

Prevalence, Pattern and Correlates of Multimorbidity in Primary Care Setting – An Indian Experience



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Outline

- Highlights
- Rationale
- Objectives
- Methodology
- Key Findings
- Implications for policy and practice
- Way forward

Highlights :

- Supported by Wellcome Trust PHFI capacity building grant
- The first ever study to explore multimorbidity in South Asia
- Explored prevalence, pattern, outcomes and correlates
- Undertaken in both public and private primary care practice
- Adequate sample size and representativeness
- Developed and validated a contextualized tool to assess multimorbidity in primary care (MAQ PC) using iterative process
- Included an extensive list of chronic conditions
- Incorporated severity along with count of chronic conditions while assessing multimorbidity

Rationale :

Why multimorbidity , Why India

- The multidimensional effect of multimorbidity is well evident
- Profile of multimorbidity in high income countries is well documented
- Limited research has examined the magnitude of multimorbidity in low and middle income countries.
- Especially, No data exists in primary care patient population
- India is moving rapidly towards a disease transition with Non-Communicable Diseases emerging as leading contributor to morbidity and mortality
- Thus multimorbidity must be a common phenomenon which needs to be elucidated
- Need to explore the problem of multimorbidity by adopting a specifically designed study using a contextualized tool

Objectives

Aim: Determine the prevalence , pattern and outcomes of multimorbidity among patients attending primary care setting in Odisha, India.

Objectives:

- Explore the prevalence of multimorbidity among adults patients attending public and private primary health care facility.
- Identify commonly occurring combinations or pattern of multimorbidity among these patients.
- Find out how multimorbidity varies with age, gender, socioeconomic characteristics and type of health facility.
- Explore health care utilization by patients with multimorbidity.
- Assess the relationship between multimorbidity and health related quality of life.

Methodology

- Cross-sectional study
- 24 months (2013– 2015)
- 10 districts , Odisha state, India.
- 1649 patients across 20 public and 20 private primary care facilities
- A data collection tool was developed, validated and used for eliciting information on multimorbidity contextualized for India.
- 22 chronic conditions were included and for each condition severity (burden score) was assessed
- Health related quality of life (HRQoL) was measured through Short Form Questionnaire (SF-12)
- Healthcare utilization was estimated in terms of numbers of medicine taken, number of out patient visit to health facilities and overnight stay for chronic conditions.



Key Findings- Summary

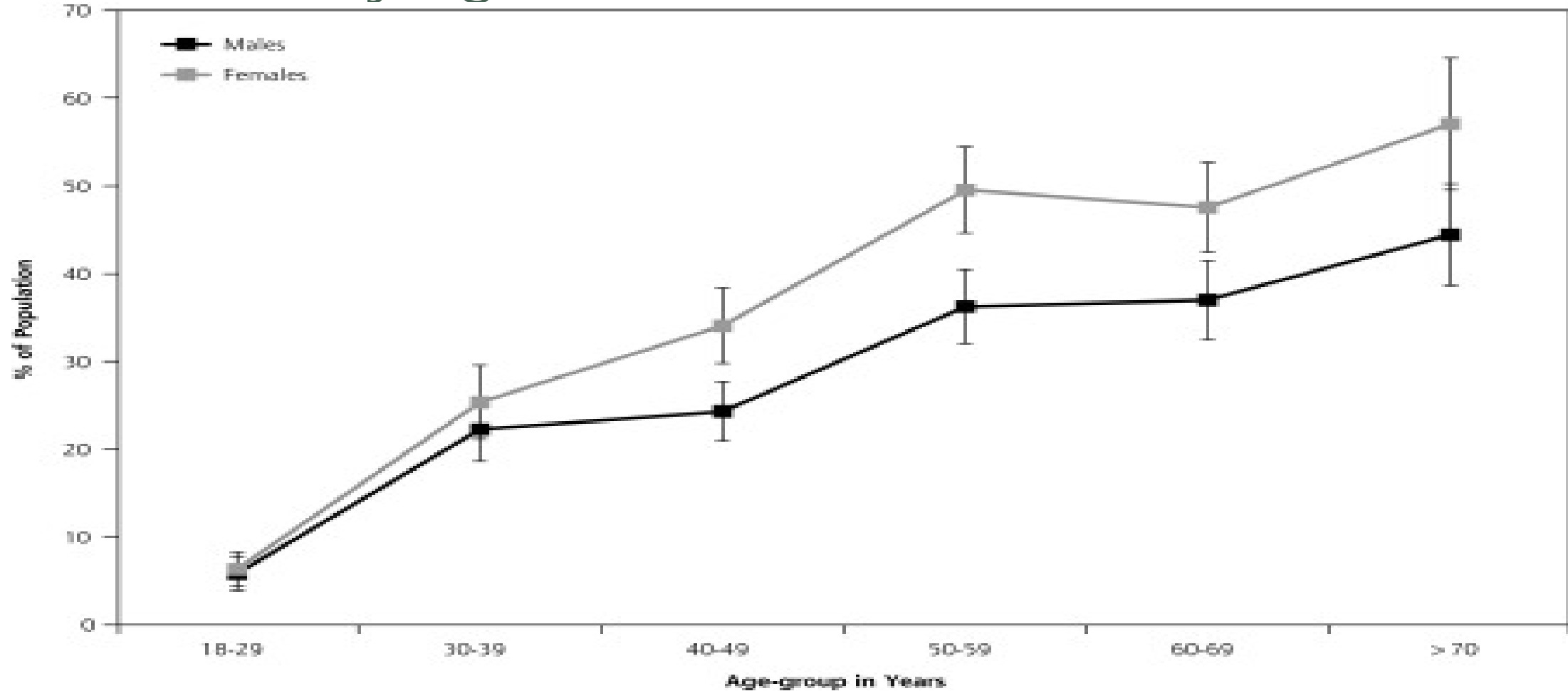
- Nearly one third (1/3) of patients attending general practice have multimorbidity.
- It is no longer restricted to elderly population, as we found one quarter of young patients (<40 years) with multimorbidity.
- Individuals with multimorbidity were found to utilize public health facility more than private.
- Number of medicines taken was significantly higher in multimorbidity when compared to those with single chronic condition.
- Patients with multimorbidity -considerably impaired quality of life, especially the mental component.
- Arthritis and respiratory diseases -widely prevalent in primary care patient population.

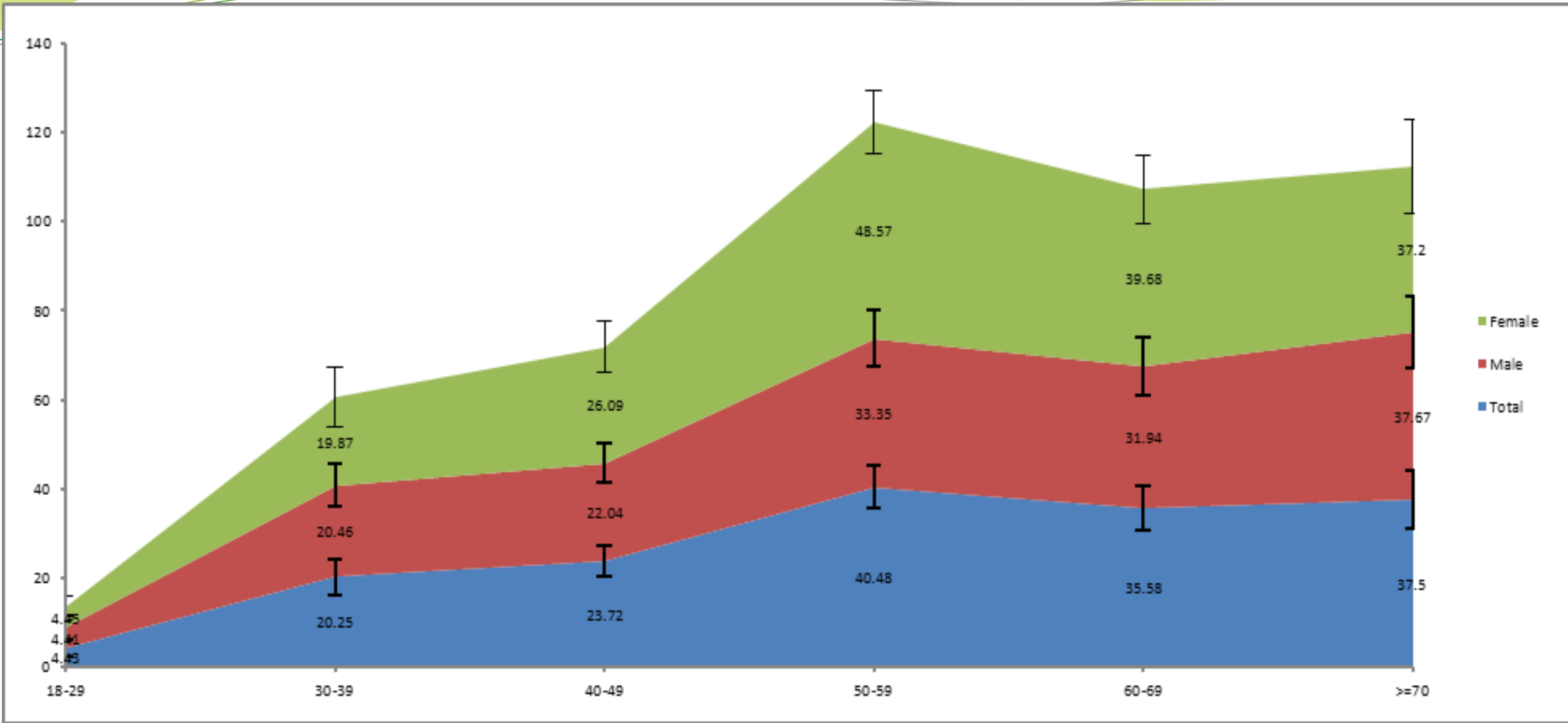
Profile of Patients

Characteristics		Total (n = 1649) (Weighted %)	Percentage with multimorbidity (≥2conditions) Weighted % [95%CI]	Mean number of morbidity [Range: 0–21]	Mean severity score [Range 0–5]
Age Group*	18–29	373[22.6]	5.8[1.99–9.6]	0.26[0.06]	2.50[0.32]
	30–39	297[18.1]	22.2[15.1–29.4]	0.86[0.14]	2.91[0.28]
	40–49	346[20.5]	24.3[17.7–30.9]	1.06[0.06]	3.35[0.27]
	50–59	266[16.7]	36.2[27.9–44.5]	1.31[0.16]	3.19[0.27]
	60–69	236[14.6]	36.9[28.1–45.8]	1.47[0.18]	3.40[0.26]
	≥70	131[07.5]	44.4[33.0–55.8]	1.59[0.24]	3.47[0.40]
Gender*	Man	921[55.8]	25.1[22.1–28.0]	0.91[0.08]	3.19[0.12]
	Woman	728[44.2]	32.5[29.0–35.9]	1.08[0.08]	3.22[0.17]
Place of living	Rural	1493[90.4]	25.5[23.2–27.8]	1.00[0.06]	3.42[0.11]
	Urban	156[9.6]	28.5[27.8–29.3]	0.85[0.18]	3.21[0.09]
Ethnicity	Aboriginal	471[28.0]	27.7[26.3–29.2]	0.96[0.14]	3.45[0.11]
	Non aboriginal	1178[71.4]	28.5[27.6–29.4]	0.76[0.10]	3.51[0.10]
Socio-economic status	Below poverty line	1035[61.6]	28.8[27.8–29.7]	0.92[0.06]	3.30[0.17]
	Above poverty line	601[38.4]	27.5[26.2–28.8]	1.10[0.10]	2.99[0.15]
Schooling	No School	642[38.1]	35.0[33.7–36.3]	0.98[0.10]	2.98[0.09]
	Primary completed	514[30.7]	28.3[27.1–29.5]	1.17[0.12]	3.42[0.19]
	Secondary and above	493[31.1]	20.1[19.6–21.1]	0.94[0.12]	3.21[0.17]
Marital Status	Currently married	1321[79.8]	29.3[28.5–30.1]	0.25[0.08]	3.13[0.16]
	Currently not married	328[20.2]	24.3[22.0–26.6]	1.25[0.06]	3.65[0.18]
Facility	Public	849[61.0]	28.1[27.1–29.1]	1.02[0.08]	3.15[0.18]
	Private	800[39.0]	28.6[27.5–29.7]	0.93[0.08]	3.12[0.11]
Total		1649	28.3[25.9–30.7]	0.95[0.03]	3.15[0.05]

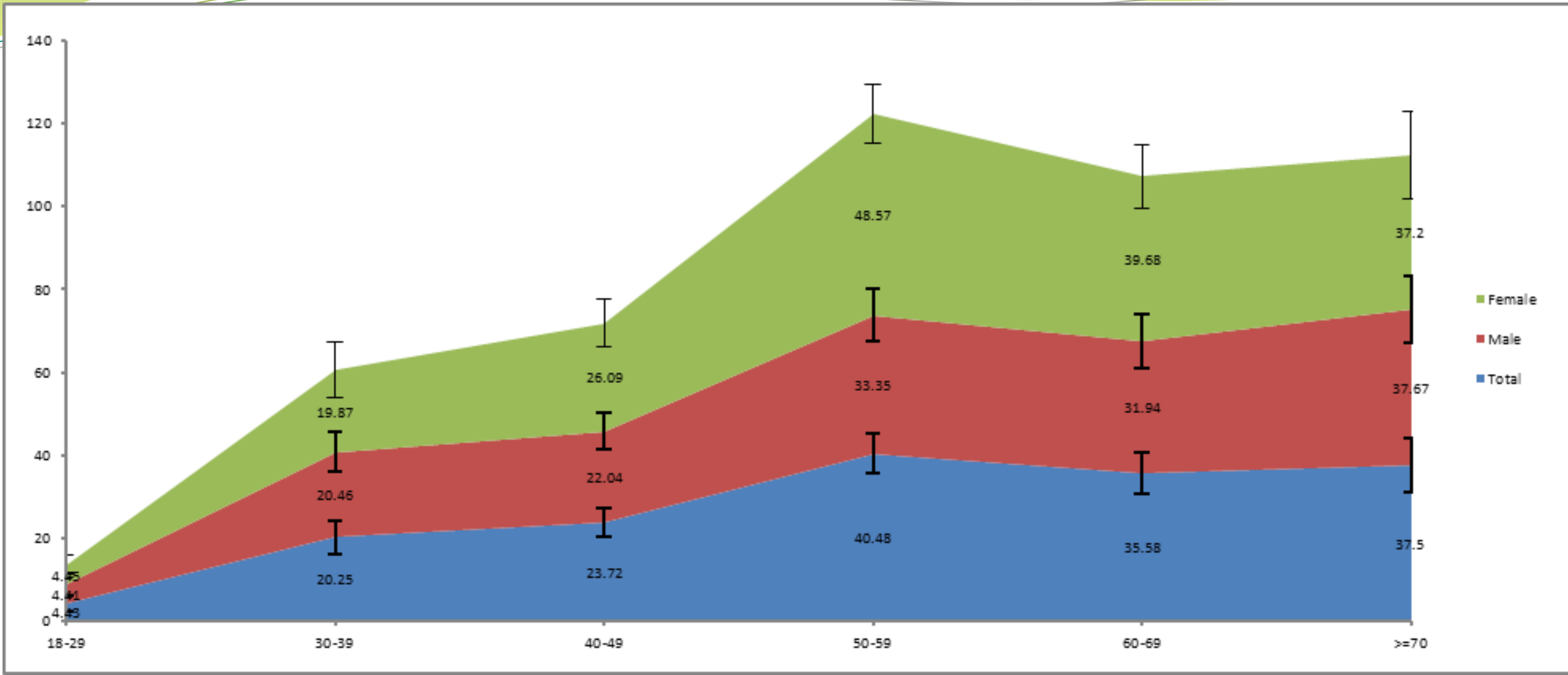
*The prevalence of multimorbidity across age group was adjusted for gender and across gender was adjusted for age, and for others, prevalence was adjusted for age and gender.

Percentage of population with more than 1 chronic condition, by age and sex.



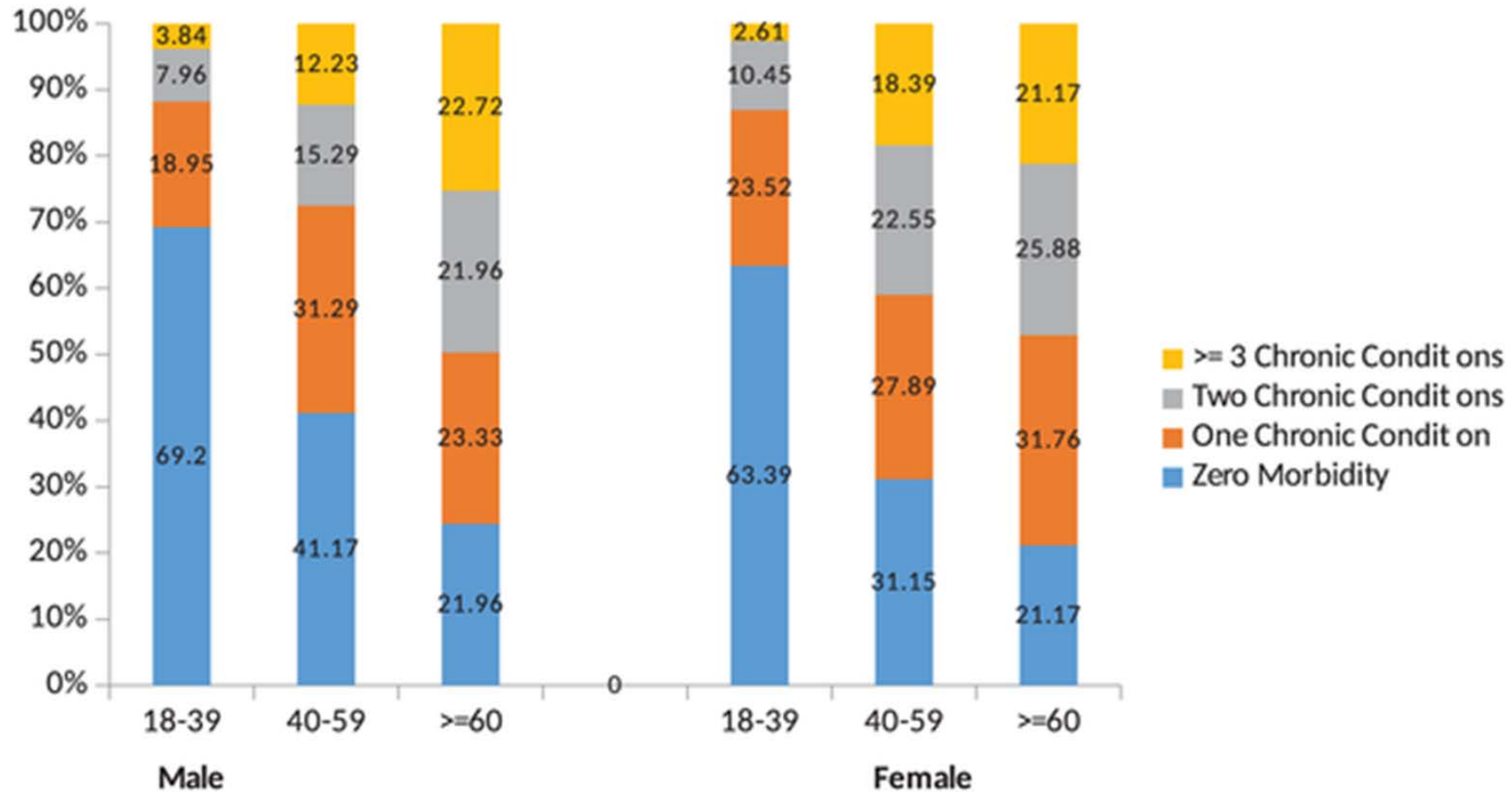


Prevalence of multimorbidity across age group in patients attending Public Primary Care



Prevalence of multimorbidity across age group in patients attending Private Primary Care

Number of Chronic Conditions in three age groups



Prevalence (%) of dyads among men

	18-39Yrs (N = 364) (Weighted %)	40-64Yrs (N = 425) (Weighted %)	≥65Yrs (N = 132) (Weighted %)	Total (N = 921)
APD+HTN	2.82	9.64	10.21	7.02
APD+ART	4.3	9	14.78	7.95
APD+CBA	3.71	7.92	10.6	6.63
ART+CBA	1.93	5.16	17.24	5.57
HTN+ART	0.91	4.12	11.82	3.92
HTN+DI	0.96	4	6.63	3.21
APD+VI	1.43	3.72	6.38	3.18
HTN+CBA	0.92	4.04	7.38	3.27
ART+VI	1.12	2.24	5.13	2.2
APD+DI	0.31	2.96	0.97	1.64
HTN+VI	0.18	1.36	4.69	1.36
ART+DI	0.5	0.99	3.16	1.1
APD+CLD	0.11	1.05	1.46	0.73
APD+DF	0	0.7	1.51	0.56
HTN+CLD	0.18	0.52	1.61	0.54

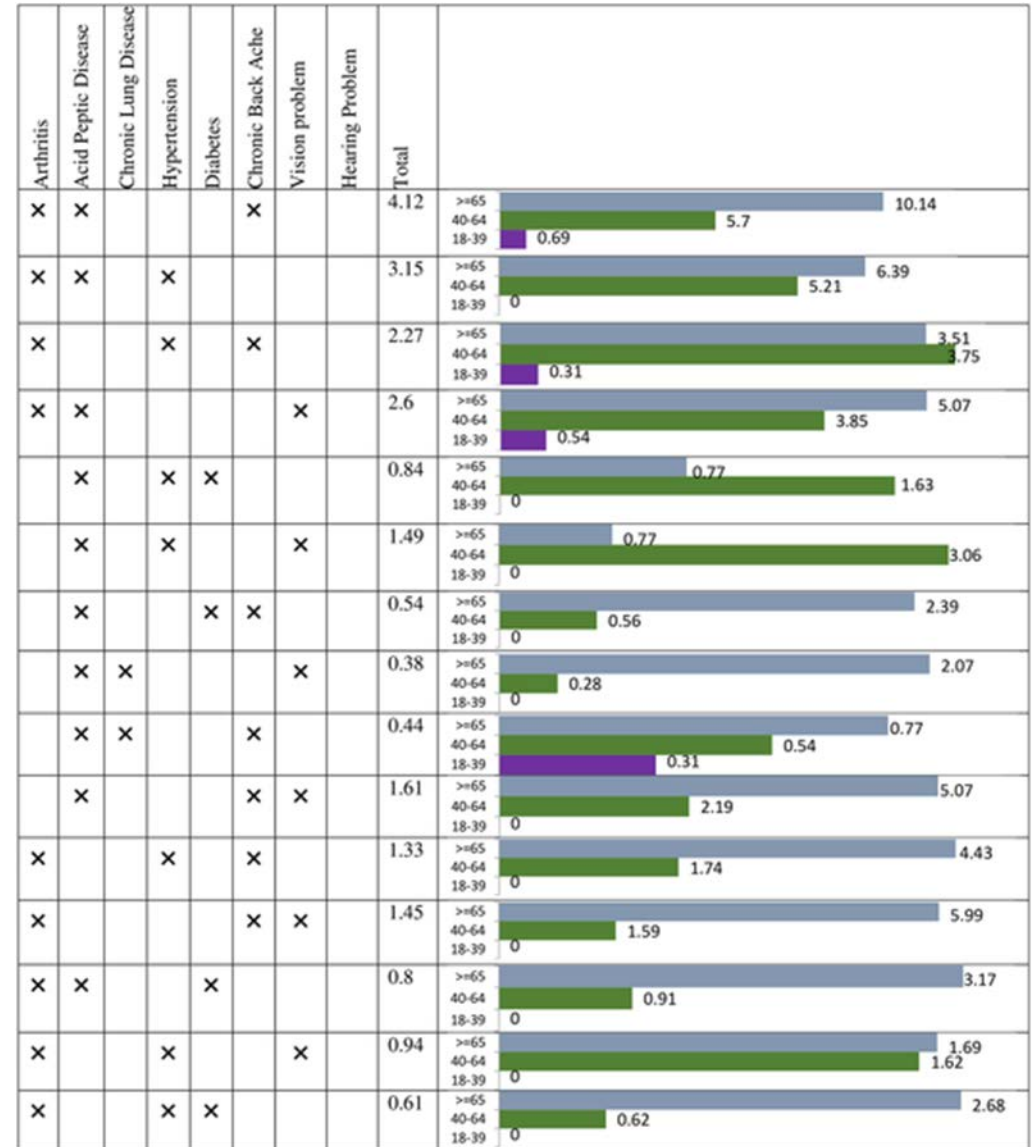
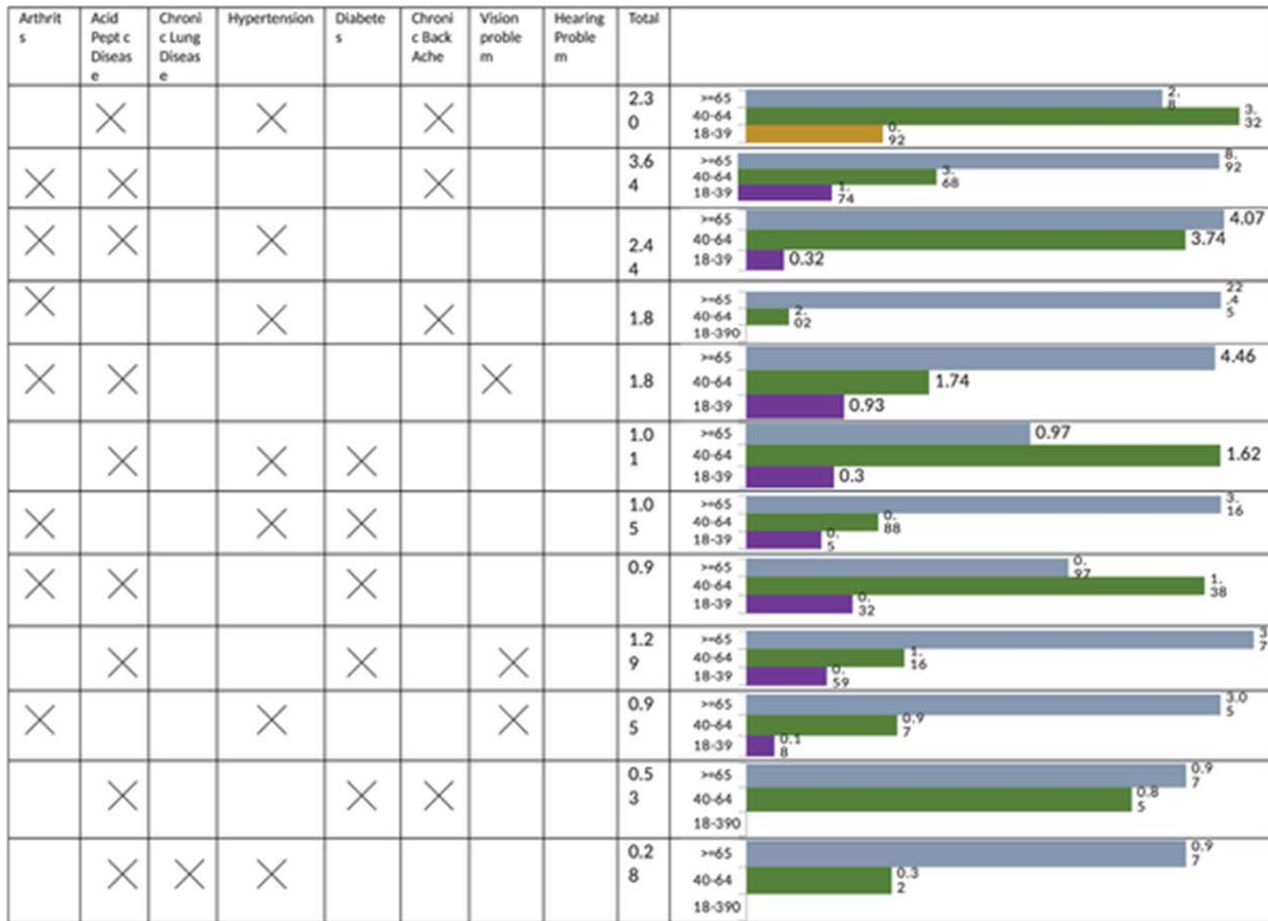
[APD- Acid peptic disease; HTN-Hypertension; ART-Arthritis; DI-Diabetes; CBA-Chronic backache; VI- Visual impairment; DF- Deafness; CLD- Chronic lungs disease]

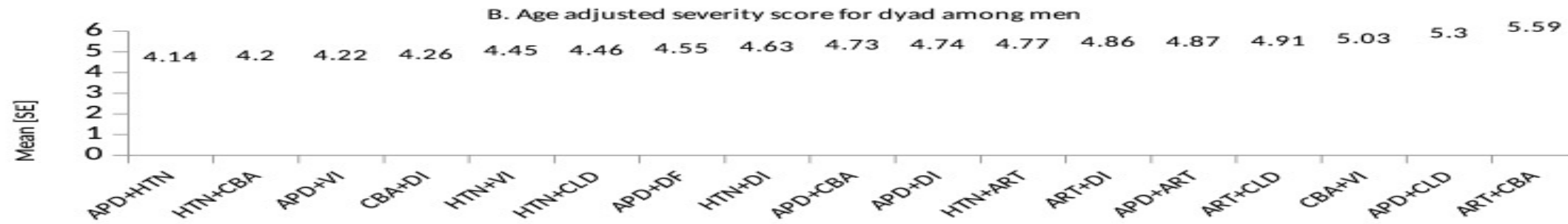
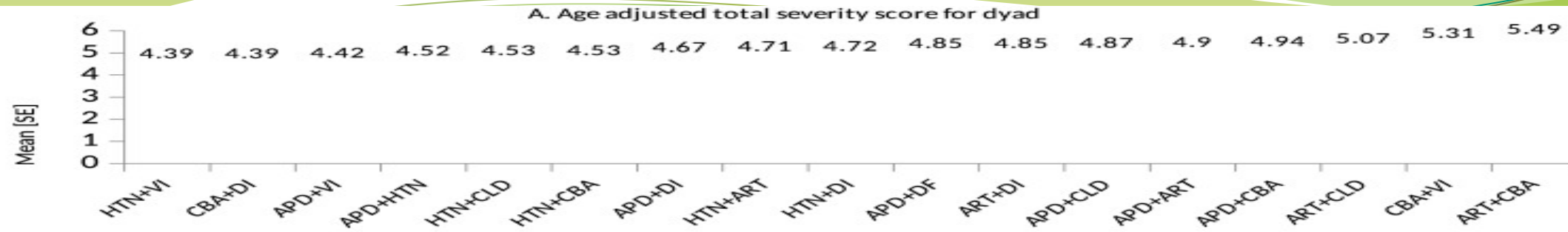
Prevalence (%) of dyads among women

	18-39Yrs (N = 306) Weighted %	40-64Yrs (N = 337) (Weighted %)	\geq 65Yrs (N = 85) (Weighted %)	Total (N = 721)
APD+HTN	3.29	17.13	11.32	10.58
APD+ART	3.38	13.8	20.79	10.24
APD+CBA	4.83	10.48	10.14	8.05
ART+CBA	1.06	9.75	11.05	6.23
HTN+ART	0.48	7.36	12.73	5.1
APD+VI	1.18	6.8	5.07	4.22
ART+VI	0.54	4.48	10.02	3.48
HTN+CBA	0.31	3.96	5.34	2.58
HTN+DI	0	3.11	4.94	2.11
APD+DI	0.27	3.49	3.11	2.09
HTN+VI	0	3.34	3.72	1.97
ART+DI	0.46	1.76	6.2	1.74
APD+LD	0.62	2.73	0.77	1.6
APD+DF	0.59	1.24	2.68	1.14
HTN+CLD	0	1.84	0.77	0.93
APD+HYP	0.48	0.64	1.25	0.78
ART+CLD	0	0.29	2.85	0.47

[APD- Acid peptic disease; HTN-Hypertension; HYP-Hypotension; ART-Arthritis; DI-Diabetes; CBA-Chronic backache; VI- Visual impairment; DF- Deafness; CLD- Chronic lungs disease]

Triads in Men & Women





[APD- Acid peptic disease; HTN-Hypertension; ART-Arthritis; DI-Diabetes; CBA-Chronic backache; VI- Visual impairment; DF- Deafness; CLD- Chronic lungs disease

Multimorbidity & HRQoL

- Overall, both Physical and mental score are negatively related with MM.
- In patients aged less than 50 years, MM affects inversely only MCS whereas, above 50 years both PCS and MCS are inversely affected.
- Within MM, higher education is positively linked with MCS (better mental health) and negatively with PCS (adjusted model)
- Number of chronic conditions affect, 5 out of 8 components of SF-12
- Burden score is negatively associated with MCS but no significant relationship with PCS after adjusting for other variables.
- Among typology, few diseases, isolated and in combination influences HRQoL after adjustment.

Implications for policy and practice

- Inclusion of frequently occurring conditions in the National Program for control of NCDs(COPD and Arthritis)
- Led to development of a Comorbidity Education Framework for health professionals
- Capacity building of primary care physicians in managing multiple chronic conditions
- Health & Wellness centres at the primary care level
- Paved way to Wellcome Trust International Engagement Award

Way Forward

- Multimorbidity (Epidemiology) in vulnerable population
 - Pediatric and Pregnant women
 - Migrants and Displaced population (urban slum)
 - Prisoners and informal settings
 - Old age homes and nursing home residents
 - Specialized care settings (dental, disability,)
- How multimorbidity influences health outcomes (Cohort)
- Care seeking, Care coordination and Continuity for multimorbidity
- Challenges of Physicians, Patients and Care givers
- Strengthening primary care (Health and Wellness Centre) to address multimorbidity
- Comorbidity of NCD with Chronic Infectious Diseases (Filariasis, TB, HIV)
- Curricular integration and Inter-professional Education

Research Article

Development and Validation of a Questionnaire to Assess Multimorbidity in Primary Care: An Indian Experience

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Prevalence, Correlates, and Outcomes of Multimorbidity Among Patients Attending Primary Care in Odisha, India



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ABSTRACT

PURPOSE Little information is available on multimorbidity in primary care in India. Because primary care is the first contact of health care for most of the population and important for coordinating chronic care, we wanted to examine the prevalence and correlates of multimorbidity in India and its association with health care utilization.

METHODS Using a structured multimorbidity assessment protocol, we conducted a cross-sectional study, collecting information on 22 self-reported chronic conditions in a representative sample of 1,649 adult primary care patients in Odisha, India.

RESULTS The overall age- and sex-adjusted prevalence of multimorbidity was 28.3% (95% CI, 24.3-28.6) ranging from 5.8% in patients aged 18 to 29 years to 45% in those aged older than 70 years. Older age, female sex, higher education, and high income were associated with significantly higher odds of multimorbidity. After adjusting for age, sex, socioeconomic status (SES), education, and ethnicity, the addition of each chronic condition, as well as consultation at private hospitals, was associated with significant increase in the number of medicines



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RESEARCH ARTICLE

Pattern and severity of multimorbidity among patients attending primary care settings in Odisha, India

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Abstract

Multimorbidity is increasingly the primary concern of healthcare systems globally with substantial implications for patient outcomes and resource cost. A critical knowledge gap exists as to the magnitude of multimorbidity in primary care practice in low and middle income countries with available information limited to prevalence. In India, primary care delivery, the bulk of the health care delivery being provided through both public (community health centers) and private general practice setting. We undertook a study to identify multimorbidity patterns and relate these patterns to severity among primary care attendees in Odisha, India. A total of 1649 patients attending 40 primary care facilities were interviewed using a structured multimorbidity assessment questionnaire. Multimorbidity patterns (dyads, triads) were identified for 21 chronic conditions, functional limitation was assessed using a measure of severity and the mean severity score for each pattern, was determined. After adjusting for age, the leading dyads in younger age group i.e. 18–29 years were disease with arthritis/ chronic back ache/tuberculosis /chronic lung disease, while in older age groups had more frequent combinations of hypertension + arthritis/ chronic lung disease/ vision difficulty, and arthritis + chronic back ache. The triad of acid peptic disease + chronic backache was common in men in all age groups. Tuberculosis and lung disease were associated with significantly higher age-adjusted mean severity score (poor functional ability). Among men, arthritis, chronic backache, chronic lung disease and vision impairment were observed to have highest severity) whereas women reported higher severity for combinations of hypertension, chronic back ache and arthritis. Given the limited studies on multimorbidity patterns in low and middle income countries, future studies should seek to assess the reproducibility of our findings in other populations and settings. An important task is the potential implications of different multimorbidity clusters for designing interventions, as currently the protocols are disease specific, hardly taking comorbidity into

BMJ Open Prevalence and outcomes of multimorbidity in South Asia: a systematic review

Sanghamitra Pati,¹ Subhashisa Swain,¹ Mohammad Akhtar Hussain,² Marjan van den Akker,^{3,4} Job Metsemakers,³ J André Knottnerus,³ Chris Salisbury⁵