modern media use *overall* than the MM users, but supportive of TM transcending all categories.

Table 24. Distribution of Profession over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Profession | N | % | N | % | N | % | Total |
| Farming | 182 | 40,3% | 107 | 23,7% | 163 | 36,1% | 452 |
| Farm & herd | 45 | 43,7% | 14 | 13,6% | 44 | 42,7% | 103 |
| Agric. & trade | 15 | 39,5% | 1 | 2,6% | 22 | 57,9% | 38 |
| Farm & voc. | 18 | 48,6% | 13 | 35,1% | 6 | 16,2% | 37 |
| Farm & trade | 13 | 39,4% | 11 | 33,3% | 9 | 27,3% | 33 |
| Trade | 11 | 68,8% | 1 | 6,3% | 4 | 25,0% | 16 |
| No profession | 3 | 25,0% | 2 | 16,7% | 7 | 58,3% | 12 |
| Agric. & voc. | 2 | 25,0% | 1 | 12,5% | 5 | 62,5% | 8 |
| vocation | 5 | 83,3% | 1 | 16,7% | 0 | 0,0% | 6 |
| Agric + employed | 1 | 25,0% | 1 | 25,0% | 2 | 50,0% | 4 |
| Employed | 1 | 33,3% | 2 | 66,7% | 0 | 0,0% | 3 |
| Unqualified labour | 2 | 66,7% | 0 | 0,0% | 1 | 33,3% | 3 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,001 Cramer's V = 0,182. Source:* Fieldwork data 2016

Almost all habitants of Nyamburi engage in some sort of agricultural activity, either or not in combination with trading, a vocation or employment. With the margins being narrow, the highest scores with MM appear with agric & trade 57,9% (22), as well as with TM 68,8% (11) for trade. A mirrored image comes with people who exercise a vocation, they show a majority for TM in two rows 48,6% (18) and 83,3% (5) and with MM 62,5% (5). The highest cell count is for people who farm with 182 and TM. Overall there is no specific relationship traceable of a specific category to system utilisation. The category 'Agric' indicates people who keep livestock, herd cattle and farm.

Table 25. Distribution of Knowledge of TM over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Knowl. of TM | N | % | N | % | N | % | total |
| Little | 135 | 44,4% | 67 | 22,0% | 102 | 33,6% | 304 |
| Average | 110 | 44,4% | 51 | 20,6% | 87 | 35,1% | 248 |
| Much | 27 | 42,2% | 12 | 18,8% | 25 | 39,1% | 64 |
| None | 26 | 33,3% | 20 | 25,6% | 32 | 41,0% | 78 |
| No reg. | 0 | 0,0% | 4 | 19,0% | 17 | 81,0% | 21 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,002 Cramer's V = 0,132.*

*Source:* Fieldwork data 2016

Table 25 which does not reach the Chi 0,000 nor the V=>0,150 threshold, is presented because of the inherent relationship with indigenous knowledge variables. As in the pilot study, the rows which indicate little or average knowledge of TM have the highest proportion (44,4%) in utilisation, consistent with the people who claim no knowledge scoring 41% with the use of MM. Remarkably the respondents not wishing to answer this question turn to MM with 81% (17/21). As the majority of the respondents in the little or average knowledge rows which use TM are Christians (78%, 191/245) this affinity is well observed. Christian religion is often described as not endorsing traditional medicine, but appreciation is widely found among respondents within that category, as indicated by Chirangi (2013).

Table 26. Distribution of Opinion on TM over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Opinion on TM | N | % | N | % | N | % | total |
| low op. | 37 | 31,1% | 32 | 26,9% | 50 | 42,0% | 119 |
| average op. | 120 | 42,6% | 69 | 24,5% | 93 | 33,0% | 282 |
| high op. | 140 | 50,4% | 46 | 16,5% | 92 | 33,1% | 278 |
| no opinion | 1 | 7,7% | 2 | 15,4% | 10 | 76,9% | 13 |
| no reg. | 0 | 0,0% | 5 | 21,7% | 18 | 78,3% | 23 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,181*
*Source:* Fieldwork data 2016

Expressing material confidence, the relationships become more extrapolated, as is shown in this distribution. Here the users of TM with 'average' and 'high opinion' score the highest proportion, 42,6% (120) and 50% (140) consecutively. Note that the respondents with a low opinion on TM are equally weighted at 42% (50) using MM. Again, the representation of Christians in the TM use selection with a positive opinion is 78% (203/260). The correlation is now V=0,181 compared to knowledge of TM, which was below the 0,150 threshold with V=0,132 (*cf.* Table 25)

Table 27. Distribution of Belief in TM over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Belief in TM | N | % | N | % | N | % | total |
| Little | 39 | 32,8% | 29 | 24,4% | 51 | 42,9% | 119 |
| Average | 104 | 39,5% | 62 | 23,6% | 97 | 36,9% | 263 |
| Much | 154 | 51,3% | 56 | 18,7% | 90 | 30,0% | 300 |
| None | 1 | 6,3% | 4 | 25,0% | 11 | 68,8% | 16 |
| no reg. | 0 | 0,0% | 3 | 17,6% | 14 | 82,4% | 17 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,172*
*Source:* Fieldwork data 2016

In view of the score of the other related variables (knowledge, opinion and accessibility) 'Belief' was expected to reach a higher level, especially as the qualitative research indicates it to surpass almost all status attributes. In this case it is interesting that 30% (90) out of 300 cases with much belief in TM are found using MM. Connected to perceived morbidity, the majority of these cases

were malaria, whereas the majority among the TM users dealt with Urinary Tract Infection (UTI). Note that UTI symptoms are not always correctly reproduced and there may be unreliable reporting, according to the Clinical Officer in Nyamburi. The MM users show consistency with 42,9% (51) for the Little-believers, and 68,8% (11) respectively 82,4% (14) for non-knowledgeable respondents.

Table 28. Distribution of Knowledge of TR over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Knowl. of TR. | N | % | N | % | N | % | total |
| Little | 122 | 41,6% | 64 | 21,8% | 107 | 36,5% | 293 |
| Average | 56 | 29,3% | 54 | 28,3% | 81 | 42,4% | 191 |
| Much | 5 | 33,3% | 1 | 6,7% | 9 | 60,0% | 15 |
| None | 106 | 56,4% | 30 | 16,0% | 52 | 27,7% | 188 |
| no reg. | 9 | 32,1% | 5 | 17,9% | 14 | 50,0% | 28 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,158*
*Source:* Fieldwork data 2016

With regard to knowledge of Transitional Medicine (TR), it is apparent that very few people make this claim, even among the TR users, the highest cell count is actually with the category 'little knowledge' 21,8% (64) with 'average knowledge' reaching 28,3% (54). Note however that 42,4% (81) cases claim 'average knowledge' among the MM users, which is consistent with the reports from qualitative research that many people go out and buy medicine commercially after being diagnosed at modern facilities. Not only because of lower cost, but also because the frequent unavailability of the prescribed medication at MM facilities. It indicates the use of TR as an acceptable alternative across all categories; with the possible exception of the highest cell count overall, 122 with 'little knowledge' and 106 with 'no knowledge' among TM users.

Table 29. Distribution of Source of Knowledge over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Source of Knowledge | N | % | N | % | N | % | total |
| Personal experience | 84 | 40,2% | 61 | 29,2% | 64 | 30,6% | 209 |
| Mother | 62 | 54,4% | 21 | 18,4% | 31 | 27,2% | 114 |
| VHW | 32 | 28,8% | 19 | 17,1% | 60 | 54,1% | 111 |
| Grand parents | 39 | 48,8% | 17 | 21,3% | 24 | 30,0% | 80 |
| Father | 22 | 42,3% | 9 | 17,3% | 21 | 40,4% | 52 |
| Both parents | 15 | 28,8% | 8 | 15,4% | 29 | 55,8% | 52 |
| School | 12 | 42,9% | 10 | 35,7% | 6 | 21,4% | 28 |
| Traditional healer | 13 | 59,1% | 2 | 9,1% | 7 | 31,8% | 22 |
| In-laws | 7 | 43,8% | 1 | 6,3% | 8 | 50,0% | 16 |
| Spouse | 8 | 53,3% | 0 | 0,0% | 7 | 46,7% | 15 |
| Family member | 1 | 11,1% | 3 | 33,3% | 5 | 55,6% | 9 |
| Friends | 3 | 42,9% | 3 | 42,9% | 1 | 14,3% | 7 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,207*
*Source:* Fieldwork data 2016

Source of knowledge (SOURCE) indicates who provided the knowledge with regard to the cause of the illness and the related cure, in the broadest sense of the word. It is related to who is consulted when seeking treatment (ADVICE). When cumulating all categories of family members, they are involved in 47,2% (338) of all cases (N=715). Consistency shows in the role of the Village Health Worker, who receives 54,1% (60) reference to using MM. Besides 'personal experience', within families the role of the mother is the highest cell with 54,4% (62) for TM users, followed by 'grand parents' 48,8% (39). The traditional healers' advice is solid with 59,1% (13) among TM users.

Table 30. Distribution of Treatment Advice over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Treatment Advice | N | % | N | % | N | % | total |
| Personal experience | 123 | 41,6% | 84 | 28,4% | 89 | 30,1% | 296 |
| Village Health Worker | 54 | 36,0% | 30 | 20,0% | 66 | 44,0% | 150 |
| Traditional healer | 43 | 58,9% | 8 | 11,0% | 22 | 30,1% | 73 |
| Spouse | 28 | 38,9% | 10 | 13,9% | 34 | 47,2% | 72 |
| Mother in-law | 16 | 45,7% | 3 | 8,6% | 16 | 45,7% | 35 |
| Family member | 9 | 36,0% | 4 | 16,0% | 12 | 48,0% | 25 |
| Mother | 8 | 34,8% | 1 | 4,3% | 14 | 60,9% | 23 |
| Neighbours | 11 | 64,7% | 2 | 11,8% | 4 | 23,5% | 17 |
| Grand parents | 5 | 45,5% | 4 | 36,4% | 2 | 18,2% | 11 |
| Pharmacy | 1 | 9,1% | 8 | 72,7% | 2 | 18,2% | 11 |
| Father | 0 | 0,0% | 0 | 0,0% | 2 | 100,0% | 2 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,215*
*Source:* Fieldwork data 2016

The consultation (ADVICE) leads into another direction as the health professionals head the listing, with the Village Health Worker showing the highest cell count 44% (66) score using MM, followed by the traditional healer with 58,9% (43) among the TM users. The spouse now ranks highest followed by the mother in law, whose overall role in health problems is exemplified by scoring equally high on MM use. Neighbours hold the highest proportion 64,7% (11) for consultation on TM, but with a low cell count. The role of the family members was cumulated here as well for comparison with source of knowledge and turns out to be reduced to almost half to 23,4% (168).

Table 31. Distribution of Cost of TM over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Cost of TM | N | % | N | % | N | % | total |
| Expensive | 43 | 36,8% | 22 | 18,8% | 52 | 44,4% | 117 |
| Average | 108 | 39,9% | 55 | 20,3% | 108 | 39,9% | 271 |
| Cheap | 146 | 50,0% | 69 | 23,6% | 77 | 26,4% | 292 |
| no reg. | 1 | 2,9% | 8 | 22,9% | 26 | 74,3% | 35 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,176*
*Source:* Fieldwork data 2016

From the qualitative research it has become evident that there is wide ambivalence on the cost of TM (Block 3) as many believe that it is often more expensive than the modern system, although money does not always change hands. The donations made towards a traditional healer for treatment can reach a high intrinsic value when it involves livestock or food produce. However 'home remedies', are considered accessible and cheap and belong to the same category. The majority, 40,8% (292) indicate to consider TM 'cheap' of which half also appear as users, but within the 'average' category 37,9% (271) there is equal representation 39,9% (108) in both medical systems, which again illustrates the ambivalence.

Table 32. Distribution of Cost of Transport to TM over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Transp. to TM | N | % | N | % | N | % | total |
| Expensive | 22 | 33,3% | 13 | 19,7% | 31 | 47,0% | 66 |
| Average | 94 | 42,7% | 45 | 20,5% | 81 | 36,8% | 220 |
| Cheap | 181 | 45,9% | 88 | 22,3% | 125 | 31,7% | 394 |
| no reg. | 1 | 2,9% | 8 | 22,9% | 26 | 74,3% | 35 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,154*
*Source:* Fieldwork data 2016

The consensus on accessibility is slightly higher as 55,1% (394) considers getting to TM is cheap, and the group which considers it expensive reduces from 16% (117) to 9% (66). As mentioned before, home remedies are often collected individually around the domestic area, instead of being bought. On the other hand, people travel extensively if there is a traditional healer who carries a reputation for a specific treatment, even if it implies travelling to another region of the country.

Table 33. Distribution of Cost of TR over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Cost of TR | N | % | N | % | N | % | total |
| Expensive | 161 | 44,7% | 63 | 17,5% | 136 | 37,8% | 360 |
| Average | 129 | 41,6% | 84 | 27,1% | 97 | 31,3% | 310 |
| Cheap | 7 | 41,2% | 2 | 11,8% | 8 | 47,1% | 17 |
| no reg. | 1 | 3,6% | 5 | 17,9% | 22 | 78,6% | 28 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,157*
*Source:* Fieldwork data 2016

The cost of transitional medicine, although lower than MM is still considered expensive by the majority, 50% (360), and is used as an alternative to clinical treatment on many occasions, not only because of cost, also because of unavailability of medicine. The first step in TR, 19,8% (142) does not show a relationship with perceived morbidity. As indicated by the Clinical Officer, the acquired treatment is often an insufficient dosage or not completed because the symptoms subside, and occasionally applied undiagnosed. The other risk is that advice from commercial suppliers is not necessarily professional and may not be bio-medically indicated or motivated.

Table 34. Distribution of Social Econ. Status over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate | |
|---|---|---|---|---|---|---|---|---|
| Soc. Econ. Status | N | % | N | % | N | % | total | prop |
| very poor | 26 | 55,3% | 3 | 6,4% | 18 | 38,3% | 47 | 6,6% |
| Poor | 133 | 48,9% | 66 | 24,3% | 73 | 26,8% | 272 | 38,0% |
| Average | 131 | 34,3% | 84 | 22,0% | 167 | 43,7% | 382 | 53,4% |
| Rich | 7 | 77,8% | 0 | 0,0% | 2 | 22,2% | 9 | 1,3% |
| no reg. | 1 | 20,0% | 1 | 20,0% | 3 | 60,0% | 5 | 0,7% |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 | 100,0% |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,157*
*Source:* Fieldwork data 2016

The variable Social Economic Status (SES) is not compiled from the household attributes but evolves from the assessment of the research team members during the survey. Although there is some extrapolation visible, it does not show a distinct preference, while 55,3% (26) of very poor and 48,9% (133) of poor people use TM, there is no such counterbalance among MM use. The highest cell count there is 167 for TR, qualified as 'average' on SES. Notably 7 out of 9 rich people used TM. In perspective, the value of Cramer's V is above the threshold with 0,157.

Table 35. Distribution of Environmentally Friendly over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | util. rate |
|---|---|---|---|---|---|---|---|
| Environm. Friendly | N | % | N | % | N | % | total |
| Traditional med | 199 | 46,7% | 72 | 16,9% | 155 | 36,4% | 426 |
| Modern med | 76 | 34,4% | 54 | 24,4% | 91 | 41,2% | 221 |
| Transitional med | 22 | 44,0% | 15 | 30,0% | 13 | 26,0% | 50 |
| no reg. | 1 | 5,6% | 13 | 72,2% | 4 | 22,2% | 18 |
| | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,174*
*Source:* Fieldwork data 2016

Environmentally Friendly (ENV) was to establish whether the users consider the defined medical system as environmentally friendly. It is noticeable that TM receives a high score 59,6% (426) among users of both traditional and modern systems, almost double of MM 30,9% (221). The qualitative research indicates that home remedies growing near the residence are considered a decisive factor for favouring TM as a first line of treatment. Although it are the TM professionals who actually search or nurse specific species, respondents indicate that the availability of some known species is diminishing because of agriculture, random use, and commercialisation. In Table 36 the initial step shows that the prime morbidity malaria is often addressed by self-treatment, next to being diagnosed in a facility. It also indicates that convulsions are primarily directed towards TM, although they do often end up with MM in a next phase. It is remarkable that Urinary Tract Infection (UTI) is also addressed with TM, because of its implications without proper diagnosis, ranking as the second highest morbidity in the district. Category 'Other' was designed to keep the number below fifteen as is advised in statistical manuals to avoid distortion in multiple regression analyses i.c. OVERALS (*cf.* Meulman & Heiser 2010).

Table 36. Distribution of Perceived Morbidity over Plural Medical System Utilisation (N=715).

| | TM | | TR | | MM | | cum. | Perc |
|---|---|---|---|---|---|---|---|---|
| Perc. Morbidity | N | % | N | % | N | % | N | % |
| Malaria | 20 | 10,4% | 74 | 38,5% | 98 | 51,0% | 192 | 26,9% |
| UTI | 44 | 69,8% | 6 | 9,5% | 13 | 20,6% | 63 | 8,8% |
| Abdominal pains | 37 | 58,7% | 10 | 15,9% | 16 | 25,4% | 63 | 8,8% |
| Amoeba | 22 | 55,0% | 0 | 0,0% | 18 | 45,0% | 40 | 5,6% |
| Headache | 5 | 20,8% | 13 | 54,2% | 6 | 25,0% | 24 | 3,4% |
| Eye problems | 12 | 50,0% | 6 | 25,0% | 6 | 25,0% | 24 | 3,4% |
| Cough | 6 | 27,3% | 8 | 36,4% | 8 | 36,4% | 22 | 3,1% |
| Chest pain | 9 | 45,0% | 4 | 20,0% | 7 | 35,0% | 20 | 2,8% |
| Convulsions | 12 | 66,7% | 0 | 0,0% | 6 | 33,3% | 18 | 2,5% |
| Diarrhoea | 5 | 33,3% | 4 | 26,7% | 6 | 40,0% | 15 | 2,1% |
| Leg problem | 12 | 80,0% | 0 | 0,0% | 3 | 20,0% | 15 | 2,1% |
| Skin problems | 10 | 66,7% | 1 | 6,7% | 4 | 26,7% | 15 | 2,1% |
| Fever | 2 | 18,2% | 7 | 63,6% | 2 | 18,2% | 11 | 1,5% |
| Pneumonia | 5 | 50,0% | 1 | 10,0% | 4 | 40,0% | 10 | 1,4% |
| Other | 97 | 53,0% | 20 | 10,9% | 66 | 36,1% | 183 | 25,6% |
| utilisation rate | 298 | 41,7% | 154 | 21,5% | 263 | 36,8% | 715 | 100,0% |

*Pearson $\chi^2$ = 0,000 Cramer's V = 0,36*
*Source:* Fieldwork data 2016

To show the utilisation steps broken down to the solicited facilities which were actually used within the description of that specific medical system. Table 37 is designed to show the frequency per facility, ranked by the most voluminous and leaving the non-applicable rows blank. The scores are based on the total of 715 steps and are not calculated for correlation because the table was constructed from the underlying frequency tables.

Table 37. Facilities Utilised Consecutively per Medical System (N=715)

| | TM | TR | MM | Cum | Perc. |
|---|---|---|---|---|---|
| Home remedies | 196 | 0 | 0 | 196 | 27,4% |
| Pharmacy / Market seller | 0 | 135 | 0 | 135 | 18,9% |
| Doctor (Hosp.) | 0 | 0 | 109 | 109 | 15,2% |
| Village Health Worker | 0 | 0 | 102 | 102 | 14,3% |
| Herbalist / TBA | 86 | 0 | 0 | 86 | 12,0% |
| Clinical Officer (Disp.) | 0 | 0 | 52 | 52 | 7,3% |
| Street seller | 0 | 19 | 0 | 19 | 2,7% |
| Spiritual healer | 12 | 0 | 0 | 12 | 1,7% |
| Bone setter | 3 | 0 | 0 | 3 | 0,4% |
| TBA | 1 | 0 | 0 | 1 | 0,1% |
| Utilisation rate | 298 | 154 | 263 | 715 | 100,0% |

*Source:* Fieldwork data 2016

It was established already during the pilot study in Natta and Mugumu that most action patients try their own resources first by applying home remedies (TM); consequently, it scores high, followed by self-treatment with Transitional Medicine (TR). In the total utilisation pattern, the facilities of TM are utilised more frequently than MM overall, and related to the perceived morbidity ultimately.

Table 38. Consecutive Steps Across the Plural Medical System (N=715)

| | TM | | TR | | MM | |
|---|---|---|---|---|---|---|
| Traditional Med. Syst. | 181 | 60,7%. | 22 | 14,3% | 93 | 35,4% |
| Transitional Med. Syst. | 22 | 7,4% | 114 | 74,0% | 19 | 7,2% |
| Modern Med. Syst. | 95 | 31,9% | 18 | 11,7% | 151 | 57,4%. |
| Utilisation rates | 298 | 100,0% | 154 | 100,0% | 263 | 100,0% |

*Source:* Fieldwork data 2016

The cross-over between systems (*cf.* Table 15) appears balanced on both sides between TM and MM, as 35,4% (93) of MM users have also made use of a TM therapy as one of their consecutive steps, and 31,9% (95) vice versa. Repetitive steps *within* systems also occur, registered as 9 times within the TM users, and 16 times within MM, taking the multi-level referral system into account. These instances appear among longer running or chronic diseases, as patients were not satisfied with the result, indicating the re-occurrence of the symptoms as "weakness of the medicine", or "the doctors cannot cure this disease" applying new connotations following their individual experience.

Table 39. Independent Variables Included in the Mutual Relations Analysis (figure 5)

| | Variable Label | Type | Chi Sq. | Cramer V | Block | Quest. nr | Categories |
|---|---|---|---|---|---|---|---|
| 1 | Clinical Diagnose | nominal | 0,00 | 0,363 | 4 | 4.4 | 3 |
| 2 | Perceived Morbidity | nominal | 0,00 | 0,362 | 4 | 4.1 | 15 |
| 3 | Socially Acceptable | nominal | 0,00 | 0,216 | 5 | 5.1 | 6 |
| 4 | Treatment Advice | nominal | 0,00 | 0,215 | 2 | 2.14 | 11 |
| 5 | Source of Knowledge | nominal | 0,00 | 0,207 | 2 | 2.13 | 12 |
| 6 | Land owned | ordinal | 0,00 | 0,198 | 1 | 0.5 | 5 |
| 7 | Availability of TM | ordinal | 0,00 | 0,194 | 5 | 5.3 | 5 |
| 8 | Availability of MM | ordinal | 0,00 | 0,193 | 5 | 5.7 | 6 |
| 9 | Opinion on TM | ordinal | 0,00 | 0,181 | 2 | 2.2 | 4 |
| 10 | Economic Efficient | nominal | 0,00 | 0,176 | 5 | 5.2 | 4 |
| 11 | Cost of TM | ordinal | 0,00 | 0,176 | 3 | 3.3 | 4 |
| 12 | Environm. Friendly | nominal | 0,00 | 0,174 | 5 | 5.0 | 4 |
| 13 | Belief in TM | ordinal | 0,00 | 0,172 | 2 | 2.3 | 4 |
| 14 | Duration of Illness | ordinal | 0,00 | 0,171 | 4 | 4.2 | 7 |
| 15 | Media use | ordinal | 0,00 | 0,171 | 1 | 0.11 | 7 |
| 16 | Cost of TR | ordinal | 0,00 | 0,157 | 3 | 3.4 | 4 |
| 17 | Cost of Transport TM | ordinal | 0,00 | 0,154 | 3 | 3.2 | 4 |
| 18 | Cattle owned | ordinal | 0,00 | 0,153 | 1 | 0.8 | 4 |
| 19 | Social Econ. Status | ordinal | 0,00 | 0,152 | 3 | 3.8 | 4 |

*Source*: Fieldwork data 2016

The nine blocks representing the independent, intervening and dependent variables were reduced through the bivariate analysis as shown in the preceding paragraph in cross tables with the utilisation per medical system. The variables whose correlation proved significant using two thresholds, Pearson's Chi-Square (<0,001) and Cramer's V (0,150>) provide the parameters of which variables are included in the multiple regression procedure (*cf.* Table 39)

The indicator 'Cats' refers to the number of categories which determine the scale of the variable, whether nominal or ordinal. In the guidelines on the use of OVERALS the literature advises to limit the number of categories as much as possible (<15) as it may influence the outcome of the analysis (*cf.* Van der Burg *et al.* 1988; Meulman & Heiser 2010).

To achieve such reduction, the perceived morbidity variable for example received a 'rest category' for the morbidity frequencies below 10. All other variables were similarly reduced to the minimum number of categories possible, to enhance the discriminating capabilities of the analysis method. In Figure 5 the selection of variables and their respective values, are placed in the blocks of independent and dependent factors underlying the utilisation process. It also shows that from the original nine blocks of factors, block number six, the intervening variables, did not attain sufficient correlations to be included in the multivariate analysis.

The results in the five independent blocks and the utilisation represented by the three blocks of dependent variables come to together in the final multiple regression stage. From the socio-demographic factors, the area of land owned, the number of cattle owned, and the number of modern media in use are retained. From the Pyscho-Social factors, who is consulted for treatment advice, the source of knowledge, the belief in TM and the opinion on the efficacy of TM are retained. From the enabling factors the cost of TM and TR, as well as the cost of transport to TM, and Social Economic Status are retained. From the fourth block, perceived morbidity, duration of disease and the external diagnosis by a third party are retained. From the Institutional factors, the availability of modern and transitional medicine, along with the opinion on environmental effects, social acceptability and economic efficiency on all available medical systems are retained.

### 7.2.1 Preliminary Relationship Analysis: CHAID

Chi-square Automatic Interaction Detection (CHAID) [33], (Kass 1980) is a decision tree technique, based on adjusted significance testing (Bonferroni testing). In practice, CHAID is used in to select groups of respondents and predict how their responses to some variables affect other variables; early applications were in the field of medical and psychiatric research. Similar to other decision trees, CHAID's advantages are that its output is highly visual and easy to interpret. Because it uses multiway splits by default, it needs rather large sample sizes to work effectively; in small sample sizes, the respondent groups can become too small for reliable analysis (*cf.* Schuurman 2014). The CHAID is run as a parallel analysis between these variables, purposely to compare with the outcome of bivariate as well as the Non-Linear Canonical Correlation Analysis, as is advised in the statistical literature consulted, by Van der Burg *et al.* (1988), Bijleveld (1993,1989), Dijksterhuis & Van Trijp (1995) Vogelesang (2000), to detect multicollinearity. In this case, the plural medical system utilisation (SYSTEM) is designated as the dependent variable (see Figure 6). The analysis shows the variables which are predicted to have the highest interaction, in this case respectively: whether the illness was clinically diagnosed (DIAGN), the perceived morbidity (PRCMRB), and the type of people who were consulted for treatment advice (ADVICE), and the knowledge regarding TR (var.

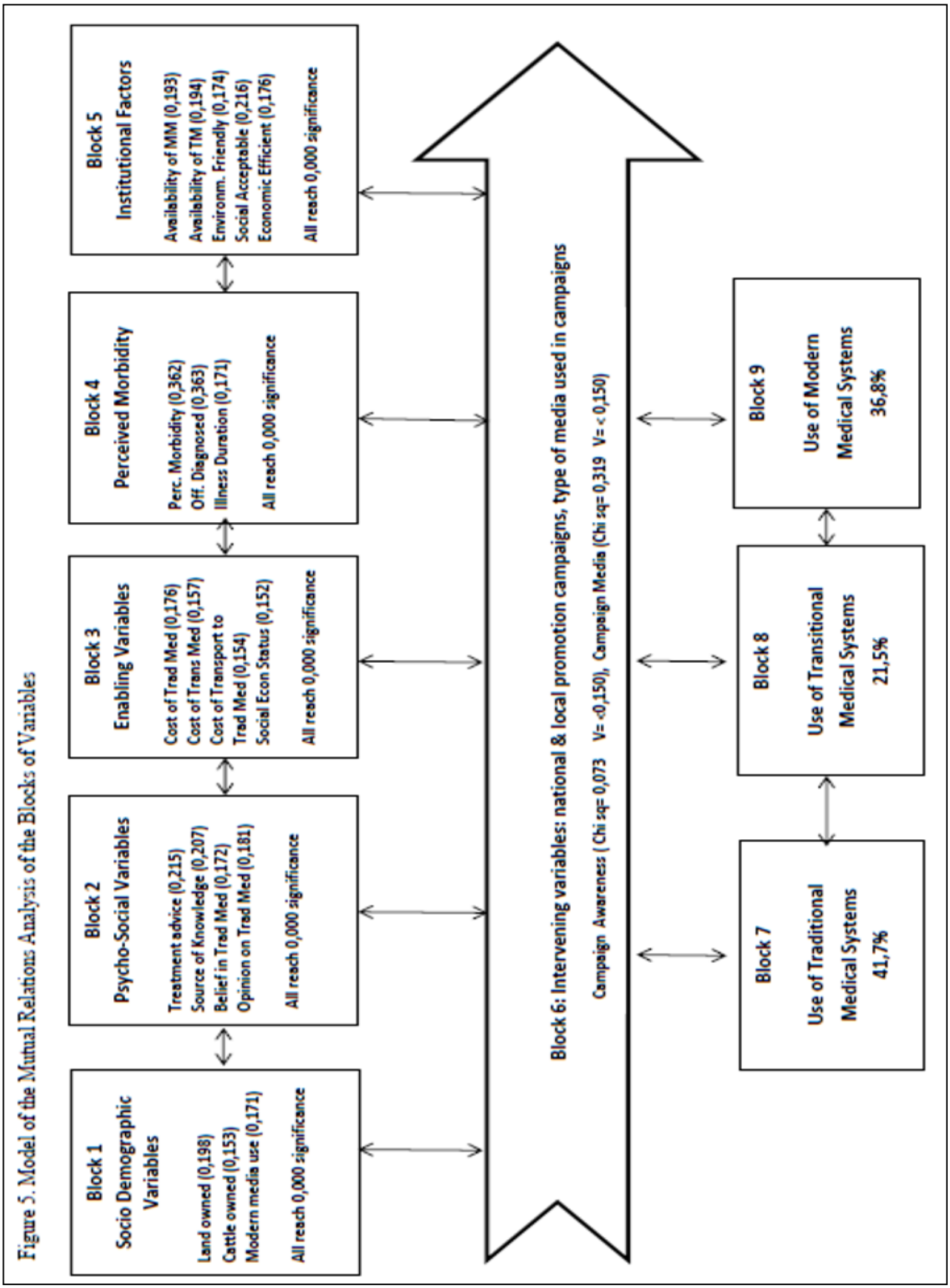
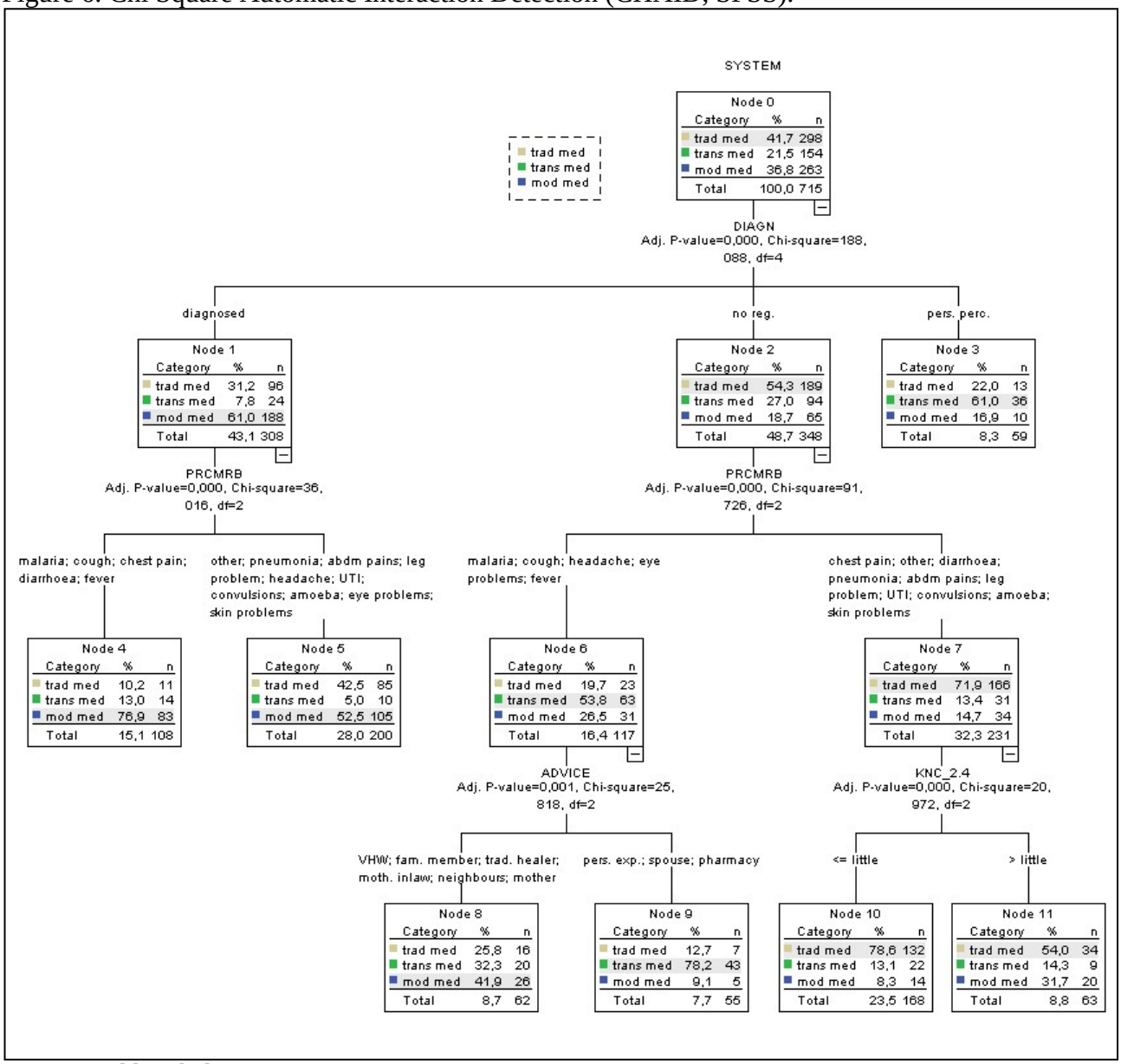



Figure 5. Model of the Mutual Relations Analysis of the Blocks of Variables

KNC_2.4) as are all mentioned under 'Independent Variables Included' in the SPSS output. Three variables mentioned here are consistent with and within the first five identified through bivariate analysis, except for Knowledge of Transitional Medicine. In this approach it shows that of those people who were officially diagnosed, the majority used MM with the morbidities which were involved. Those who were not officially diagnosed however used TM for the specified morbidities indicated and followed through with TR and MM depending on the advice from acquaintances. The influence of the Village Health Worker (VHW) tends towards MM, and both personal experience and advice from a spouse or other family members lead to use of TR. These findings are consistent with the results of the OVERALS procedure.

Figure 6. Chi Square Automatic Interaction Detection (CHAID, SPSS).




*Source:* Fieldwork data 2016

## 7.3 Non-Linear Canonical Correlation Analysis: OVERALS

The OVERALS (see also 3.5.2) procedure is part of the SPSS data reduction options called 'Optimal Scaling', and it allows for variables in the same analysis to have different measurement levels in terms of nominal, ordinal or interval. The essence of this approach is that it becomes possible to combine phenomena which cannot be measured on the same level, as in categories which reflect a ranking, or classifications with intrinsic or semantic differences, typical for ethnoscience research, within one and the same procedure (*cf.* Vogelesang 2000). There can be more than two sets of variables as in independent and dependent, and it is instrumental towards finding the ultimate correlations between the sets. The distinction between this method and ordinary multiple regression is in the character of the relationship, which is carried from 'many to one' over to 'many to many', showing various ways in which independent sets can be related to the dependent ones.

The term 'Optimal Scaling' refers to the quantifications of categories of a variable; reducing them either through recoding or conversion, to a minimum number, without loss of information, and then apply them as numerical variables, necessarily as integers (*no zero values*). The so-called non-linear transformations are capable of producing the best 'fit' for the model, which, reversely, is also indicated by the amount of 'loss' implied in the SPSS procedure's Summary of Analysis (*cf.* Table 40). It is emphasised that the method determines relationships between sets, not between variables unless one set would consist of only one variable. The technique is especially suitable to leave the role of ordinal variables intact because of the optimal scaling component (*cf.* Dijksterhuis *et al.* 1995). A score three is higher than two, but it does not imply that the difference in value needs to be larger than the difference between five and six on a seven scale. [32]. The '*Eigenvalue*' is calculated by one (1) minus the average loss, the sum over 2 dimensions is 1,213 (*cf.* Table 40) which indicates how much of the relationship is demonstrated in each dimension, or, alternately put, the proportion of variance accounted for by the weighted combination of variables in the set. The *Eigenvalues* add up to the total fit (0,787). Following this explanation from the abovementioned manual, it means that 0,412 / 0,787 = 52,4% of the actual fit is accounted for by the first dimension, verified by the loss (0,625) being higher in the second. A total fit would theoretically run up to 1 per dimension. Table 40 represents an SPSS output file, showing the following values:

Table 40. Summary of Analysis (SPSS output)

| Sets | Dimension 1 | Dimension 2 | Sum |
|---|---|---|---|
| Socio-Demographic | 0,582 | 0,653 | 1,235 |
| Psycho-Social | 0,273 | 0,431 | 0,705 |
| Enabling variables | 0,44 | 0,493 | 0,934 |
| Perceived Morbidity | 0,619 | 0,579 | 1.198 |
| Institutional variables | 0,24 | 0,292 | 0,531 |
| Use of Trad. Med. System | 0,651 | 1 | 1,650 |
| Use of Trans. Med. System | 0,9 | 0,852 | 1,752 |
| Use of Modern Med. System | 1 | 0,702 | 1,702 |
| Average Loss | 0,588 | 0,625 | 1,213 |
| Eigenvalue | 0,412 | 0,375 | 0,787 |
| Accounts for Fit | 52,4% | 47,6% | 100% |

*Source:* Fieldwork data 2016

The component loadings of all 22 variables are listed in Table 41. Since the variables are listed here by their original survey order, the highest values per dimension have been put in a separate ranking to enable an overview of the values with the highest impact. As thresholds for the ranking of these listed loadings the norms are between 0,3 and 0,5 for 'moderate', and above 0,5 for 'strong'.

Table 41. Component Loadings of the Sets of Variables in Two Dimensions (OVERALS).

| Independent | Variables | Var. label meaning | | | dimension 1 | dimension 2 |
|---|---|---|---|---|---|---|
| Socio-demogr. | OWN_0.5 a,b | *land ownership* | | | 0,489 | -0,260 |
| variables | CAT_0.8 a,b | *livestock ownership* | | | 0,067 | 0,132 |
| | MEDIA c,d | *modern media use* | Dimension | 1 | 0,204 | -0,285 |
| | | | | 2 | -0,093 | 0,543 |
| Psycho-social | ADVICE c,d | *treatment advice* | Dimension | 1 | 0,372 | -0,355 |
| variables | | | | 2 | 0,216 | 0,562 |
| | SOURCE c,d | *source of knowledge* | Dimension | 1 | 0,411 | -0,301 |
| | | | | 2 | 0,271 | 0,469 |
| | OPT_2.2 a,b | *opinion on TM* | | | 0,735 | 0,119 |
| | BET_2.3 a,b | *belief in TM* | | | 0,750 | 0,252 |
| Enabling | CTM_3.2 a,b | *cost of TM* | | | 0,703 | -0,344 |
| variables | CSM_3.4 a,b | *cost of Trans Med* | | | -0,090 | -0,462 |
| | TTM_3.3 a,b | *cost of Trans TM* | | | 0,644 | -0,388 |
| | SES_3.8 a,b | *soc. Econ. Status* | | | -0,120 | 0,473 |
| Perceived | DIAGN c,d | *officially diagnosed* | Dimension | 1 | 0,051 | -0,251 |
| morbidity | | | | 2 | -0,165 | 0,520 |
| | DUR a,b | *duration of Illness* | | | 0,165 | -0,289 |
| | PRCMRB c,d | *perceived Morbidity* | Dimension | 1 | 0,587 | 0,072 |
| | | | | 2 | 0,347 | 0,214 |
| Institutional | ENV_5.0 c,d | *environm. friendly* | Dimension | 1 | 0,363 | 0,040 |
| factors | | | | 2 | 0,282 | 0,168 |
| | SOC_5.1 c,d | *socially Acceptable* | Dimension | 1 | 0,311 | -0,411 |
| | | | | 2 | -0,009 | 0,772 |
| | ECE_5.2 c,d | *econ. Efficient* | Dimension | 1 | 0,510 | 0,133 |
| | | | | 2 | 0,332 | 0,336 |
| | ATM a,b | *availability of TM* | | | -0,645 | 0,265 |
| | AMM a,b | *availability of MM* | | | 0,514 | -0,285 |
| Dependent | | | | | | |
| Trad med | TM_USE b,e | *use of TM* | | | 0,591 | 0,020 |
| Trans med | TR_USE b,e | *use of TR* | | | -0,316 | -0,385 |
| Modern med | MM_USE b,e | *use of MM* | | | -0,015 | -0,546 |

*a: ordinal scaling level, b: single quantified, c: nominal scaling level, d: multiple quantified, e: single nominal (source: Version 17-3.spv)*
*Source:* Fieldwork data 2016

From the table the strongest values in dimension 1 can be identified and put in a ranking. A total of fifteen variables are distilled, of which six are considered 'moderate' (0.3> <0.5) and nine are considered 'strong' (0.5>), one showing negative value, availability of TM. The ranking is shown below with the variable labels written out fully for a better understanding:

| On dimension 1: | value | block | label |
|---|---|---|---|
| 1. BET_2.3 a,b | 0,750 | 2 | Belief in Traditional Med. |
| 2. OPT_2.2 a,b | 0,735 | 2 | Opinion on Traditional Med. |
| 3. CTM_3.2 a,b | 0,703 | 3 | Cost of Traditional Med. |
| 4. ATM a,b | -0,645 | 5 | Availability of Traditional Med. |
| 5. TTM_3.3 a,b | 0,644 | 3 | Cost of transport to Traditional Med. |
| 6. TM_USE a,b | 0,591 | 7 | The use of Traditional Med. |
| 7. PRCMRB c,d | 0,587 | 4 | Perceived Morbidity |
| 8. AMM a,b | 0,514 | 5 | Availability of Modern Med. |
| 9. ECE_5.2 c,d | 0,510 | 5 | Economically efficient |
| 10. OWN_0.5A a,b | 0,489 | 1 | Land ownership |
| 11. SOURCE c,d | 0,411 | 2 | Source of Knowledge |
| 12. ADVICE c,d | 0,372 | 2 | Consult advice for treatment |
| 13. ENV_5.0 c,d | 0,363 | 5 | Environmentally friendly |
| 14. TR_USE a,b | 0,316 | 7 | Use of Transitional Med. |
| 15. SOC_5.1 c,d | 0,311 | 5 | Socially acceptable |

In the second dimension there are thirteen variables of which eight score 'moderate' ( 0.3 to 0.5) and five score 'strong' (0.5 and up). Three show negative values, the use of Modern Medicine and Social Economic Status, and cost of TM.

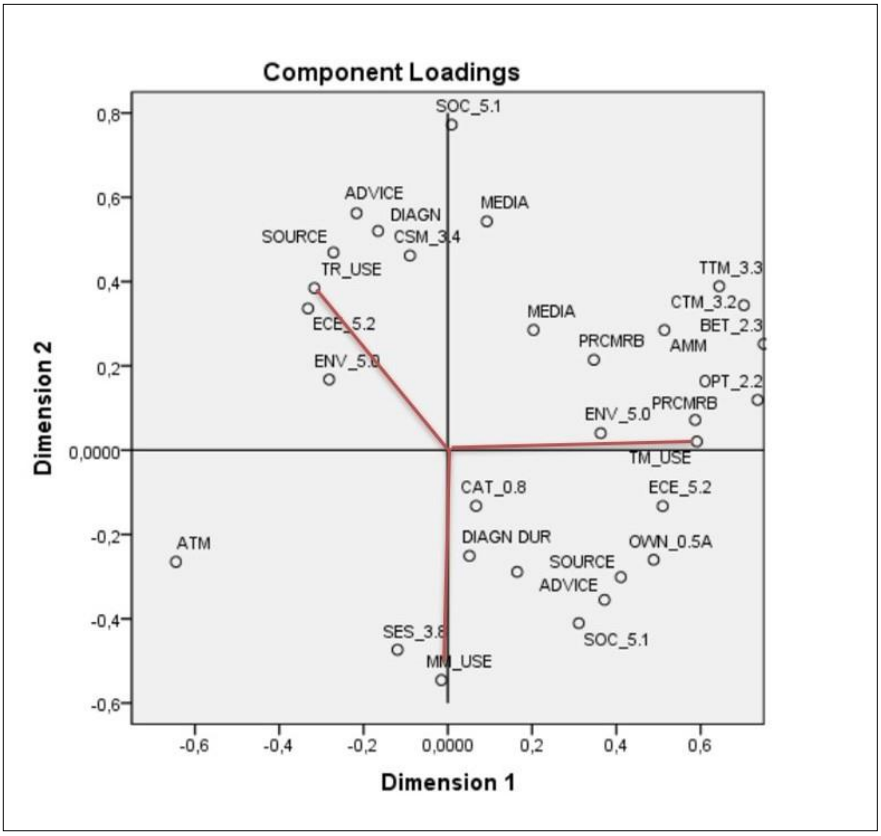
| On dimension 2: | value | block | label |
|---|---|---|---|
| 1. SOC_5.1 c,d | 0,772 | 5 | Socially acceptable |
| 2. ADVICE c,d | 0,562 | 2 | Consult advice for treatment |
| 3. MM_USE a,b | -0,546 | 9 | Use of Modern Med. |
| 4. MEDIA c,d | 0,543 | 1 | Use of modern media |
| 5. DIAGN c,d | 0,520 | 4 | Externally diagnosed |
| 6. SES_3.8 a,b | -0,474 | 3 | Social Economic Status |
| 7. SOURCE c,d | 0,469 | 2 | Source of knowledge |
| 8. CSM_3.4 a,b | 0,462 | 3 | Cost of Transitional Med. |
| 9. TTM_3.3 a,b | 0,389 | 3 | Cost of transport to Trad. Med. |
| 10. TR_USE a,b | 0,385 | 8 | Use of Transitional Med. |
| 11. PRCMRB c,d | 0,347 | 4 | Perceived Morbidity |
| 12. CTM_3.2 a,b | -0,344 | 3 | Cost of Traditional Med. |
| 13. ECE_5.2 c,d | 0,336 | 5 | Economically efficient |

Apart from PRCMRB – perceived morbidity, the variables which carry a sufficient values in both dimensions appear to be ADVICE - consult advice for treatment, SOC - socially acceptable, SOURCE - source of knowledge, CTM – cost of Traditional Medicine, TTM – cost of transport to

Traditional Medicine, and ECE - economically efficient. For the dependent variables it is the use of Transitional Medicine. It is apparent that from the dependent variables TM_USE is dominant in the first dimension, followed by TR_USE with a moderate value, whereas MM_USE is up in the second dimension, followed again by TR_USE, again with a moderate value. When referring to the bivariate analysis, it is apparent that the variables which are most discriminate are consistent with their appearance in the first and the second dimension, although incidentally in a reversed order. The variable DIAGN – the morbidity was clinically diagnosed, is highest in the bivariate analysis, and appears here in only the second dimension with a strong value, most probably for its relationship with MM_USE – use of Modern Medicine, ranking third with a strong negative value.

In Figure 7 [34] it is apparent that the combination of BET, CTM and TTM have the highest values in both dimensions, indicating that the belief, cost and cost of transport (*accessibility*) of Traditional Medicine form strong coherent motives, closely related to perceived morbidity (PRCMRB). The variables closest to the use of Modern Medicine are labelled SES - social economic status and SOC - social acceptability of the system utilisation. Opposite in dimension 2 TR_USE - use of Transitional Medicine, has the highest proximity to ECE - economic efficiency and ENV - environmentally friendly, but SOURCE, ADVICE and DIAGN are in the same cluster.

Figure 7. Component Loadings of Variables of Medical System Utilisation.




The use of transitional medicine (TR), in the qualitative analysis, appears to be influenced by subjective motives, as self-medication and buying over the counter drugs (OTC) is strongly related to the exchange of individual opinions on efficacy of widely available commercial products. This phenomenon is supported by the frequently reported drug shortages at modern facilities which is

said to lead people to purchase privately as a necessary alternative. Moreover, the sequence of undergoing a test at a private (commercial) laboratory and subsequently following the advice to purchase drugs privately is a common feature in Serengeti. It is perceived as more efficient, less costly and less time consuming, than visiting a clinic or hospital. Overall the correlations perceived in connection to the consecutive plural medical systems utilisation show a distinction with regard to the contextual motives. As established, Traditional Medicine (TM) appears to be carried by the combination of belief, opinion and cost. In the qualitative research, this is supported by accessibility *i.e.* proximity to domestic environment, and preparation of home remedies with no cost involved. Another aspect is that TM healers are incidentally considered expensive as well, because of additional requirements of donations in kind next to the actual bill, so it becomes more expensive than a hospital visit. If a healer is regarded an expert in a specific disease it may involve extensive travelling at extra cost. Next to these aspects, an emphasis on rural settings comes into view because here both land ownership and cattle ownership show up in the same cluster with TM use.

Having said that, it must be recollected that TM is simultaneously commercialising, appearing in urban settings as well, now offering a variety of treatments, complete with advertisement, media exposure and ready-made products in large quantities. The utilisation of the Modern Medical system provides associations with Social Economic Status and social acceptability. Secondly these appear to have an association with a clinical diagnosis, the duration of the illness, and the advice for treatment. These aspects are demonstrated in both the bivariate and the qualitative analysis, where it is established that the use of the Modern Medicine is associated with socially desirable behaviour, and there is a stigmatisation of TM use in religious circles. Secondly the duration of illness has an ambivalent effect, as unsatisfactory TM treatment leads to reverting to a hospital, but the opposite also happens with reoccurring symptoms from chronic diseases, be it with a lower frequency.

### 7.3.1 Multiple Regression Analysis

In this stage of the analysis the focus is not at the individual variables but on the relationships between the dominant variables within the various blocks of the model. The formula used to calculate the multiple correlation coefficient (*Pd)* for two blocks of variables is *Pd = 2 x Ed-1*, meaning twice the '*Eigenvalue*' (*d*=dimension) minus one (*cf.* Van der Burg *et al.* 1988; Meulman & Heiser 2010). For this step the variables whose correlations are significant are each entered each into a block by block OVERALS analysis to establish the dominant factors in health care utilisation in the research model (*cf.* Figure 8).

The variables shown in Table 42 below are listed on their component loadings out of the block by block analysis, on the left for dimension 1 and on the right for dimension 2. Apart from MEDIA – media use, i.e. number of modern media in use by the household, the highest scores involving personal interaction are ADVICE – for treatment, and SOURCE – of knowledge. They indicate that the influence in both dimensions is dominated by whom is consulted for treatment, and who is the source of knowledge on the cause of a disease. In both spheres the family relationships appear dominant, with a bias towards the female family members and the elders. The exception here is the Village Health Worker who is the only one being consulted on a professional basis, although being a volunteer, but it is an indication that the social proximity of that person to the community is an important element. The strongest relationships in the overall ranking are between DIAGN – officially diagnosed, and MM_USE which is expected, as most formal test based diagnoses stem

from the modern system. The second highest is between PRCMRB – perceived morbidity, and TM_USE which indicates that the classification of the type of morbidity is related to the type of traditional treatment which is being opted. That is emphasised further when looking at the values of ATM - availability of TM and BET - belief in TM, as they are singled out in the relationship between block 2 and 5, both receiving a 0,9+ value. These indicators are complemented for the same blocks in the second dimension with ADVICE – treatment consult, and SOC – social acceptability of the utilised medical system, which together deliver a coherent outcome, indicating that socio-cultural context related variables are ultimately dominant.

Table 42. Strongest Correlating Variables Among Blocks in Two Dimensions (OVERALS).

| Analysis | Two strongest correlations dimension 1 | | | | Two strongest correlations dimension 2 | | | |
|---|---|---|---|---|---|---|---|---|
| Blocks | Name | Value | Name | Value | Name | Value | Name | Value |
| 1 < > 2 | MEDIA | 0,702 | ADVICE | 0,643 | MEDIA | 0,760 | SOURCE | 0,505 |
| 1 < > 3 | SES | -0,817 | MEDIA | 0,729 | TTM | 0,745 | CTM | 0,657 |
| 1 < > 4 | OWN | -0,669 | CAT | -0,586 | MEDIA | 0,710 | PRCMRB | 0,594 |
| 1 < > 5 | SOC | 0,648 | OWN | -0,528 | MEDIA | 0,784 | SOC | 0,759 |
| 1 < > 7 | TM_USE | 0,789 | OWN | 0,498 | n.a | 0,000 | n.a. | 0,000 |
| 1 < > 8 | TR_USE | -0,801 | MEDIA | 0,610 | n.a | 0,000 | n.a. | 0,000 |
| 1 < > 9 | MM_USE | 0,782 | MEDIA | 0,712 | n.a | 0,000 | n.a. | 0,000 |
| 2 < > 3 | CTM | -0,819 | BET | -0,804 | ADVICE | 0,659 | CSM | 0,589 |
| 2 < > 4 | PRCMRB | 0,606 | ADVICE* | 0,555 | PRCMRB | 0,683 | ADVICE | 0,564 |
| 2 < > 5 | ATM | -0,938 | BET | 0,903 | ADVICE | 0,826 | SOC | 0,765 |
| 2 < > 7 | TM_USE | 0,838 | OPT | 0,676 | n.a | 0,000 | n.a. | 0,000 |
| 2 < > 8 | TR_USE | -0,818 | ADVICE | 0,693 | n.a | 0,000 | n.a. | 0,000 |
| 2 < > 9 | MM use | 0,818 | SOURCE# | 0,496 | n.a | 0,000 | n.a. | 0,000 |
| 3 < > 4 | TTM | 0,689 | PRCMRB | 0,604 | DIAGN | 0,609 | SES | -0,454 |
| 3 < > 5 | TTM | 0,887 | CTM | 0,859 | SOC | 0,801 | CSM | 0,561 |
| 3 < > 7 | TM_USE | 0,802 | CTM | 0,718 | n.a | 0,000 | n.a. | 0,000 |
| 3 < > 8 | TR_USE | 0,758 | SES | 0,541 | n.a | 0,000 | n.a. | 0,000 |
| 3 < > 9 | MM_USE | -0,794 | CTM | 0,598 | n.a | 0,000 | n.a. | 0,000 |
| 4 < > 5 | SOC | 0,733 | PRCMRB | 0,582 | PRCMRB | 0,684 | ATM | -0,491 |
| 4 < > 7 | TM_USE | 0,894 | PRCMRB | 0,877 | n.a | 0,000 | n.a. | 0,000 |
| 4 < > 8 | TR_USE | 0,856 | PRCMRBˆ | 0,641 | n.a | 0,000 | n.a. | 0,000 |
| 4 < > 9 | MM_USE | 0,912 | DIAGN | 0,871 | n.a | 0,000 | n.a. | 0,000 |
| 5 < > 7 | TM_USE | 0,827 | SOC | 0,601 | n.a | 0,000 | n.a. | 0,000 |
| 5 < > 8 | TR_USE | -0,821 | ECE” | 0,460 | n.a | 0,000 | n.a. | 0,000 |
| 5 < > 9 | MM_USE | -0,816 | SOC | 0,693 | n.a | 0,000 | n.a. | 0,000 |

*N.B.: The table and ranking is composed from the SPSS analysis output per set of two blocks.*
*Source:* Fieldwork data 2016

Referring to the bivariate analysis, the only variable deviant in this listing is MEDIA, a multiple nominal indicator, later recoded to an ordinal variable. It was found to relate to MM utilisation by the people with a SES above 'average', using multiple modern media.

The correlation coefficient formula introduced earlier leads to a ranking of the strength of their relationships as is demonstrated in Table 43 below and the subsequent Figure 8 which illustrates the relationships between the blocks in their entirety in one overview following the original conceptual research model.

As explained earlier in the SPSS methodological description, the sum of both '*Eigenvalues'* represents the total 'fit', which is the degree of variance accounted for by the outcome over two dimensions. The fit represents the maximum attained over the two dimensions, all values above 0,50 are sufficiently strong correlations.

Table 43. Multiple Correlation Coëfficients Between Blocks in the Model (Pd=2 x Ed – 1*).

| Blocks | dimension 1 | dimension 2 | Fit |
|---|---|---|---|
| 1 < > 2 | 2 x 0,817 – 1 = 0,628 | 2 x 0,804 – 1 = 0,608 | 1,621 |
| 1 < > 3 | 2 x 0,780 – 1 = 0,560 | 2 x 0,731 – 1 = 0,461 | 1,511 |
| 1 < > 4 | 2 x 0,677 – 1 = 0,353 | 2 x 0,656 – 1 = 0,312 | 1,333 |
| 1 < > 5 | 2 x 0,828 – 1 = 0,655 | 2 x 0,797 – 1 = 0,594 | 1,625 |
| 1 < > 7 | 2 x 0,636 – 1 = 0,272 | _ | 0,636 |
| 1 < > 8 | 2 x 0,641 – 1 = 0,282 | _ | 0,641 |
| 1 < > 9 | 2 x 0,612 – 1 = 0,233 | _ | 0,612 |
| 2 < > 3 | 2 x 0,872 – 1 = 0,744 | 2 x 0,804 – 1 = 0,608 | 1,676 |
| 2 < > 4 | 2 x 0,753 – 1 = 0,506 | 2 x 0,690 – 1 = 0,380 | 1,443 |
| 2 < > 5 | 2 x 0,931 – 1 = 0,862 | 2 x 0,913 -1 = 0,826 | 1,844 |
| 2 < > 7 | 2 x 0,703 – 1 = 0,406 | _ | 0,703 |
| 2 < > 8 | 2 x 0,668 -1 = 0,336 | _ | 0,668 |
| 2 < > 9 | 2 x 0,669 -1 = 0,338 | _ | 0,669 |
| 3 < > 4 | 2 x 0,692 – 1 = 0,383 | 2 x 0,656 – 1 = 0,311 | 1,348 |
| 3 < > 5 | 2 x 0,885 – 1 = 0,769 | 2 x 0,803 – 1 = 0,606 | 1,688 |
| 3 < > 7 | 2 x 0,643 – 1 = 0,285 | _ | 0,643 |
| 3 < > 8 | 2 x 0,573 – 1 = 0,146 | _ | 0,573 |
| 3 < > 9 | 2 x 0,630 – 1 = 0,259 | _ | 0,630 |
| 4 < > 5 | 2 x 0,763 – 1 = 0,525 | 2 x 0,721 – 1 = 0,441 | 1,484 |
| 4 < > 7 | 2 x 0,800 – 1 = 0,599 | _ | 0,800 |
| 4 < > 8 | 2 x 0,732 – 1 = 0,464 | _ | 0,732 |
| 4 < > 9 | 2 x 0,832 – 1 = 0,663 | _ | 0,832 |
| 5 < > 7 | 2 x 0,692 – 1 = 0,384 | _ | 0,692 |
| 5 < > 8 | 2 x 0,674 – 1 = 0,347 | _ | 0,674 |
| 5 < > 9 | 2 x 0,666 – 1 = 0,331 | _ | 0,666 |

*N.B. Blocks 7,8, and 9 received only values in one dimension.*

*Block 6 Intervening variables not included for not reaching significance threshold.*

## 7.4 Results of the Analysis and Interpretation of the Findings

The multivariate analysis of the variables identified in the bivariate session, shows that the highest 'fit', which represents the proportion of variance accounted for, is found in the first dimension of the canonical space, with 52,4%. The outcome is consistent as the most discriminate variables in the bivariate analysis also rank high in both dimensions in the multiple regression analysis.

The highest in dimension 1 (*cf.* Table 41) among the independent variables are BET Belief in traditional medicine, OPT Opinion on traditional medicine, CTM Cost of traditional medicine, all scoring above 0,7 followed by ATM Availability of traditional medicine and TTM Cost of transport to traditional medicine, all above 0,6. The clustering in Figure 7 shows the coherence between the related aspects of TM utilisation.Apart from perceived morbidity (PRCMRB) the independent variables which receive sufficient values in both dimensions are ADVICE who was consulted for advice for treatment, SOURCE who was the source of knowledge, SOC the treatment is socially acceptable, CTM, and TTM the cost and transport to traditional medicine, and ECE the treatment is economically efficient. The variable DIAGN clinically diagnosed only associates with MM. The source of knowledge regarding illness (SOURCE) is dominated by family members, 46% (N=715), which appears gender biased as the majority is female. The Village Health Worker (VHW) rates second as source of knowledge in the MM system utilisation and third overall. Considering the low impact of formal health education the consultation for treatment (ADVICE) with the VHW and the traditional healers proves substantial while not family related. The highest correlations (*cf.* Table 43) between blocks on the first dimension are:

- 0,862 between block 2 psycho-social and block 5 institutional factors
- 0,769 between block 3 enabling variables and block 5 institutional factors
- 0,744 between block 2 psycho-social and block 3 enabling factors
- 0,663 between block 4 perceived morbidity and block 9 use of Modern Medicine
- 0,655 between block 1 socio-demographic and block 5 institutional factors
- 0,628 between block 1 socio-demographic and block 2 psycho-social factors
- 0,599 between block 4 perceived morbidity and block 7 use of Traditional Medicine
- 0,560 between block 1 socio-demographic and block 3 enabling factors
- 0,525 between block 4 perceived morbidity and block 5 institutional factors
- 0,506 between block 2 psycho-social and block 4 perceived morbidity

The highest correlations on the second dimension include:

- 0,826 between block 2 psycho-social and block 5 institutional factors
- 0,608 between block 2 psycho-social and block 3 enabling factors
- 0,608 between block 1 socio-demographic and block 2 psycho-social factors
- 0,606 between block 3 enabling and block 5 institutional factors
- 0,594 between block 1 socio-demographic and block 5 institutional factors

Presenting the effect on the dependent variables, block 7, 8 and 9, *i.e.* the utilisation of the respective medical systems; the values are taken from Table 42 (variables per block) and Table 43

(blocks). The strongest relationship is between Block 4 Perceived Morbidity (PRCMRB), and block 9 the use of Modern Medicine with 0,663. In block 4 the strongest variable in the first dimension was DIAGN (0,871) with the use of Modern Medicine (0,912). The second strongest relationship between block 4 PRCMRB and block 7 the use of TM with 0,599. The strongest variable values were PRCMRB (0,877) and the use of TM (0,894). The relationship between block 4 and block 8 use of TR, was the lowest, which is acceptable since the reputation of over the counter drug brands and oral advice resulting from customer experience have a strong influence on self-medication.

From the other independent factors correlating with the dependent factors there is a relationship between block 2 Psycho-Social factors (0,406) and block 7, use of TM. That appears consistent with the value of OPT – opinion on TM (0,676) in block 2, and the use of TM (0,838) block 7, in the first dimension.

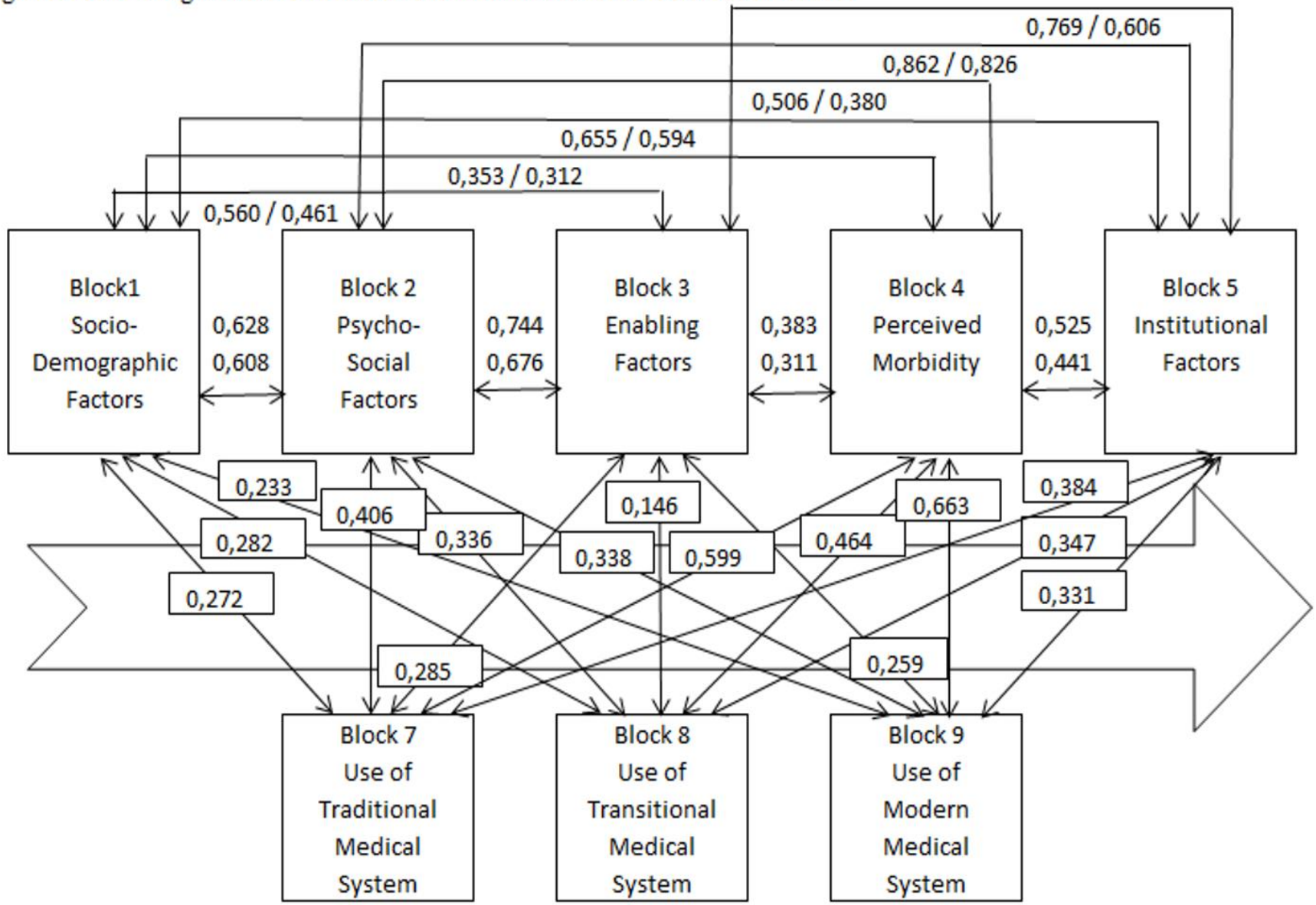
The other strong relationships are found horizontally between the blocks of independent factors. Block 2 Psycho-Social factors and Block 5 Institutional factors have the highest representation in the ranking (7x), followed by block 1 Socio-Demographic factors (5x), and block 3 Enabling factors and 4 Perceived Morbidity (4x) respectively. These frequencies to a large extent reflect the values of individual variables within the blocks.

The strongest relationship between blocks presented in Figure 8 is identified between block 2 Psycho-social factors and block 5 Institutional factors with 0,862 in dimension 1 and 0,826 in dimension 2. The next strongest relationship is between block 3 Enabling factors and block 5 Institutional factors with 0,769 in dimension 1 and 0,606 in dimension 2. That relationship is apparently determined by the combination of CTM - cost of TM, coupled with TTM – cost of transport to TM, and ATM – availability of TM. Referring to the qualitative data this underwrites the proximity in terms of TM in physical distance, the number of people who apply home remedies, acquired near their homestead, at a fraction of the cost.

In the individual variables between blocks (*cf.* Table 42) the availability of TM (ATM) receives the highest value with -0,938 connected to belief in TM (BET) with 0,903. Block 5 additionally shows social acceptability (SOC) of utilised system as strong, followed by the economically efficient (ECE) quality of the treatment. From block 2 the advice for treatment (ADVICE) and the source of knowledge (SOURCE) appear strong, as well as the belief (BET) and the opinion on TM (OPT). These relationships indicate that the influence of personal relationships within the community outrank pragmatic considerations. On the plane of socio-demographic factors, represented by block 1, there are three variables with sufficient values in the first dimension, being landownership, livestock ownership, and the use of modern media. The first one, landownership shows in a relationship with livestock and the use of TM in block 7, and with social acceptability in block 5.

It is established that the psycho-social factors are ultimately dominant in connection to the availability and accessibility of TM. The social acceptance in connection to the transfer of traditional knowledge through the consultation of family and community members appears to play a decisive role in the utilisation process. The majority of the sample in both quantitative and qualitative sections refers to the application of either domestic or professional herbal treatment as the first activity. There is a strong relationship with the classification of the illness and suspected causation. The dominance of pyscho-social factors is underscored by the low correlations regarding social economic status, education or modern media, as opposed to the prominence of family and community members' source of knowledge and advice for treatment.

Figure 8. The strength of the correlations between the blocks of factors in the model



## Notes Chapter VII

31. With regard to the historical aspects of the species mentioned in the household survey, the informant who was capable of commenting on it, is professional herbalist Emanuel Kisiri (name used with permission) who was 66 years old when interviewed, who was told by his father (born in 1890) that to his knowledge at least theses five species are not considered indigenous. They were first observed planted around missionary residential settlements, and later dispersed in the area surrounding them. Such knowledge may not be current among the individual inhabitants, depending on their age group, as the indigenisation process started before independence (fieldwork by Daniel Matinde 2016).
32. 'The fit and loss values tell how well the nonlinear canonical correlation analysis solution fits the optimally quantified data with respect to the association between the sets. The Summary of Analysis table shows the fit and loss values, and eigenvalues for the survey example' (Meulman & Heiser 2010, p.134).
33. Chi-square Automatic Interaction Detection (CHAID) was created by Gordon V. Kass in 1980. CHAID is used to discover relationships between variables. Its analysis builds a predictive model, or tree, to help determine how variables best merge to explain the outcome in the given dependent variable. Nominal, ordinal, and continuous data can be used, where continuous predictors are split into categories with approximately equal number of observations. It creates cross-tabulations for each categorical predictor until the best outcome is achieved and no further splitting can be performed. In this technique, the relationships between the split variables and the associated related factor are visualised within the tree. The development of the decision, or classification tree, starts with identifying the target variable or dependent variable; which would be considered the root. The analysis splits the target into two or more categories which are called the initial, or parent nodes, and then the nodes are split using statistical algorithms into child nodes. Unlike regression analysis, this technique does not require data to be normally distributed. Source: https://www.statisticssolutions.com/non-parametric-analysis-chaid/
34. Figure 7: 'The figure shows the plot of component loadings for survey data. Without missing data, the component loadings are equivalent to the Pearson correlations between the quantified variables and the object scores. The distance from the origin to each projected variable approximates the importance of that variable. The canonical variables are not plotted but can be represented by horizontal and vertical lines drawn through the origin'. (Meulman & Heiser 2010; p.138).