

■ 結果の詳細：

問 26：[同性愛などについて、もっと正しい情報を得る必要があると思いますか?]という設問でセクシュアルマイノリティーに対する情報提供/教育/支援の必要性に対する意識を尋ねた：(1) 男性 18-19 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 60.1%、介入群が 77.0%と 17%の上昇が観察された。(2) 男性 20-24 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 71.9%、介入群が 77.6%で統計的に有意の上昇が観察された ($p=0.012$)。(3) 女

性 18-19 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 85.3%、介入群が 82.0%と変化が見られなかった。(4) 女性 20-24 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 78.0%、介入群が 86.6%と 9%の上昇が示された。前設問同様、ここでも、男性と女性を比べると、女性の方が圧倒的に、セクシュアルマイノリティーに関する情報提供/教育/支援に対して肯定的態度を示している事が示された。

Q26 同性愛などについて、もっと正しい情報を得る必要があると思いますか？

SEX 性別		AGEID 年齢	Crosstab		Total	
			Control	Intervention		
男性	とてもそう思う	Count	13	28	41	
		% within All_intervention	17.8%	32.2%	25.6%	
	まあまあそう思う	Count	38	39	77	
		% within All_intervention	52.1%	44.8%	48.1%	
	Q26 同性愛などについて、もっと正しい情報を得る必要があると思いますか？	どちらとも言えない	Count	16	12	28
			% within All_intervention	21.9%	13.8%	17.5%
		あまりそう思わない	Count	5	8	13
			% within All_intervention	6.8%	9.2%	8.1%
		まったくそう思わない	Count	1	0	1
			% within All_intervention	1.4%	0.0%	0.6%
Total	Count	73	87	160		
% within All_intervention		100.0%	100.0%	100.0%		
20才~24才	とてもそう思う	Count	78	112	190	
		% within All_intervention	24.8%	37.3%	30.9%	
	まあまあそう思う	Count	148	121	269	
		% within All_intervention	47.1%	40.3%	43.8%	
	どちらとも言えない	Count	60	40	100	
		% within All_intervention	19.1%	13.3%	16.3%	
あまりそう思わない	Count	18	15	33		

			% within All_intervention	5.7%	5.0%	5.4%
		まったくそう思わない	Count	10	12	22
			% within All_intervention	3.2%	4.0%	3.6%
	Total		Count	314	300	614
			% within All_intervention	100.0%	100.0%	100.0%
		とてもそう思う	Count	33	40	73
			% within All_intervention	40.2%	42.6%	41.5%
		まあまあそう思う	Count	37	37	74
	Q26 同性愛などについて、もっと正しい情報を得る必要があると思いますか？		% within All_intervention	45.1%	39.4%	42.0%
		どちらとも言えない	Count	8	11	19
			% within All_intervention	9.8%	11.7%	10.8%
		あまりそう思わない	Count	2	6	8
			% within All_intervention	2.4%	6.4%	4.5%
		まったくそう思わない	Count	2	0	2
			% within All_intervention	2.4%	0.0%	1.1%
	Total		Count	82	94	176
			% within All_intervention	100.0%	100.0%	100.0%
女性		とてもそう思う	Count	105	116	221
			% within All_intervention	34.4%	39.7%	37.0%
		まあまあそう思う	Count	133	137	270
	Q26 同性愛などについて、もっと正しい情報を得る必要があると思いますか？		% within All_intervention	43.6%	46.9%	45.2%
		どちらとも言えない	Count	45	26	71
			% within All_intervention	14.8%	8.9%	11.9%
		あまりそう思わない	Count	17	9	26
			% within All_intervention	5.6%	3.1%	4.4%
		まったくそう思わない	Count	5	4	9
			% within All_intervention	1.6%	1.4%	1.5%
	Total		Count	305	292	597
			% within All_intervention	100.0%	100.0%	100.0%

SEX 性別		AGEID 年齢		Chi-Square Tests						
Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)				
			Sig.	99% Confidence Interval		Sig.	99% Confidence Interval			
				Lower Bound	Upper Bound		Lower Bound	Upper Bound		
6.590 ^a	4	.159	.139 ^b	.130	.148					

	Likelihood Ratio	7.062	4	.133	.143 ^b	.134	.152			
	Fisher's Exact Test	6.507			.138 ^b	.129	.147			
	Linear-by-Linear Association	2.361 ^c	1	.124	.130 ^b	.121	.139	.072 ^b	.066	.079
	N of Valid Cases	160								
	Pearson Chi-Square	12.936 ^d	4	.012	.010 ^b	.007	.012			
	Likelihood Ratio	12.995	4	.011	.011 ^b	.008	.014			
20才~24才	Fisher's Exact Test	12.945			.010 ^b	.007	.012			
	Linear-by-Linear Association	4.554 ^e	1	.033	.029 ^b	.025	.034	.016 ^b	.013	.019
	N of Valid Cases	614								
	Pearson Chi-Square	4.347 ^f	4	.361	.370 ^b	.358	.383			
	Likelihood Ratio	5.195	4	.268	.337 ^b	.325	.350			
12才~19才	Fisher's Exact Test	3.879			.421 ^b	.408	.434			
	Linear-by-Linear Association	.000 ^g	1	.988	1.000 ^b	1.000	1.000	.529 ^b	.516	.542
	N of Valid Cases	176								
女性	Pearson Chi-Square	7.985 ^h	4	.092	.087 ^b	.079	.094			
	Likelihood Ratio	8.084	4	.089	.091 ^b	.084	.099			
	Fisher's Exact Test	7.987			.085 ^b	.078	.092			
20才~24才	Linear-by-Linear Association	5.446 ⁱ	1	.020	.018 ^b	.015	.022	.012 ^b	.009	.014
	N of Valid Cases	597								

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is .46.

b. Based on 10000 sampled tables with starting seed 2000000.

c. The standardized statistic is -1.537.

d. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.75.

e. The standardized statistic is -2.134.

f. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .93.

g. The standardized statistic is .016.

h. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 4.40.

i. The standardized statistic is -2.334.

■ 結果の詳細：

問 27：[同性愛などについて、学校で教える必要があると思いますか?]という設問でセクシュアルマイノリティに対する情報提供/教育/支援の必要性に対する意識を尋ねた：

(1) 男性 18-19 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 60.3%、介入群が 67.8%と 8%の上昇が観察された。(2) 男性 20-24 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 59.3%、介入群が 71.6%で 12%の統計的に有意の上昇が観察された ($p=0.007$)。 (3) 女

性 18-19 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 65.9%、介入群が 70.2%と 4%程度の上昇にとどまった。(4) 女性 20-24 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 60.6%、介入群が 71.6%と 11%の上昇が示された。前設問同様、ここでも、男性と女性を比べると、女性の方が圧倒的に、セクシュアルマイノリティに関する情報提供/教育/支援に対して肯定的態度を示している事が示された。

Q27 同性愛などについて学校で教える必要があると思いますか？

Crosstab							
SEX 性別	AGEID 年齢		All intervention		Total		
			Control	Intervention			
男性	12 才~19 才	とてもそう思う	Count	14	23	37	
			% within All_intervention	19.2%	26.4%	23.1%	
		まあまあそう思う	Count	30	36	66	
			% within All_intervention	41.1%	41.4%	41.3%	
		Q27 同性愛などについて 学校で教える必要がある と思いますか？	どちらとも言えない	Count	17	19	36
			% within All_intervention	23.3%	21.8%	22.5%	
		あまりそう思わない	Count	9	7	16	
		% within All_intervention	12.3%	8.0%	10.0%		
		まったくそう思わない	Count	3	2	5	
		% within All_intervention	4.1%	2.3%	3.1%		
		Total	Count	73	87	160	
		% within All_intervention	100.0%	100.0%	100.0%		
20 才~24 才	Q27 同性愛などについて 学校で教える必要がある と思いますか？	とてもそう思う	Count	68	97	165	
		% within All_intervention	21.7%	32.3%	26.9%		
		まあまあそう思う	Count	118	118	236	
		% within All_intervention	37.6%	39.3%	38.4%		
		どちらとも言えない	Count	83	52	135	
		% within All_intervention	26.4%	17.3%	22.0%		
	あまりそう思わない	Count	34	23	57		

			% within All_intervention	10.8%	7.7%	9.3%
		まったくそう思わない	Count	11	10	21
			% within All_intervention	3.5%	3.3%	3.4%
	Total		Count	314	300	614
			% within All_intervention	100.0%	100.0%	100.0%
		とてもそう思う	Count	19	23	42
			% within All_intervention	23.2%	24.5%	23.9%
		まあまあそう思う	Count	35	43	78
			% within All_intervention	42.7%	45.7%	44.3%
	Q27 同性愛などについて		Count	19	20	39
	学校で教える必要がある	どちらとも言えない	% within All_intervention	23.2%	21.3%	22.2%
12才～19才	と思いますか？		Count	6	8	14
		あまりそう思わない	% within All_intervention	7.3%	8.5%	8.0%
		まったくそう思わない	Count	3	0	3
			% within All_intervention	3.7%	0.0%	1.7%
	Total		Count	82	94	176
			% within All_intervention	100.0%	100.0%	100.0%
女性		とてもそう思う	Count	76	89	165
			% within All_intervention	24.9%	30.5%	27.6%
		まあまあそう思う	Count	109	120	229
			% within All_intervention	35.7%	41.1%	38.4%
	Q27 同性愛などについて		Count	68	51	119
	学校で教える必要がある	どちらとも言えない	% within All_intervention	22.3%	17.5%	19.9%
20才～24才	と思いますか？		Count	41	24	65
		あまりそう思わない	% within All_intervention	13.4%	8.2%	10.9%
		まったくそう思わない	Count	11	8	19
			% within All_intervention	3.6%	2.7%	3.2%
	Total		Count	305	292	597
			% within All_intervention	100.0%	100.0%	100.0%

SEX 性別		AGEID 年齢		Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		Monte Carlo Sig. (1-sided)		
		Pearson Chi-Square	Sig.				99% Confidence Interval		Sig.	99% Confidence Interval	
							Lower Bound	Upper Bound		Lower Bound	Upper Bound
男性	12才～19才	Pearson Chi-Square	2.087 ^a	4	.720	.738 ^b	.727	.749			

女性	Likelihood Ratio	2.094	4	.718	.742 ^b	.731	.753			
	Fisher's Exact Test	2.173			.722 ^b	.710	.734			
	Linear-by-Linear Association	1.928 ^c	1	.165	.165 ^b	.156	.175	.092 ^b	.084	.099
	N of Valid Cases	160								
	Pearson Chi-Square	14.074 ^d	4	.007	.005 ^b	.003	.007			
	Likelihood Ratio	14.171	4	.007	.006 ^b	.004	.008			
	Fisher's Exact Test	14.089			.005 ^b	.003	.007			
	Linear-by-Linear Association	9.767 ^e	1	.002	.002 ^b	.001	.003	.001 ^b	.000	.002
	N of Valid Cases	614								
	Pearson Chi-Square	3.712 ^f	4	.446	.482 ^b	.469	.495			
	Likelihood Ratio	4.856	4	.302	.385 ^b	.372	.397			
	Fisher's Exact Test	3.353			.525 ^b	.512	.538			
	Linear-by-Linear Association	.676 ^g	1	.411	.429 ^b	.416	.441	.229 ^b	.218	.240
	N of Valid Cases	176								
	Pearson Chi-Square	8.622 ^h	4	.071	.069 ^b	.062	.075			
	Likelihood Ratio	8.682	4	.070	.071 ^b	.064	.077			
	Fisher's Exact Test	8.603			.069 ^b	.062	.075			
	Linear-by-Linear Association	7.165 ⁱ	1	.007	.008 ^b	.005	.010	.004 ^b	.002	.005
N of Valid Cases	597									

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.28.

b. Based on 10000 sampled tables with starting seed 2000000.

c. The standardized statistic is -1.388.

d. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.26.

e. The standardized statistic is -3.125.

f. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.40.

g. The standardized statistic is -.822.

h. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.29.

i. The standardized statistic is -2.677.

■ 結果の詳細：

問 28：[同性愛などに対する差別偏見を減らす教育が必要だと思いますか?]という設問でセクシュアルマイノリティーに対する情報提供/教育/支援の必要性に対する意識を尋ねた：(1) 男性 18-19 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 76.7%、介入群が 79.3%と 3%の上昇が観察された。(2) 男性 20-24 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 67.5%、介入群が 75.0%で 8%の統計的に有意の上昇が観察された ($p=0.013$)。 (3) 女

性 18-19 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 84.1%、介入群が 84.1%と変化は見られなかった。(4) 女性 20-24 歳：「とてもそう思う」「まあまあそう思う」と肯定的にとらえている割合は非介入群が 77.1%、介入群が 80.8%と 4%の上昇が示された。前設問同様、ここでも、男性と女性を比べると、女性の方が圧倒的に、セクシュアルマイノリティーに関する情報提供/教育/支援に対して肯定的態度を示している事が示された。

Q28 同性愛などに対する差別偏見を減らす教育が必要だと思いますか？

Crosstab							
SEX 性別	AGEID 年齢		All intervention		Total		
			Control	Intervention			
男性	12才~19才	Q28 同性愛などに対する差別偏見を減らす教育が必要だと思いますか？	とてもそう思う	Count	20	35	55
			% within All_intervention		27.4%	40.2%	34.4%
		まあまあそう思う	Count	36	34	70	
			% within All_intervention		49.3%	39.1%	43.8%
		どちらとも言えない	Count	10	11	21	
			% within All_intervention		13.7%	12.6%	13.1%
	あまりそう思わない	Count	4	6	10		
		% within All_intervention		5.5%	6.9%	6.3%	
	まったくそう思わない	Count	3	1	4		
		% within All_intervention		4.1%	1.1%	2.5%	
	Total	Count	73	87	160		
		% within All_intervention		100.0%	100.0%	100.0%	
20才~24才	Q28 同性愛などに対する差別偏見を減らす教育が必要だと思いますか？	とてもそう思う	Count	93	130	223	
		% within All_intervention		29.6%	43.3%	36.3%	
	まあまあそう思う	Count	119	95	214		
		% within All_intervention		37.9%	31.7%	34.9%	
	どちらとも言えない	Count	74	55	129		
		% within All_intervention		23.6%	18.3%	21.0%	
あまりそう思わない	Count	16	12	28			
	% within All_intervention		4.1%	3.1%	3.8%		

			% within All_intervention	5.1%	4.0%	4.6%
		まったくそう思わない	Count	12	8	20
			% within All_intervention	3.8%	2.7%	3.3%
	Total		Count	314	300	614
			% within All_intervention	100.0%	100.0%	100.0%
		とてもそう思う	Count	42	42	84
			% within All_intervention	51.2%	44.7%	47.7%
		まあまあそう思う	Count	27	37	64
			% within All_intervention	32.9%	39.4%	36.4%
	Q28 同性愛などに対する		Count	7	11	18
	差別偏見を減らす教育が	どちらとも言えない	% within All_intervention	8.5%	11.7%	10.2%
12才~19才	必要だと思いますか？		Count	4	4	8
		あまりそう思わない	% within All_intervention	4.9%	4.3%	4.5%
		まったくそう思わない	Count	2	0	2
			% within All_intervention	2.4%	0.0%	1.1%
	Total		Count	82	94	176
			% within All_intervention	100.0%	100.0%	100.0%
女性		とてもそう思う	Count	110	125	235
			% within All_intervention	36.1%	42.8%	39.4%
		まあまあそう思う	Count	125	111	236
			% within All_intervention	41.0%	38.0%	39.5%
	Q28 同性愛などに対する		Count	56	36	92
	差別偏見を減らす教育が	どちらとも言えない	% within All_intervention	18.4%	12.3%	15.4%
20才~24才	必要だと思いますか？		Count	6	12	18
		あまりそう思わない	% within All_intervention	2.0%	4.1%	3.0%
		まったくそう思わない	Count	8	8	16
			% within All_intervention	2.6%	2.7%	2.7%
	Total		Count	305	292	597
			% within All_intervention	100.0%	100.0%	100.0%

SEX 性別		AGEID 年齢		Chi-Square Tests								
	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)					
				Sig.	99% Confidence Interval		Sig.	99% Confidence Interval				
					Lower Bound	Upper Bound		Lower Bound	Upper Bound			
男性	12才~19才	Pearson Chi-Square	4.404 ^a	4	.354	.367 ^b	.355	.380				

	Likelihood Ratio	4.471	4	.346	.387 ^b	.375	.400		
	Fisher's Exact Test	4.367			.362 ^b	.349	.374		
	Linear-by-Linear Association	1.650 ^c	1	.199	.225 ^b	.215	.236	.117 ^b	.109
	N of Valid Cases	160							
	Pearson Chi-Square	12.688 ^d	4	.013	.011 ^b	.008	.013		
	Likelihood Ratio	12.733	4	.013	.013 ^b	.010	.015		
	Fisher's Exact Test	12.664			.011 ^b	.008	.014		
20才~24才	Linear-by-Linear Association	8.852 ^e	1	.003	.004 ^b	.002	.006	.002 ^b	.001
	N of Valid Cases	614							
	Pearson Chi-Square	3.650 ^f	4	.455	.494 ^b	.481	.506		
	Likelihood Ratio	4.419	4	.352	.459 ^b	.446	.472		
	Fisher's Exact Test	3.325			.526 ^b	.513	.539		
12才~19才	Linear-by-Linear Association	.007 ^g	1	.933	1.000 ^b	1.000	1.000	.498 ^b	.485
	N of Valid Cases	176							
	Pearson Chi-Square	7.856 ^h	4	.097	.094 ^b	.087	.102		
	Likelihood Ratio	7.928	4	.094	.097 ^b	.090	.105		
	Fisher's Exact Test	7.829			.094 ^b	.086	.102		
20才~24才	Linear-by-Linear Association	1.097 ⁱ	1	.295	.303 ^b	.291	.315	.154 ^b	.145
	N of Valid Cases	597							
女性									

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 1.83.

b. Based on 10000 sampled tables with starting seed 2000000.

c. The standardized statistic is -1.285.

d. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.77.

e. The standardized statistic is -2.975.

f. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .93.

g. The standardized statistic is .084.

h. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.83.

i. The standardized statistic is -1.047.

研究成果の刊行物・別冊（抜粋）

（研究成果のうち欧文原著のもののみ収載）

“If I have nothing to eat, I get angry and push the pills bottle away from me”: A qualitative study of patient determinants of adherence to antiretroviral therapy in the Democratic Republic of Congo

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The global response to the HIV/AIDS epidemic has improved access to antiretroviral therapy (ART) and has contributed to decreased HIV/AIDS morbidity and mortality in sub-Saharan Africa. Patient adherence to ART is crucial to the success of HIV/AIDS treatment. However, little is known about the determinants of adherence to ART among people living with HIV/AIDS (PLWHA) in the Democratic Republic of Congo (DRC). This qualitative study used in-depth semi-structured patient interviews, a purposive sampling strategy and thematic analysis scheme to identify barriers and facilitators of adherence to ART in the DRC. We recruited three categories of participants from the Centre Hospitalier Monkole and the NGO ACS/Amo-Congo including participants on antiretroviral (ARV) treatment (n=19), on ARV re-treatment (n=13) and lost to follow-up (n=6). Among 38 participants interviewed, 24 were female and the median age was 41 years. Food insecurity as a barrier to adherence emerged as a dominant theme across the three categories of participants. Other barriers included financial constraints, forgetfulness and fear of disclosure/stigma. Religious beliefs were both a barrier and a facilitator to ART adherence. We found that food insecurity was a common and an important barrier to ART adherence among patients in the DRC. Our findings suggest that food insecurity should be appropriately addressed and incorporated into ARV treatment programs to ensure patient adherence and ultimately the long-term success of HIV treatment in the region.

Keywords: ART; adherence; food insecurity; AIDS; Democratic Republic of Congo

Introduction

Access to antiretroviral therapy (ART) in sub-Saharan Africa has improved considerably over the past several years and has contributed to decreased HIV/AIDS morbidity and mortality in the region (Brinkhof et al., 2009; Mills et al., 2011; UNAIDS, 2012). However, in addition to treatment access, high and sustained patient adherence to ART is *sine qua non* for maximizing both its therapeutic and preventive benefits (Kalichman et al., 2010; Paterson et al., 2000).

Prior studies have documented a number of determinants of adherence to ART, ranging from economic and structural to sociocultural factors, as well as factors such as the complexity of the regimen, side effects; forgetfulness and inadequate knowledge (Badahdah & Pedersen, 2011; Balcha, Jeppsson, & Bekele, 2011; Curioso, Kepka, Cabello, Segura, & Kurth, 2010; Hardon et al., 2007; Mills et al., 2006; Mshana et al., 2006; Tsai & Bangsberg, 2011; Tuller

et al., 2009; Wanyama et al., 2007). However, there are still important research gaps which need to be addressed.

Previous studies have not examined adherence to ART among patients with different treatment profiles; this approach might allow new insights into factors that constrain and facilitate ART adherence. In addition, there is a very limited literature on ART adherence in Democratic Republic of Congo (DRC) which remarkably restricts our understanding of factors associated with ART adherence, and renders studies on ART adherence in the DRC a research priority.

This qualitative study expands on the current available knowledge and address the above cited research gaps by exploring barriers and facilitators of adherence to ART in three different groups of participants including those on ART with no history of treatment interruption, on ART with history of treatment interruption and those lost to follow-up in the DRC's sociocultural context.

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Methods

Participants

The study was conducted in Kinshasa, the DRC in March 2011. Participants were recruited from two health facilities, the Centre Hospitalier Monkole (CHM) and the NGO Actions Communautaires Sida/Avenir Meilleur pour les Orphelins (ACS/Amo-Congo) through a maximum variation, purposive sampling strategy (Bowers, House, & Owen, 2011). Our participants consisted of (1) participants who successfully completed at least six months of treatment since antiretroviral (ARV) treatment initiation, herein referred as participants on ARV treatment, (2) participants who were on ARV re-treatment after at least one month of ART interruption, referred to as participants on ARV re-treatment, and (3) participants who were lost to follow-up. We considered as lost to follow-up, participants who were unable to show up for ARV refills for three consecutive months (90 days) after the date of the last medical appointment. To be eligible for inclusion in the study, participants had to be at least 18 years old, HIV positive, and belong to one of the aforementioned categories. Subjects were recruited when they attended the health centers for routine medical examination or when refilling their monthly ART prescription. Participants from the lost to follow-up group were recruited through phone calls made to mobile numbers that were available on their medical files. The research team conducted additional outreach to patients lost to follow-up who could not be reached through phone calls, using addresses from medical files. Upon explaining the purpose of the study and assuring strict confidentiality, all participants provided written informed consent and completed a questionnaire on sociodemographic characteristics prior to conducting interviews. Participants were compensated for their time and transportation with an amount of 10 US dollars. This study was granted ethical approval from the Committee for Research on Human Subjects at Kyoto University and the Kinshasa School of Public Health Ethics Review Committee in the DRC.

Data collection and analysis

A literature review of ART adherence informed the development of a semi-structured interview guide. The interview guide was designed to explore topics related to participants' experiences, beliefs, behaviors, opinions, and knowledge about HIV/AIDS and ART. Probes were used to gain detailed insights and facilitate emergence of new themes. Specific questions explored reasons for medication interruption, cues to

restart ART among participants on ARV re-treatment and reasons for dropping out and barriers to restarting ART among patients lost to follow-up. A preliminary insight of data were obtained through debriefing sessions conducted at the end of each interview to note the main emerging themes and to plan how to address those themes more effectively in subsequent interviews. Interviews lasted from 25 minutes to 1 hour and were conducted in French and Lingala, the most commonly used languages in Kinshasa.

Interviews were digitally recorded, then transcribed verbatim and translated into English. All the transcripts were reviewed for accuracy by comparing with the recordings. Field notes and data-set transcripts constituted the final material for analysis. Data were manually analyzed using a thematic-analysis approach. This approach involves getting familiarized with the data through an iterative process of reading the data-set transcripts, generating initial codes, arranging codes into larger categories, drawing connections between codes and categories until generation of a saturated thematic map of the analysis (Braun & Clarke, 2006). The analytical process included a separate data analysis of participants on ARV treatment, re-treatment and, lost to follow-up, allowing new insights into determinants of ART adherence across the three categories of participants. Initially, two investigators (PMM & TT) independently coded the transcripts and identified emerging themes relevant to the research question. Discrepancies in coding were discussed and resolved by consensus and codes were organized into larger categories. In the second phase, codes, and categories were revised and refined through regular meetings with an expert panel (MDF, MOK & MK). Quotes from the participants are provided in support of the themes we identified and are lightly edited for ease of reading. Efforts were made to not substantially alter the contents of the quotes.

Results

Description of study participants

Thirty-eight participants were interviewed, considering the sample size of 5-25 participants potentially needed to achieve thematic saturation from previous studies (Creswell, 2007). Nineteen participants (50%) were currently on ARV treatment, 13 (34%) on ARV re-treatment, and 6 (16%) were lost to follow-up. The median age of participants was 41 years; most had completed primary education but were without standard employment and had a monthly income of less

than 20.0% of participants. Almost half reported having irregular meals (Table 1).

Barriers to adherence

We found an overall similarity in the pattern of themes that emerged across the three categories of participants (Table 2).

Food insecurity

Food insecurity was the most common theme that emerged both as a day-to-day barrier to ART adherence among participants from ARV treatment and re-treatment group and as one of the principal reasons for ART interruption among participants from the ARV re-treatment and lost to follow-up group. Participants described two pathways through which food insecurity constrained adherence to ART: (1) experiencing increased ART side effects and (2) the belief that ART does not work or is harmful when taken without food. Several participants reported experiencing uncomfortable side effects when they took her medication on an empty stomach. One participant said:

Table 1. Sample characteristics.

Variable	N =38	%
Age in years (median)	41	
Gender		
Male	14	36.8
Female	24	63.2
Marital status		
Single, separated	13	34.2
Married, cohabitating	21	55.3
Widow/widower	4	10.5
Treatment category		
On ARV treatment	19	50.0
On ARV re-treatment	13	35.2
Lost to follow-up	6	15.8
Education level		
None	2	5.3
Primary	8	21.1
Secondary	20	52.6
University	8	21.1
Profession		
With employment	13	34.2
Without employment	25	65.8
Monthly income		
< 20\$	17	44.7
20-100\$	17	44.7
>100\$	4	10.5
Meal/day		
Regular (≥ 2 meals)	22	57.9
Irregular (≤ 1 meal)	16	42.1

Table 2. Summary of themes by treatment category.

Themes	Treatment category		
	On ARV treatment	On ARV re-treatment	Lost to follow-up
Food insecurity	✓-	✓-	✓-
Financial insecurity	✓-	✓-	✓-
Forgetfulness	✓-	✓-	✓-
Fear of disclosure/stigma	✓-	✓-	✓-
Religious beliefs	✓+	✓±	✓-
Others			
Travel/migration		✓-	✓-
Feeling hopeless		✓-	✓-
Side effects	✓-	✓-	✓-
Alcohol	✓-		✓-
Traditional medicines		✓-	✓-

✓ indicates in rank order the themes that emerged and affected ART adherence.

- indicates a barrier of adherence to ART.
+ indicates a facilitator of adherence to ART.

It's very tough to take the pills when there is nothing to eat. I made two weeks I was not taking the pills. When I took them without food I had stomach aches. (41-year-old female on ARV treatment)

The belief that the medicines are not effective or harmful when taken on an empty stomach also affected adherence to ART:

The only problem is just about eating. You need to eat for this treatment to work. If I have no food I don't take pills. Like today I didn't take my pills because I couldn't eat (35-year-old female on ARV re-treatment)

The medication can be good but can also be bad for the body if you take them without foods. Taking pills without eating can actually cause much damage in your body. (63-year-old male lost to follow-up)

Food insecurity was a daily concern and a source of frustration for participants and their family members. As one participant stated:

I really have financial problems; I don't know what to do. Sometimes I am just fed up, mainly if I have nothing to eat, I get angry and push the pills bottle away from me. (45-year-old female on treatment)

Financial insecurity

Another important theme that impacted adherence was financial insecurity. Participants expressed

difficultly securing money for transportation to attend clinical visits or other medical-related expenses such as medical tests or clinical examination fees. This resulted in some of them missing their medication refill appointments or temporarily interrupting their medication. Moreover, we noted that other medical-related expenses constituted a barrier to restarting ART among patients lost to follow-up. Although both health facilities offered ART free of charge, participants still had to pay for other ancillary costs. For example, a 48-year-old male participant who interrupted ART after relocating in the hinterland of Congo explained his difficulties in restarting the treatment when he came back to the city of Kinshasa:

I was discouraged when I learned from somebody that there (meaning the health facility) they ask 25\$ for the CD4 test. I was really trying to figure out how to take contact with the health facility for restarting my treatment until when you contacted me. (48-year-old male lost to follow-up)

Participants sometimes had to balance between allocating their very limited budget on either their medical expenses or on household needs such as paying for children's education or securing food for the household. One participant said:

At a certain time I stopped taking my medication because I had many financial problems, I had to take care of children's education and moreover you need to eat when you take those pills. (48-year-old male on ARV re-treatment)

Forgetfulness

Forgetfulness was a common reason for skipping doses among participants from all the categories. In a few instances, forgetfulness resulted in taking more than the prescribed dose. One participant said:

Sometimes, it happens that I forget that I have already taken my evening pills; in that case I will take another one just to be sure I don't miss. I notice that when I run out of pills before the next appointment for treatment refill and then I just remember that I took more than two doses the other day. (44-year-old male on ARV treatment)

Fear of disclosure/stigma

Participants often did not disclose their HIV status out of fear of rejection and gossip. Some participants pointed to stigma as a potential barrier to ART adherence; however, this did not affect adherence inasmuch as most of them used coping strategies such as taking pills secretly or faking the name of pills when asked. In contrast, a number of participants

admitted to interrupting their medication out of fear of inadvertently disclosing their HIV status. One participant said:

I was not here (meaning that she was not at home). I went to live at my grandparents' place; over there they were not aware of my disease, so I didn't want them to know. (28-year-old female on ARV re-treatment)

Religious and traditional beliefs

Religious beliefs were both a barrier and a facilitator of ART adherence. The belief that one's disease was caused by witchcraft led a few participants from the ARV re-treatment and lost to follow-up groups to interrupt their medication and to use prayers and/or traditional medicines in search for potential cure. On the other hand, many participants sustained the belief that it is God who provided the knowledge to make ARVs; this mindset motivated them to keep adhering to the treatment:

I am a Christian and a believer, I know that God exists but those medicines also were inspired by God. God is the one who gave inspiration to doctors to make those medicines for us. (59-year-old male on ARV treatment)

Those medicines just give you strength but God is the one who cures. Because it is God who gave you intelligence to find out medicines, so through medicines I can get cured; before putting the pills in your mouth you must have faith. (37-year-old female on ARV re-treatment)

Other barriers

Other reported barriers included travel or migration, feeling hopeless, side effects, and the use of traditional medicines. Other participants reported delaying or skipping ART doses after alcohol consumption.

Discussion

This is the first qualitative study to examine ART adherence correlates among HIV-positive people with different treatment experiences, and the first to examine adherence among HIV-infected adults in Kinshasa, DRC. We found that food insecurity was the most frequently reported barrier to ART adherence among our participants. Previous studies on ART adherence have identified food insecurity as a contributing factor of nonadherence to ART, but none of these prior studies examined barriers to ART adherence among participants with different treatment experiences (Hardon et al., 2007; Nagata et al.,

2012; Sanjobo, Frich, & Fretheim, 2008; Weiser et al., 2010). Our study purposively selected participants with different treatment profiles, namely participants who were on ARV treatment, re-treatment, and lost to follow-up. Examining adherence barriers exclusively with participants on ARV may reveal only a partial picture of barriers to ART adherence; since this group represents participants who have so far managed to adhere to treatment so, barriers identified essentially reflect those that interfere with day-to-day ART adherence. Thus, knowledge on these two last patients groups is vital as poor adherence and ART interruption foster emergence of HIV drug resistance, which, besides affecting long-term effectiveness of ART at the individual level, raises serious public health implications with potential transmission of drug-resistant strains of HIV (Danel et al., 2009; Gupta et al., 2012; Lima et al., 2008; Luebbert et al., 2012).

Participants reported skipping ART doses in the absence of food; this held true for participants in the ARV treatment and re-treatment groups. In addition, participants in the ARV re-treatment and lost to follow-up groups identified food insecurity among the main reasons for their treatment interruption.

Food insecurity is associated with a number of adverse health behaviors. For instance, a previous study found increased risky sexual behaviors among food-insecure women in Botswana and Swaziland (Weiser et al., 2007). Moreover, food insecurity was shown to be associated with unsuppressed viral load which may lead to treatment failure (Wang et al., 2011).

These findings suggest that effective strategies to promote food access to patients on ART should be implemented in order to curtail the negative effects of food insecurity on ART adherence in the DRC. For example, nutritional support to food-insecure patients was shown to improve both ART adherence and patient retention in care in sub-Saharan Africa (Cantrell et al., 2008).

Additionally, addressing financial constraints is also critically important in improving adherence to ART. These results are in line with a recent study in Mozambique which showed that adherence to ART and patient retention in care improved when patients were organized in small groups, and collected pills for all the members on a rotating basis to reduce the cost of transportation (Decroo et al., 2010).

We also found that stigma and fear of disclosure were barriers to ART adherence. Most participants kept their HIV status secret and revealed it only in a very restricted social network such as the immediate family. Although patients listed stigma and fear of disclosure as a barrier to ART adherence, this did not seem to decrease their actual adherence since many of them used strategies such as disguising or taking their

medication secretly to avoid disclosure. However, such strategies were more difficult to sustain over long periods of time in an environment which they considered hostile for disclosure; for example, when patients relocated to a relative's home, then resolved to interrupt medication to avoid unintentional disclosure.

We found that religious beliefs were both a barrier and facilitator of ART adherence. Previous studies have identified beliefs in spiritual healing and/or beliefs around the causes of HIV to impact negatively on ART adherence (Mshana et al., 2006; Roura et al., 2009; Wanyama et al., 2007). Participants who believed their disease was caused by witchcraft interrupted their medication to seek healing through prayers and/or traditional medicine. Conversely, some patients thought of ART as an expression of God's knowledge transmitted to care providers, and this was sufficient incentive for them to stick with medication. These findings fit with the social context of the DRC where religious and spiritual beliefs are essential components of people's lives (Maman, Cathcart, Burkhardt, Omba, & Behets, 2009). Addressing religious barriers in interventions designed to promote adherence to ART in such settings might help to improve patient retention in ART programs. Faith-based organizations can positively impact on ART adherence by promoting ARVs as a divine tool to fight HIV/AIDS.

Our study has some limitations. First, there might be a selection bias with participants lost to follow-up. A significant number of lost to follow-up were reported dead suggesting that those we recruited might represent a specific group of survivors with different views and experiences. Second, participants were all selected from private health facilities that supplied ARVs free of charge. It is possible that participants from the public health sector may offer another picture of barriers of adherence to ART, especially in settings where ARVs are not free. Finally, although we believe that our results may be extended to similar settings; it is unclear to what extent they can be applied in different contexts in sub-Saharan Africa.

However, this study is unique in that it captures diverse perspectives of determinants of adherence to ART from participants with different treatment profiles. In addition, we found that in response to the same adherence barrier, participants adopted different medication taking behavioral trajectories namely the interruption or just skipping a daily dose of their medication. Furthermore, it would not have been possible to unveil the negative impact of religious beliefs, travel/migration, feeling hopeless, and traditional medicines on ART adherence if we

examined adherence only with participants in the ARV treatment group.

Conclusion

We found that food insecurity emerged as a common and an important barrier to ART adherence among patients in the DRC. HIV treatment and care programs should comprehensively address food insecurity in the context of other sociocultural-related factors to ensure patient adherence to ART and ultimately long-term success of HIV treatment in the region.

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Latin American immigrants have limited access to health insurance in Japan: a cross sectional study

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Abstract

Background: Japan provides universal health insurance to all legal residents. Prior research has suggested that immigrants to Japan disproportionately lack health insurance coverage, but no prior study has used rigorous methodology to examine this issue among Latin American immigrants in Japan. The aim of our study, therefore, was to assess the pattern of health insurance coverage and predictors of uninsurance among documented Latin American immigrants in Japan.

Methods: We used a cross sectional, mixed method approach using a probability proportional to estimated size sampling procedure. Of 1052 eligible Latin American residents mapped through extensive fieldwork in selected clusters, 400 immigrant residents living in Nagahama City, Japan were randomly selected for our study. Data were collected through face-to-face interviews using a structured questionnaire developed from qualitative interviews.

Results: Our response rate was 70.5% (n = 282). Respondents were mainly from Brazil (69.9%), under 40 years of age (64.5%) and had lived in Japan for 9.45 years (SE 0.44; median, 8.00). We found a high prevalence of uninsurance (19.8%) among our sample compared with the estimated national average of 1.3% in the general population. Among the insured full time workers (n = 209), 55.5% were not covered by the Employee's Health Insurance. Many immigrants cited financial trade-offs as the main reasons for uninsurance. Lacking of knowledge that health insurance is mandatory in Japan, not having a chronic disease, and having one or no children were strong predictors of uninsurance.

Conclusions: Lack of health insurance for immigrants in Japan is a serious concern for this population as well as for the Japanese health care system. Appropriate measures should be taken to facilitate access to health insurance for this vulnerable population.

Keywords: Health insurance, Immigrants, Foreign workers, Japan, Latin America

Background

Japan provides universal health insurance and all citizens, including foreigners who stay for a year or more are required to enroll in one of the public health insurance schemes [1,2]. Health insurance coverage remains one of the most important ways to ensure access to health services [3]. With insurance, individuals and families can protect themselves against exceptional health care costs, and access screening services for early detection and treatment of illness [4,5]. Immigrants are a vulnerable population and their access to insurance

and healthcare has been extensively researched in other countries [6-8]. Even in countries with universal health insurance such as Canada or Spain, immigrants face multiple barriers accessing healthcare [9,10], including uninsurance [11].

In Japan, foreigners represent 1.71% of the total population, roughly 2.2 million (as of 2009) [12]. Historically, immigration has played a minor role in Japan's history but the rapid growth of the Japanese economy in the 1980's coupled with a declining birth rate, aging population and younger Japanese labor force favoring higher status jobs, created a strong demand for labor in certain sectors of the economy [13,14]. The revision of the Immigration Law in 1990 led to a large influx of descendants of Japanese emigrants from Brazil and Peru.

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