# Multimorbidity in a University-based Family Practice

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## OBJECTIVE

Multimorbidity means several concurrent medical conditions within one person. Multimorbidity is common in aging society. This study was aimed to estimate prevalence of multimorbidity and identify common comorbidities in primary care settings.

# METHODS

# RESULTS

Mean age of outpatients was 53.6 years in both male and female. Prevalence of multimorbidity in 15- to 40-year of age, 41- to 64- year of age, more than 65-year of age were 36.4%, 69.9%, 70.2% in male and 35.2%, 62.2%, 76.1% in female, respectively (Table 1).

### **1. STUDY SUBJECTS**

# Patients who visited out-patient department of family medicine in Samsung Medical Center

Study population (n=2312) Reason for encounter was Coded by ICPC-2E <sup>+</sup> 49 subjects excluded
Encounter without patient (n=7)
Administration purpose for insurance (n=21)
Others (n=21)

Study enrollment for

analysis multimorbidity

(n =2263)

<sup>+</sup> International classification of Primary Care- 2<sup>nd</sup> Edition

Linn BS, Linn MW, Gurel L. Cumulative illness rating scale

Journal of the American Geriatrics Society 1968;16:622-6

‡ Cumulative illness rating scale

135 subjects excluded Physicians couldn't score CIRS <sup>‡</sup> due to uncertain diagnosis

Study enrollment for analysis CIRS \* score (n = 2128)

### **2. STUDY PERIODS**

Each one week of April, July, October 2012 and January 2013

## **3. DATA COLLECTION, MEASUREMENTS**

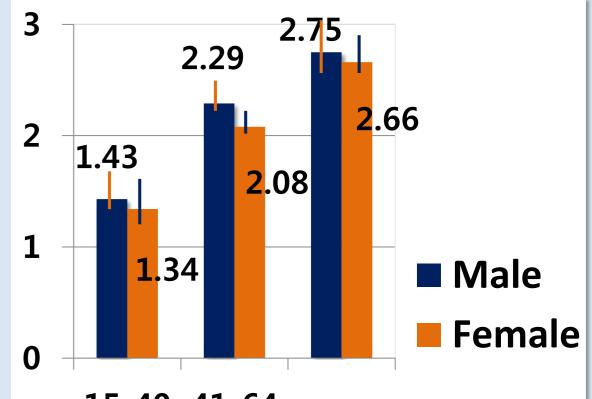
#### Table 1. Prevalence of multimorbidity

		15-40 year	41-64 year	≥ 65 year
Sex	Male	177 (35.8% <sup>+</sup> )	476 (40.6%)	240 (40.3%)
	Female	317 (64.2%)	697 (59.4%)	356 (59.7%)
Number	0 or 1	292 (59.1% <sup>‡</sup> )	348 (29.7%)	134 (22.5%)
of	2	115 (23.3%)	367 (31.3%)	136 (22.8%)
health	3	51 (10.3%)	258 (22.0%)	137 (23.0%)
problems	4	20 (4.0%)	117 (10.0%)	94 (15.8%)
	≥5	16 (3.2%)	83 (7.0%)	95 (15.9%)

+ Percentage of male and female in each age group+ Percentage of each number of health problems in each age group

# Figure 1. Mean number of health problems by age and sex

66% of patients addressed more than 2 health problems and only 15% of them consulted 1 health problem with their physician. Approximately 67% of them consulted all health problems they had during one visit



- Case report forms by physicians, Medical records review
- Multimorbidity burden was measured by counting number of health problems and scoring Cumulative illness rating scale.

### 4. STATISTICAL ANALYSIS

Analysis of variance, Kruskal-Wallis test

#### Table 3. Mean CIRS score by Age and Sex

	15-40 year	41-64 year	≥65 year	P-value <sup>†</sup>
Male	2.28	3.24	3.60	< 0.01
	(2.01-2.58)	(3.06-3.42)	(3.30-3.88)	
Female	1.81	2.90	3.66	< 0.01
remare	(1.64-1.99)	(2.75-3.05)	(3.44-3.89)	
P-value <sup>‡</sup>	< 0.01	< 0.01	0.75	

P-value from Kruskal-Wallis test for mean difference of all three age groups both male and female
 P-value from T-test for mean difference of CIRS between male and female

#### Table 4. TOP 10 most common health problems by category

Consulted chronic health problem			Frequency (%)		
K86	Hypertension uncomplicated	23.5	23.5*		
<b>T93</b>	Lipid disorder	16.0	39.5		
<b>T90</b>	Diabetes non-insulin dependent	11.2	50.8		
L95	Osteoporosis	3.8	54.6		
D03	Heart burn	2.3	56.9		
<b>B80</b>	Iron deficiency anemia	2.1	59.0		
<b>T86</b>	Hypothyroidism/Myxoedema	2.1	61.1		
<b>T99</b>	Endocrine/meteb/nutrit.dis.other	2.0	63.1		
<b>T82</b>	Obesity	1.7	64.8		
N01	Headache	1.3	66.1		
Consulted acute health problems Frequency					
	consulta acate nearth prosients	rieque	ncy ( <i>7</i> 0)		
A44	Preventive immunisations / Medications	9.0	ncy (%) 9.0*		
A44 A98					
	Preventive immunisations / Medications	9.0	9.0*		
A98	Preventive immunisations / Medications Health maintenance / Prevention	9.0 8.3	9.0* 17.4		
A98 R05	Preventive immunisations / Medications Health maintenance / Prevention Cough	9.0 8.3 7.5	9.0* 17.4 24.9		
A98 R05 N01	Preventive immunisations / Medications Health maintenance / Prevention Cough Headache	9.0 8.3 7.5 5.4	9.0* 17.4 24.9 30.3		
A98 R05 N01 R21	Preventive immunisations / Medications Health maintenance / Prevention Cough Headache Throat Symptom / Complaint other	9.0 8.3 7.5 5.4 4.5	9.0* 17.4 24.9 30.3 34.8		
A98 R05 N01 R21 A04	Preventive immunisations / Medications Health maintenance / Prevention Cough Headache Throat Symptom / Complaint other Weakness / Tiredness general	9.0 8.3 7.5 5.4 4.5 3.4	9.0* 17.4 24.9 30.3 34.8 38.2		
A98 R05 N01 R21 A04 D07	Preventive immunisations / Medications Health maintenance / Prevention Cough Headache Throat Symptom / Complaint other Weakness / Tiredness general Dyspepsia / Indigestion	9.0 8.3 7.5 5.4 4.5 3.4 3.4	9.0* 17.4 24.9 30.3 34.8 38.2 41.7		

**15-40 41-64** ≥**65** 

#### Table 2. Addressed health problems during one visit

	Number of addressed health problems					
		0 or 1	2	3	4	≥5
Number	0 or 1 (n=774)	100%				
of	2 (n=618)	19.9%	80.1%			
health	3 (n=446)	15.2%	18.4%	66.4%		
problems	4 (n=231)	10.4%	15.6%	26.0%	48.1%	
	≥5 (n=194)	6.2%	8.2%	13.4%	21.1%	51.0%

#### Table 5. Common comorbidities of chronic health problems

Chronic health problem	Most common comorbidities	Freque	ncy (%)
	T93 Lipid disorder	17	17*
<b>K86</b> Hypertension	T90 Diabetes non-insulin dependent	12	29
uncomplicated	L95 Osteoporosis	3	32
uncomprisated	D97 Liver disease NOS	3	35
	Y85 Benign prostatic hypertrophy	3	38
	T93 Lipid disorder	25	25
T90 Diabetes non-	K86 Hypertension uncomplicated	25	50
insulin dependent	D97 Liver disease NOS	2	52
	T82 Obesity	2	54
	L95 Osteoporosis	2	56
	Y85 Benign prostatic hypertrophy	2	58
	K86 Hypertension uncomplicated	23	23
T93 Lipid disorder	T90 Diabetes non-insulin dependent	11	34
	L95 Osteoporosis	4	38
	T99 Endocrine/metab/nutrit.dis.other	3	41
	D97 Liver disease NOS	3	44
	K86 Hypertension uncomplicated	14	14
L95 Osteoporosis	T93 Lipid disorder	14	28
	T90 Diabetes non-insulin dependent	5	33
	P03 Feeling depressed	3	36
	P06 Sleep disturbance	3	39

\* Cumulative frequency

\* Cumulative frequency

## CONCLUSION

This study shows high prevalence of multimorbidity with increasing age in primary care settings. Further study is required to explain the mismatch between health problems patient had and health problems addressed by physician.