

## Analytical results of study: Ethnic differences in the Duration of Untreated Psychosis and referral patterns in patients presenting to an Early Psychosis Intervention Team (Part 1)

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- Education level is significantly associated with Duration of untreated psychosis (DUP), and is also associated with ethnicity significantly (Table 2).  
Patients with completed-partial-high school education have significant prolong DUP compared with patients with completed-high school or secondary school education ( $p=0.01$ ,  $p=0.02$  respectively). Median (IQR) DUP of patients with partial-high-school education is 10(3, 24), whilst median (IQR) DUP of patients with complete-high-school or secondary school is 3(2, 6) and 2.5(1, 5.8) respectively (Figure 1).
- Type of diagnosis is another significant factor associated with DUP. Patients' being diagnosed as "mood" psychosis have shortest DUP than patients in other categories (median 1(0, 1.3) vs. 12(4, 24) ( $p=0.004$ )). There is a trend that "schiz" patients have longer DUP than "affective" patients (Median 12 (4, 24) vs. 4(2.8, 6.3)).
- Without primary care is also identified as a possible risk factor that relates to prolong DUP. Patients with primary care tend to have shorter DUP than patients without primary care (median (IQR) 3(1, 11) vs. 5(3, 18)  $p=0.07$ ).
- Other factors includes age( $r=0.07, p=0.58$ ), gender, referral source, type of employment, type of residence support, alcohol or drug condition, living arrangement and deprivation index( $r=0.19, p=0.12$ ) do not have adequate evidence to suggest significant associations with DUP.
- The distribution of completed education level significantly differ across four ethnicities ( $p=0.02$ ). Majority of the patients have completed-partial-high school education (48%), Maori patients have the highest proportion (70%) of completed-partial-high school education than other ethnicities. *There is a trend that Maori and Pacific people have higher DUP than Caucasian patients. However, the current data did not have enough evidence to suggest that the difference is statistically significant.*

- A larger proportion of Maori patients were referred from community, whilst larger proportion of Caucasian patients and Pacific patients were referred from medical centres (GP, outpatients, and hospital). Most of the patients in the other ethnicities are referred from community.

### **Suggestions for further studies**

A main question raised from this auditing is how to improve patient care in the future based on the current information. Can you design a new intervention to improve patient's outcome? The upcoming focus group shall give us some answers to 1) how to reduce delay treatment 2) how to refine a new intervention.

The other questions are:

- Identify why patients with lower completed education level have longer DUP. Shall CMDHB raise awareness of early psychosis in the younger community?
- What is the barrier of patients without primary care to receive treatment early? Would patients with primary care have better outcome?
- Is there any difference in the outcome between patients with shorter DUP vs. patients with longer DUP?
- Launch a larger scale study to investigate DUP in sub populations. We need to collect more data in different ethnicities, sub types of diagnosis.
- Do you provide different interventions to patients with different types of diagnosis? Will a new type of intervention improve the outcome? I.e. Adding primary care to the patients.

**Table 1. Patients' characteristics**

<b>Age median (IQR)</b>		20(19,23)
<b>Gender</b>	Male	54(74%)
<b>Ethnicity</b>		
	Caucasian	25(34%)
	Maori	27(37%)
	Pacific people	11(15%)
	others	10(14%)
<b>Completed education</b>		
	Partial high school	35(48%)
	high school	22(30%)
	Secondary school	16(22%)
<b>Type of diagnosis</b>		
	Schiz	11(15%)
	Affective	6(8%)
	Other psychosis	49(67%)
	Mood	6(8%)
	Others	1(1%)
<b>With primary care</b>		35(50%)
<b>Living arrangement</b>		
	living with parents	47(64%)
	Others	26(36%)
<b>Residence type</b>		
	private housing	69(95%)
<b>Residential support</b>		
	Independent	46(65%)
	Dependant	25(35%)
<b>Alcohol and drug</b>		
	Alcohol	7(10%)
	Other drugs	3(4%)
	Alcohol and other drugs	28(38%)
	not applicable	33(45%)
	Unknown	2(3%)
<b>Employment</b>		
	competitive employment	11(15%)
	no employment	60(82%)
<b>Referral sources</b>		
	community	39(53%)
	medical sources	34(47%)

**Table 2. Association between ethnicity and education, referral source**

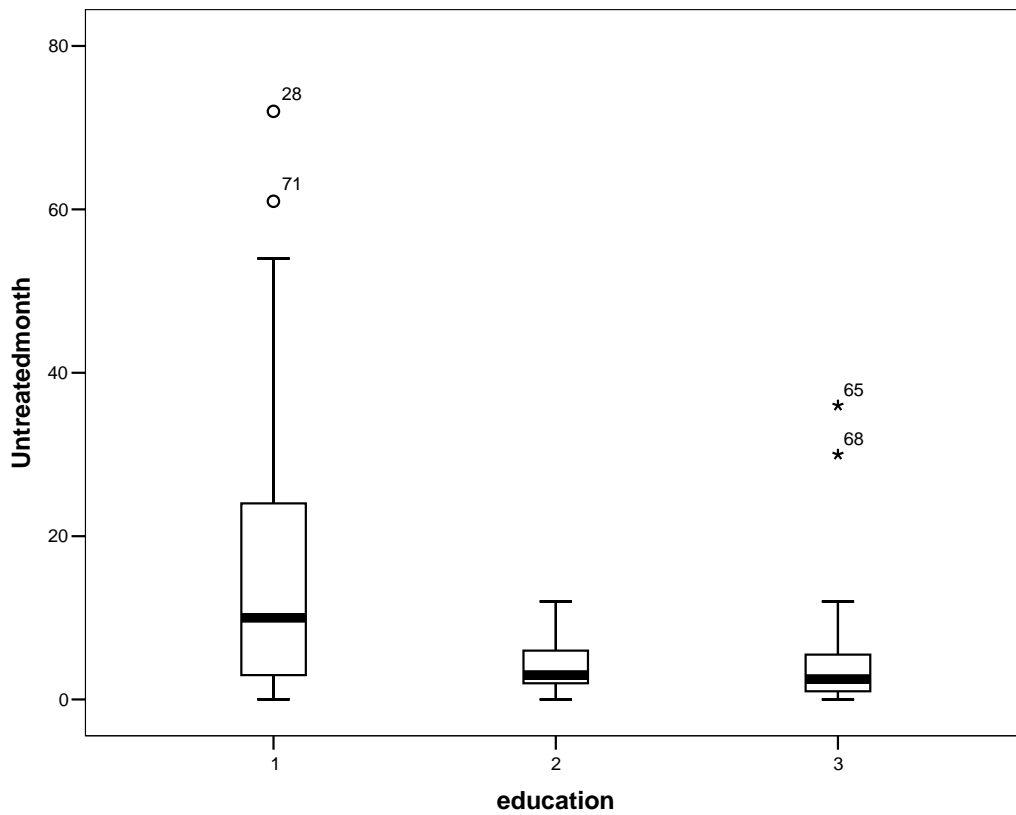
		<b>Completed education</b>		
<b>Ethnicity</b>		Partial high school	High school	Secondary school
	Caucasian	11(44%)	6(24%)	8(32%)
	Maori	19(70%)	5(19%)	3(11%)
	Pacific people	4(36%)	5(46%)	2(18%)
	others	1(10%)	6(60%)	3(30%)

\* Data presented are counts (row %), chi square test for association p=0.02

		<b>Referral sources</b>	
<b>Ethnicity</b>		Community	Medical centres
	Caucasian	11(44%)	14(56%)
	Maori	15(56%)	12(44%)
	Pacific people	5(46%)	6(55%)
	others	8(80%)	2(20%)

\* Data presented are counts (row %); Chi square test for association p=0.26

**Figure 1. Duration of Untreated Early Psychosis patients with different completed education. 1= partial-completed-high school, 2=completed-high-school, 3=completed-secondary school p=0.01**



**APPENDIX**

**Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	F	19	26.0	26.0	26.0
	M	54	74.0	74.0	100.0
	Total	73	100.0	100.0	

**Diagnosis**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	15.1	15.1	15.1
	2	6	8.2	8.2	23.3
	3	49	67.1	67.1	90.4
	4	6	8.2	8.2	98.6
	5	1	1.4	1.4	100.0
	Total	73	100.0	100.0	

**ethnicitygr**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	25	34.2	34.2	34.2
	3	27	37.0	37.0	71.2
	5	11	15.1	15.1	86.3
	9	10	13.7	13.7	100.0
	Total	73	100.0	100.0	

**Primary Care**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	35	47.9	50.0	50.0
	2	35	47.9	50.0	100.0
	Total	70	95.9	100.0	
Missing	System	3	4.1		
Total		73	100.0		

**LivingArrangement**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	4.1	4.2	4.2
	2	1	1.4	1.4	5.6
	3	7	9.6	9.9	15.5
	4	2	2.7	2.8	18.3
	5	47	64.4	66.2	84.5
	6	7	9.6	9.9	94.4
	7	4	5.5	5.6	100.0
	Total	71	97.3	100.0	
Missing	System	2	2.7		
Total		73	100.0		

**ResidenceType**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	69	94.5	97.2	97.2
	3	1	1.4	1.4	98.6
	4	1	1.4	1.4	100.0
	Total	71	97.3	100.0	
Missing	System	2	2.7		
Total		73	100.0		

**referral source3**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	39	53.4	53.4	53.4
	2	34	46.6	46.6	100.0
	Total	73	100.0	100.0	

**employment 2**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	11	15.1	15.5	15.5
	5.00	60	82.2	84.5	100.0
	Total	71	97.3	100.0	
Missing	System	2	2.7		
Total		73	100.0		

**residential support new**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	46	63.0	64.8	64.8
	2.00	25	34.2	35.2	100.0
	Total	71	97.3	100.0	
Missing	System	2	2.7		
Total		73	100.0		

**alcohdrug**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	9.6	9.9	9.9
	2	3	4.1	4.2	14.1
	3	28	38.4	39.4	53.5
	8	33	45.2	46.5	100.0
	Total	71	97.3	100.0	
Missing	System	2	2.7		
Total		73	100.0		

**education\_enrol**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	15	20.5	20.8	20.8
	8	57	78.1	79.2	100.0
	Total	72	98.6	100.0	
Missing	System	1	1.4		
Total		73	100.0		

**education**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	35	47.9	47.9	47.9
	2	22	30.1	30.1	78.1
	3	16	21.9	21.9	100.0
	Total	73	100.0	100.0	

**living arrangement**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	47	64.4	64.4	64.4
	2.00	26	35.6	35.6	100.0
	Total	73	100.0	100.0	

**Diagnosis**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	11	15.3	15.3	15.3
2	6	8.3	8.3	23.6
3	49	68.1	68.1	91.7
4	6	8.3	8.3	100.0
Total	72	100.0	100.0	

**Correlations**

		age	Untreated month
Spearman's rho	age	Correlation Coefficient	1.000
		Sig. (2-tailed)	.066
		N	.581
	Untreatedmonth	Correlation Coefficient	.066
		Sig. (2-tailed)	1.000
		N	.581
		N	73

**ethnictygr \* education Crosstabulation**

		education			Total
		1	2	3	
ethnictygr 2	Count	11	6	8	25
	% within ethnictygr	44.0%	24.0%	32.0%	100.0%
3	Count	19	5	3	27
	% within ethnictygr	70.4%	18.5%	11.1%	100.0%
5	Count	4	5	2	11
	% within ethnictygr	36.4%	45.5%	18.2%	100.0%
9	Count	1	6	3	10
	% within ethnictygr	10.0%	60.0%	30.0%	100.0%
Total	Count	35	22	16	73
	% within ethnictygr	47.9%	30.1%	21.9%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.527 <sup>a</sup>	6	.024
Likelihood Ratio	15.230	6	.019
Linear-by-Linear Association	2.714	1	.099
N of Valid Cases	73		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is 2.19.

**Tests of Between-Subjects Effects**

Dependent Variable: Inmonth

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15.346 <sup>a</sup>	6	2.558	1.902	.095
Intercept	123.665	1	123.665	91.973	.000
education	6.816	2	3.408	2.534	.088
ethnictygr	1.246	3	.415	.309	.819
PrimaryCare	3.650	1	3.650	2.715	.105
Error	80.675	60	1.345		
Total	279.078	67			
Corrected Total	96.021	66			

a. R Squared = .160 (Adjusted R Squared = .076)

**ethnictygr \* referral source3 Crosstabulation**

			referral source3		Total
			1	2	
ethnictygr 2	Count	11	14	25	
	% within ethnictygr	44.0%	56.0%	100.0%	
3	Count	15	12	27	
	% within ethnictygr	55.6%	44.4%	100.0%	
5	Count	5	6	11	
	% within ethnictygr	45.5%	54.5%	100.0%	
9	Count	8	2	10	
	% within ethnictygr	80.0%	20.0%	100.0%	
Total	Count	39	34	73	
	% within ethnictygr	53.4%	46.6%	100.0%	

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.061 <sup>a</sup>	3	.255
Likelihood Ratio	4.298	3	.231
Linear-by-Linear Association	2.823	1	.093
N of Valid Cases	73		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.66.

**Diagnosis \* education Crosstabulation**

			education			Total
			1	2	3	
Diagnosis 1	Count		8	2	1	11
	% within Diagnosis		72.7%	18.2%	9.1%	100.0%
2	Count		1	3	2	6
	% within Diagnosis		16.7%	50.0%	33.3%	100.0%
3	Count		24	15	10	49
	% within Diagnosis		49.0%	30.6%	20.4%	100.0%
4	Count		2	1	3	6
	% within Diagnosis		33.3%	16.7%	50.0%	100.0%
Total	Count		35	21	16	72
	% within Diagnosis		48.6%	29.2%	22.2%	100.0%

**Diagnosis \* ethnicitygr Crosstabulation**

			ethnicitygr				Total
			2	3	5	9	
Diagnosis 1	Count		3	5	1	2	11
	% within Diagnosis		27.3%	45.5%	9.1%	18.2%	100.0%
2	Count		4	1	0	1	6
	% within Diagnosis		66.7%	16.7%	.0%	16.7%	100.0%
3	Count		15	17	10	7	49
	% within Diagnosis		30.6%	34.7%	20.4%	14.3%	100.0%
4	Count		3	3	0	0	6
	% within Diagnosis		50.0%	50.0%	.0%	.0%	100.0%
Total	Count		25	26	11	10	72
	% within Diagnosis		34.7%	36.1%	15.3%	13.9%	100.0%

**Table is too sparse to conduct chi square test.**

**Deprivation index and DUP**

**Correlations**

			Dep Score	Untreated month
Spearman's rho	Dep Score	Correlation Coefficient	1.000	.185
		Sig. (2-tailed)	.	.120
		N	72	72
	Untreatedmonth	Correlation Coefficient	.185	1.000
		Sig. (2-tailed)	.120	.
		N	72	73