

## Willingness to Pay for HIV Treatment - A Case of Clients Seeking Care at Rimuka TB and HIV Site Kadoma Zimbabwe (2016)

Article by D. Chirundu<sup>1</sup>, S. Tapesana<sup>2</sup>, P. Magande<sup>3</sup>, T. Mduluz<sup>4</sup>

<sup>1</sup>Kadoma City Health Dept, Zimbabwe

<sup>2,3</sup>University of Zimbabwe Dept. of Community Medicine, Zimbabwe

<sup>4</sup>University of Zimbabwe Dept. of Biochemistry Zimbabwe

E-mail: <sup>1</sup>dchirundu@me.com, <sup>2</sup>drstanelytaps@gmail.com, <sup>3</sup>pmagande@gmail.com, <sup>4</sup>tmduluz@medic.ac.zw

### Abstract

**Introduction:** In Zimbabwe, clients are not supposed to pay for HIV services. However, it is common for clients to purchase medical sundries from the private sector. This is in addition to other opportunity costs like transport. Of late, there is decreasing funding for HIV programs and the health system is constrained. We therefore, assessed the willingness to pay for HIV treatment in case there is a policy change.

**Method:** We used a cross sectional study design. The contingency valuation method was used to assess the willingness to pay. We randomly selected 552 respondents from the ART database. We used an interviewer-administered questionnaire to collect data. Analysis was done using Epi-Info 7 software. Independent factors were identified using stepwise backward logistic regression.

**Results:** Among the 552 respondents interviewed, 336 (66.4%) were willing to pay for HIV treatment. The independent factors predicting positive willingness to pay for ART services were being employed, (aOR=3.7; p=0000), satisfaction with health workers, (aOR=6.23; p=0.04) and disclosure of HIV status to a friend (aOR=1.59; p=0.02). Having a household budgetary change due to being on ART (aOR=0.6; p=0.05); practicing no religion (aOR=0.33; p=0.01) were negatively associated with willingness to pay for HIV treatment.

**Conclusion:** The majority of the people interviewed at RITHS are willing to pay for HIV treatment. However, whilst people on HIV treatment may be willing to pay for treatment we recommend sourcing extra funding from charity and donations in order to maintain equity in providing healthcare services to the population. We, therefore, recommend that treatment should continue to be free.

**Keywords:** ART, Rimuka, Kadoma

### Background

In Zimbabwe HIV clients are not supposed to pay for HIV services in public health institutions. The government eliminated payment for HIV services in public health institutions in order to remove economic barriers to HIV treatment among the poor. This was further elaborated in the Zimbabwe 2016 treatment guidelines. Not with standing, this government and World Health Organization policy, at times clients are required to purchase sundries like syringes, needles, or blood collection specimen tubes from the private sectors.<sup>1</sup> Besides such unforeseen expenditures, ordinarily there is an opportunity cost when clients come to the health centers to fulfil appointments.<sup>2</sup>

Some HIV services are expensive for the ordinary person in Zimbabwe, under normal circumstances, CD4+ cell count costs \$20.00 per test, viral load test costs \$95.00 per test, and medicines cost US\$19 per month. Consequently, when costs are so high, Batavia *et. al.* (2010) reported that clients may default due to costs.<sup>3</sup>

Whilst, it maybe Zimbabwe government policy that clients do not pay for HIV services, there is need to investigate the willingness to pay for HIV services among clients on ART so that we evaluate if there is a commitment to pay. More so, at a time like this when donor

funding is dwindling. It is against this background that we investigated the willingness and factors associated with willingness to pay for HIV services.

## **Methodology**

### **Study design**

The study design was across sectional study at Rimuka Integrated TB and HIV Care Centre (RITHS) at Kadoma (Zimbabwe). Data were collected as part of the Kadoma Mobile Phone study (KAMPS) a randomized controlled trial (PACTR201611001858240). The contingent valuation method was used to assess the willingness to pay.<sup>4</sup> This is a survey based, hypothetical and direct method to determine willingness to pay. We collected the data between September 2016 and October 2016.

### **Study site**

Rimuka ITHC is a primary health care facility that offers tuberculosis and HIV collaborative services at Kadoma. The services include comprehensive HIV services that comprise of voluntary counselling and testing, pre-ART counselling, ART initiation & follow up as well as CD4+ and viral load testing. Seven thousand three hundred clients were in the center's register as of October 2016.

### **Study subjects and sample size**

The study population were clients on ART register at RITHS. Inclusion criteria was being above the age of 18 years, and willing to provide written informed consent. Eligible respondents were also supposed to have been on ART for at least four weeks prior to the commencement of the study. We used computer generated random numbers to select 552 respondents.

### **Study variables**

The outcome variable in the study was "willingness to pay for HIV services" measured as a dichotomous yes/no variable. From literature review, we developed the independent variables for the questionnaire.<sup>5-13</sup>

These were used to develop a conceptual framework comprising of:

- **Psychosocial factors**- social support, family support, support by significant others, perceived satisfaction with the social support
- **Socio demographics**- age, sex, religion, educational status, marital status, employment, monthly income, home ownership, religion
- **Pattern of cellphone use**- owning a cellphone, use cellphone alarm reminders, carry mobile phone always, don't answer unknown numbers, perceived privacy in using cellphone, confidentiality
- **Environmental factors**-transportation access, travel time, transportation facility, transport cost, cost income, frequency of visits
- **Behavioural factors**-HIV status disclosure, substance abuse.

### **Data collection and analysis**

Data were collected using a pretested interview-administered questionnaire. We conducted a one day training for data collectors to explain the purpose of the study, etiquette, and standardize the questioning approach. Eight health workers administered the questionnaire to eligible clients.

We captured and analyzed the data using Epi Info 7<sup>TM</sup> (Centers for Disease Control 2007) statistical package. Descriptive statistics were used to describe the study population. The statistical package was used to generate, frequencies, means, and odds ratios (OR). We used OR and 95% confidence interval (95% C.I) to describe the strength of association. Stepwise backward logistic regression was used to identify independent factors. Factors that had *p-values* less than 0.25 in bivariate analysis were included in the logistic regression model.<sup>14</sup>

## **Ethical considerations**

We obtained written informed consent from all participants. Participants were free to terminate the interview at any time. We obtained permission to proceed from Kadoma City Council.

## **Results**

### **Demography**

We interviewed 552 respondents. Among these 156 (28%) were males and 396 (72%) were females. The median age of males was 42 years ( $Q_1=37$ ;  $Q_3=49$ ) and 42 years ( $Q_1=34$ ;  $Q_3=49$ ) for females. The median duration on ART was 46 months ( $q_1=26$ ;  $q_3=49$ ) for males and 46 months ( $Q_1=31$ ;  $Q_3=49$ ) for females. The demographic characteristics of respondents are shown in table 1.

### **Willingness to pay for HIV treatment**

Five hundred and fifty-one respondents answered the questions on willingness to pay for HIV treatment, 336 (66.4%) were willing to pay for HIV treatment, whilst, 185 (33.5%) were not willing to pay. Among the males 110 (70.97%) were willing to pay whilst 256 (64.65%) of females were willing to pay for services ( $p=0.19$ ). The median amount that the respondent were willing to pay for a consultation per visit was US\$1 ( $Q_1=1$ ;  $Q_3=2$ ); medication per month US\$2 ( $Q_1=1$ ;  $Q_3=5$ ); CD4+ per test US\$3 ( $Q_1=1$ ;  $Q_3=5$ ); viral load per test US\$5 ( $Q_1=1$ ;  $Q_3=10$ ). The amounts proffered by respondents for the various services, stratified by sex are presented in table 2.

The main reason for non-willingness to pay for services was affordability mentioned by 98% of those who were not willing to pay ( $n=185$ ). Among the males 45 (24.3%) were not able to pay whilst among females 140 (75.6%) were unable to pay ( $p=0.14$ ).

### **Bivariate analysis**

#### **Demographic variables and willingness to pay for HIV services**

In bivariate analysis were found a significant positive association between household income above 200 (OR=1.52  $p=0.05$ ), being a catholic (OR=1.8;  $p=0.02$ , being formally employed (OR=3.46;  $p<0.05$ ) and willingness to pay for HIV treatment. The results are shown in table 3.

#### **Psychosocial support and willingness to pay for HIV services**

There was a positive association between having a sense of support from community (OR=1.96;  $p=0.001$ ), financial support from community (OR=1.1;  $p=0.72$ ), and being satisfied with family support (OR=4.01;  $p=0.08$ ), community support (OR=1.77;  $p=0.45$ ) and willingness to pay for HIV treatment. However, those who received financial support from family were less likely to report willingness to pay (OR=0.4;  $p=0.008$ ). We also found a positive relation between disclosure to family and willing to pay for HIV treatment. Results of bivariate analysis between psychosocial support and willingness to pay for HIV treatment are shown in table 4.

#### **Environmental factors and willingness to pay for HIV services**

On analysis of the relationship between environmental factors and willingness to pay for HIV treatment, we found that those who had no direct transport costs when coming for reviews (OR=1.23  $p=0.44$ ); those who had three monthly appointment schedules, (OR=3.03;  $p=0.003$ ) and those whose duration of travel to health centre was less than 40 minutes (OR=1.42;  $p=0.23$ ) were likely to report willingness to pay for HIV treatment. Those who cited changes in household budget due to being on ART, (OR=0.6;  $p=0.02$ ) were less likely to report willingness to pay. The associations between environmental factors and willingness to pay for HIV Services are shown in table 5.

## Patient provider relationships and willingness to pay for HIV services

We found positive associations between patient/provider attributes of being satisfied with health worker (OR= 5.05;  $p=0.03$ ), being satisfied with changes in health since initiation on ART (OR=4.06;  $p=0.01$ ) and reporting willing to pay for HIV treatment. These were all statistically significant at 95% confidence level. There were also positive associations between being treated with respect (OR=6;  $p=0.07$ ), not getting medication at one time due to stock outs (OR=2.59;  $p=0.13$ ), getting individual education (OR=1.10;  $p=0.69$ ), beings satisfied with confidentiality at the centre (OR=1.71;  $p=0.33$ ) and reporting willing to pay. However, these were not statistically significant. Bivariate analysis for patient provider relationships and willingness to pay for HIV treatment is presented in table 6.

## Multivariate analysis

In a multi-logistic regression model, those who were employed, (aOR=3.7;  $p=0000$ ), satisfied with health workers, (aOR=6.23;  $p=0.04$ ) had disclosed HIV status to a friend (aOR=1.59;  $p=0.02$ ) and going for reviews at three months' interval were more likely to report willingness to pay for HIV treatment. However, practicing no religion (aOR=0.22;  $p=0.01$ ); and being on ART resulting in household budget (aOR=0.6;  $p=0.05$ ) Multivariate analysis results are shown in table 7.

## Discussion

This was a cross sectional study to investigate the willingness to pay for HIV treatment among clients attending a public health centre. We found that 66% of the respondents were willing to pay, this is far higher than 16% reported in a similar study in Kenya by Otiso (2016).<sup>15</sup>The reason for not willing to pay was affordability. Similar findings were reported by Otiso *et. al.*(2016) and Binswanger *et. al* (2003).<sup>16</sup>The median amounts proffered for the services of consultation were US\$1 (Q<sub>1</sub>=1; Q<sub>3</sub>=2); medication US\$2 (Q<sub>1</sub>=1; Q<sub>3</sub>=5); CD4+ count per test US\$3 (Q<sub>1</sub>=1; Q<sub>3</sub>=5); and viral load testing per test US\$5 (Q<sub>1</sub>=1; Q<sub>3</sub>=10). Despite the client's willingness to pay for HIV services, the amount proffered is far beyond the cost to meet cost of the service. The prevailing charges for consultation per visit is US\$5 per visit, medication is US\$19 per month; CD4+ cell count is US\$20 per visit and viral load testing costs US\$95 per test. A funding gap therefore, remains taking into account the amounts the respondents are willing to pay.

In our study, we found a positive significant association between being employed and willingness to pay for HIV treatment. This is because employed people have a steady income and can afford to pay for services. Batavia *et. al.* (2010) and Otiso *et. al.* (2016)reported that affordability is one major factor that militates against willingness to pay for HIV services.<sup>3,15</sup> Similar findings were reported by Muko *et. al.* (2004) and Ayifah *et. al.* (2010) in rural Cameron and Ghana respectively.<sup>17,18</sup> However, the study by Ayifah *et al.* (2010) was evaluating willingness to pay for PMTC services.<sup>18</sup>Whilst clients may be willing to pay for treatment; it has to be considered that the cost of treatment goes beyond clinic and drug fees. The cost of transport, over the counter medicine purchases and loss of income due to illness also contribute heavily to family's household expenditure on health.<sup>19,20</sup>

We found positive associations between psychosocial support aspects of family and community. Psychosocial support is important in managing HIV at individual and community level. It is a strong instrument of dealing with stigma in the community. It is not clear why those with a sense of support from family or those who get financial support from family in our study, were less likely to report willingness to pay for treatment. This could be that they were getting financial support because they were not financial independent. Hence, had other more pressing financial obligations like purchase of food, rentals, or transport to the health centre. We also found that respondents who disclosed to family were more likely to report willing to pay for HIV treatment, disclosure is a sign that a person have overcome perceived stigma. Consequently, disclosure opens opportunities for psychosocial support. In a study on

willingness to pay for HIV services in rural Cameroon, Muko *et al* (2004) reported that stigma was one of the factors that militated against willingness to pay.

In this study, we found a negative association between reporting budgetary changes due to being on ART and willingness to pay for treatment. Under normal circumstances, a person avoids incurring additional expenses if they have other commitments. In this case, it could be transport costs, costs of over the counter medication or sundries among others. This may explain why those who reported a change in their household budgets due to being on ART were less likely to be willing to pay for HIV services. In the same vein, those with no direct costs and visits the clinic at the longer interval of 3 months are more likely to report willingness to pay for HIV services. This is consistent with the findings of Rosen *et. al.* (2007) who that reported that non-drug cost of obtaining treatment may limit access, clients pay transport to get to the clinic, and some suffer loss of income when they came for review in addition to paying for non-prescription medicines.<sup>20</sup>

In our study we found that satisfaction with health workers was a statistical significant factor associated with willingness to pay for HIV treatment; so was satisfaction with changes since initiation on ART. This attests to the fact that a client would be more willing to pay were they have confidence and satisfaction with the health workers as we as the perceived effect of the medicine. Alexander *et. al.* (2012) and Govender *et. al.* (2000) reported that patient–physician relationships are an important factor in patients taking a more active role in their health and health care.<sup>21,22</sup> Payment for treatment is one aspect of taking a more active role in treatment.

### **Limitation of study**

This study was not without limitation. We used the contingency valuation method to assess willingness to pay. In this method, respondents may say what they think the interviewer wants to here. However, on the other hand respondent may portray a picture that they are poor so that they get support. All these have an effect of introducing bias in the study. Lastly, this study was done among respondents who have been on ART for at least 4 months and have not been paying for any service. This may also have a bearing on the willingness to pay.

### **Conclusion**

The majority of the people interviewed at RITHC are willing to pay for HIV treatment. However, the amounts they are willing to pay are far less than the actual costs of the services. Psychosocial support initiatives within the family and community are important to overcome stigma and promote willingness to pay for HIV treatment. Provider client relations are important in determining willingness to pay for HIV services. Additional cost due to being on care may result in catastrophic health expenditure. Independent factors were being satisfied with the health workers, being on ART resulted in household budget changes, disclosed HIV status to a friend, belongs to no religion, being gainfully employed, scheduling reviews at three months.

In light of this we recommend that whilst, people on HIV treatment may be willing to pay, treatment in terms of medication, laboratory costs continue to be free as introduction of same may results in drop out and defaulting from treatment. Fees may also widen inequity gap in terms of treatment among the population. The opportunity cost being incurred is already too high for the people. If it becomes very essential to institute some recovery mechanisms, payment may be in the form of charity or donations rather than asking for a fee.

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**Tables and Figures**

**Table 1.** Demography of Respondents

<b>Variable</b>	<b>Females n=396</b>	<b>Males n=156</b>	<b>p-value</b>
Median Age (years)	42 (q <sub>1</sub> =34;q <sub>3</sub> =49)	42 (q <sub>1</sub> =37;q <sub>3</sub> =49)	-
Median Time Since Diagnosis (months)	62 (q <sub>1</sub> =36;q <sub>3</sub> =94.5)	46 (q <sub>1</sub> =26;q <sub>3</sub> =73)	-
Median Duration on ART (months)	46 (q <sub>1</sub> =30.5;q <sub>3</sub> =75)	35 (q <sub>1</sub> =20;q <sub>3</sub> =60.5)	-
Median household income	60 (q <sub>1</sub> =30;q <sub>3</sub> =150)	100 (q <sub>1</sub> =50;q <sub>3</sub> =230)	-
Religion: Apostolic	95(23.9%)	29 (18.9%)	0.17
Catholic	49(12.3%)	34(22.2%)	0.005
Muslim	9(2.25%)	5 (3.2%)	0.52
None	11(2.11%)	15(9.8%)	0.00064
Traditional	8(2.02%)	12(7.8%)	0.00132
Pentecostal	159(40.1%)	35(22.8%)	<0.05
Protestant	63 (15.9%)	23(15.05%)	0.72
Marital Status :Married	168 (43%)	114 (73%)	0
Divorced	38 (10%)	10 (6%)	0.23
Separated	18 (5%)	10 (6%)	0.36
Single	29 (7%)	5 (3.2)	0.07
Widowed	142 (36%)	17 (11%)	0
Polygamous marriage	19 (11%)	8 (7%)	0.87
Employment Status: Formally Employed	40 (10%)	43 (27%)	0
Informal Employment	149 (39%)	73 (47%)	0.04
Not Employed	198 (51%)	39 (25%)	0
Usual resident of Kadoma	395 (100%)	154(98%)	0.138
Educational attainment: None	3 (1.9)	29 (7.34)	<0.05
Primary Education	28(17.95)	82(20.76)	0.46
Secondary Education	120(76.92)	276(69.87)	0.08
Tertiary Education	5 (3.21)	8 (2.03)	0.40
Who owns the house: Council rented	10(6.4)	35(8.95)	0.34
Owner	35(22.58)	94(24.04)	0.74
Employer	4(2.58)	9(2.3)	0.83
Family	48(30.9)	113(28.9)	0.52
Private rented	2(1.29)	0 (0%)	0.04
Subtenant	24(15.48)	72(18.41)	0.40
Other	2(1.29)	0	0.04

**Table 2.** Median Amounts Proffered for HIV among Those Willing to Pay Kadoma 2016

<b>HIV Service</b>	<b>Median Amount (US\$)Proffered to Payment</b>	
	<b>Females</b>	<b>Males</b>
Consultation Fee (per visit)	1 (Q <sub>1</sub> =1:Q <sub>3</sub> =3)	1 (Q <sub>1</sub> =1:Q <sub>3</sub> =3)
Medication (per 3 months)	5 (Q <sub>1</sub> =1:Q <sub>3</sub> =5)	5 (Q <sub>1</sub> =1:Q <sub>3</sub> =5)
CD4 Count (when needed)	5 (Q <sub>1</sub> =2:Q <sub>3</sub> =5)	5 (Q <sub>1</sub> =2:Q <sub>3</sub> =5)
Viral load Count (when needed)	5(Q <sub>1</sub> =5:Q <sub>3</sub> =15)	5(Q <sub>1</sub> =5:Q <sub>3</sub> =10)

**Table 3.** Contingent tables Demographic factors and Willingness to pay for HIV Treatment Kadoma 2016

Variable	Willingness to Pay for HIV Services		Odds Ratio	95% C.I.	p-value	
	Yes	No				
Age (Above 40 years)	Yes	215	120	0.772	0.53-1.11	0.16
	No	151	65			
Household income above \$200	Yes	96	35	1.52	0.98-2.35	0.05
	No	270	150			
Apostolic	Yes	81	43	0.93	0.61-1.43	0.76
	No	285	142			
Catholic	Yes	64	19	1.8	1.07-3.1	0.02
	No	302	166			
Muslim	Yes	10	4	1.2	0.39-4.10	0.78
	No	356	181			
Traditional	Yes	11	9	0.60	0.24-1.48	0.27
	No	355	176			
None	Yes	12	14	0.41	0.18-0.91	0.03
	No	354	171			
Pentecostal	Yes	128	65	0.9	0.68-1.43	0.96
	No	238	120			
Marital Status :Married	Yes	189	92	1.07	0.75-1.53	0.67
	No	177	93			
Single	Yes	24	10	1.22	0.57-2.62	0.59
	No	342	175			
Divorced	Yes	35	13	1.3	0.72-2.71	0.31
	No	331	172			
Separated	Yes	14	14	0.48	0.22-1.04	0.058
	No	352	171			
Widowed	Yes	103	56	0.9	0.61-1.32	0.60
	No	263	129			
Polygamous marriage	Yes	14	15	0.47	0.21-1.04	0.06
	No	176	77			
Formally Employed	Yes	241	64	3.64	2.51-5.288	<0.05
	No	125	121			
Median Time Since Diagnosis (36 months)	Yes	108	49	1.1	0.76-1.72	0.45
	No	258	136			
Duration on ART (less than 12 months)	Yes	29	18	0.7	0.43-1.47	0.47
	No	337	167			
Health status since starting art : Better	Yes	346	176	0.88	0.39-1.98	0.76
	No	20	9			
Members of support group	Yes	31	12	1.33	0.66-2.65	0.41
	No	334	172			
Smokers	Yes	25	7	1.86	0.79-4.3	0.14
	No	341	178			
Alcohol User	Yes	89	41	1.12	0.74-1.71	0.57
	No	277	144			

Table 4. Contingent Psychosocial support and Willingness to pay for HIV Treatment Kadoma 2016

Variable		Willingness to Pay for HIV Services		OR	95% C.I.	<i>p-value</i>
		Yes	No			
Sense of support from family	Yes	333	169	0.95	0.51-1.78	0.88
	No	33	16			
Sense of support from community	Yes	298	127	1.966	1.30-2.95	0.001
	No	68	57			
Financial support from family	Yes	110	87	0.4	0.33-0.69	0.0008
	No	256	98			
Financial support from community	Yes	35	16	1.1	0.60-2.07	0.72
	No	331	169			
Satisfied with family support	Yes	331	165	4.01	0.72-22.13	0.08
	No	2	4			
Satisfied with community support	Yes	295	125	1.77	0.39-8.02	0.45
	No	4	3			
Disclosure to Friend	Yes	152	52	1.81	1.2-2.6	0.002
	No	214	133			
Disclosure to parents	Yes	150	65	1.28	0.88-1.85	0.18
	No	216	120			
Disclosure to family	Yes	310	144	1.57	1.0063-2.4	0.04
	No	56	41			
Disclosure to Employer	Yes	11	2	2.83	0.62-12.92	0.23
	No	355	183			
Disclosure to church mate	Yes	82	34	1.28	0.82-2.0	0.27
	No	284	151			
Disclosure to spouse	Yes	168	84	1.02	0.71-1.45	0.91
	No	198	101			

Table 5. Contingency table Environmental factors and Willingness to pay for HIV Treatment Kadoma 2016

Variable		Willingness to Pay for HIV Services		OR	95% C.I.	<i>p-value</i>
		Yes	No			
Cost of travel to Health Centre:- No Direct Cost	Yes	50	21	1.23	0.71-2.12	0.44
	No	316	164			
Frequency of reviews: 3 months	Yes	348	160	3.02	1.60-5.6	0.003
	No	18	25			
Loss of income due to coming for ART	Yes	25	17	0.72	0.38-1.37	0.32
	No	341	168			
Mode of transport – Pedestrian	Yes	322	166	0.8	0.47-1.48	0.54
	No	19	19			
Time to centre more than 40 minutes	Yes	45	17	1.42	0.79-2.55	0.23
	No	320	168			
Changes in budget due to being on ART	Yes	54	41	0.60	0.38-0.95	0.02
	No	312	144			

Table 6. Patient Provider Relations and Willingness to pay for HIV Treatment Kadoma 2016

Variable		Willingness to Pay for HIV Services		Odds Ratio	95% C.I.	p-value
		Yes	No			
Satisfied with health worker	Yes	364	180	5.05	0.97-26.3	0.03
	No	2	5			
Satisfied with changes since initiation	Yes	360	177	4.06	1.20-13.69	0.01
	No	4	8			
Treated with respect	Yes	367	183	6.00	0.62-58	0.07
	No	1	4			
Get individual education	Yes	319	159	1.10	0.66-1.85	0.69
	No	47	26			
Times no medication	Yes	15	3	2.59	0.74-9.07	0.13
	No	351	182			
Satisfied with confidentiality	Yes	359	179	1.71	0.5-5.1	0.33
	No	7	6			

Table 7. Independent factors for Willingness to Pay for HIV Services Kadoma 2HIV Treatment Kadoma 2016.

Term	aOR	95% C. I.	p-value
Being Satisfied with the Health Workers	6.2383	1.0665-36.4904	0.0422
Being on ART resulted in household budget changes	0.6200	0.3787-1.0152	0.0574
Disclosed HIV status to a friend	1.5951	1.0576-2.4058	0.0259
Belongs to no Religion	0.3396	0.1379-0.8359	0.0188
Employed	3.7340	2.5256-5.5206	0.0000
Reviews Scheduled at 3 months interval	3.3010	1.6321-6.6765	0.0009

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