

# Community acquired medication use at end-of-life: A descriptive analysis of an cohort of older persons with colorectal cancer

## BACKGROUND

- Medication use, to manage pain and other symptoms, e.g. nausea, anxiety is a key component of end-of-life care.
  - Opioid analgesics, e.g. morphine, hydromorphone recommended for moderate to severe cancer pain.
  - Access within the community to appropriate medication to manage pain and other symptoms may impact capacity to remain at home, in the community, for end-of-life care.

## OBJECTIVE

- To describe the use of prescribed medications during the 27 weeks prior to death by a cohort of community-dwelling Nova Scotia residents diagnosed with colorectal cancer.

## METHODS

### Data Source:

- Data are derived from an ongoing study of persons who were diagnosed with colorectal cancer between January 1, 2001 and April 1, 2005.
  - Colorectal cancer (CRC) defined as: ICD-10 C18, C19, C20 (excluding appendix cancer cases, ICD-10 C18.1).
  - Prescription information derived from the Nova Scotia (NS) Pharmacare Program through the database maintained by the Population Health Research Unit at Dalhousie University.
    - Medications classified according to World Health Organization Anatomical Therapeutic Chemical Classification (WHO-ATC) system, Canadian version.
    - Data for prescriptions filled 2 years prior to death.

### Study Population (N=1309):

- Cohort members age 66+ at date of death
  - Who died between January 2001 and April 2008.
- Excludes those with diagnosis of CRC based on:
  - Death certificate or autopsy.

### Data Analysis:

- Data analyzed using SAS Version 9.1.
- Included medications filled within 27 weeks of date of death.
- Descriptive analyses (frequencies and relative proportions) were conducted to characterize the population by sociodemographic and health-related
- Differences in medication use by sociodemographic and health-related characteristics examined using chi square or t-tests as appropriate.
- 'Plain opioids' includes: hydromorphone, morphine, oxycodone, fentanyl, meperidine (excludes opioid compounds).
- 'Non-opioid analgesics' includes: all NSAIDs.
- Psychotropic medications includes: anxiolytics, sedative hypnotics, antidepressants, antipsychotics.
- Gastrointestinal medications includes: proton pump inhibitors, histamine-2 antagonists.

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## RESULTS

### Characteristics of Study Population (N=1309)

Male, (N, %)	669 (51.1%)
Age (years), (mean, sd)	
At diagnosis	78.7 (7.7)
At death	80.7 (7.3)
Urban residence, (N, %)	774, (59.1%)
Colon cancer diagnosis, (N, %)	953 (72.%)
Elixhauser Comorbidity Index, (N, %)	
0	561 (42.9%)
1	287 (21.9%)
2+	461 (35.2%)
Specific chronic conditions, (N, %)	
Cardiovascular disease	460 (35.1%)
Diabetes	185 (14.1%)
Chronic pulmonary disease	137 (10.5%)
Number of weeks from diagnosis to death,	
Mean (sd)	74.5 (75.4)
Median	49.0
Died within 6 weeks, (N, %)	222 (17.0%)
Died within 12 weeks (N,%)	330 (25.2%)
Died in hospital, (N,%)	845 (64.6%)

### Characteristics of individuals who filled a prescription (RX) for a plain opioid in the study period, compared with those who filled other Rx's, but no plain opioid.

	Plain opioid (n=429)	No plain opioid (n=736)
Female (n,%)	235 (54.8%)*	347 (47.2%)
Age, mean (sd, 95% CI)		
At diagnosis	77.7 (7.4) (77.0, 78.4)	79.4 (7.5) (78.8, 79.9)
At death	79.7 (7.4) (79.0, 80.4)	81.2 (7.5) (80.7, 81.8)
Urban residence, (n,%)	244 (57.3%)	426 (58.2%)
Cardiovascular disease, (n,%)	108 (25.2%)*	303 (41.2%)
Number of weeks from diagnosis to death,		
Mean ( 95% CI)	82 (75, 89)	70 (64, 75)
Died within 6 weeks, n %	23 (5.4%)*	171 (23.3%)
Died in hospital, (n,%)	190 (44.3%)*	553 (75.2%)
Single Rx for opioid, (n,%)	107 (24.9%)	N/A
2 - 5 Rx's	195 (45.5%)	
6+ Rx's	127 (29.6%)	

Note: \* p<.05; \*\* p<.01; \*\*\* p<.001.

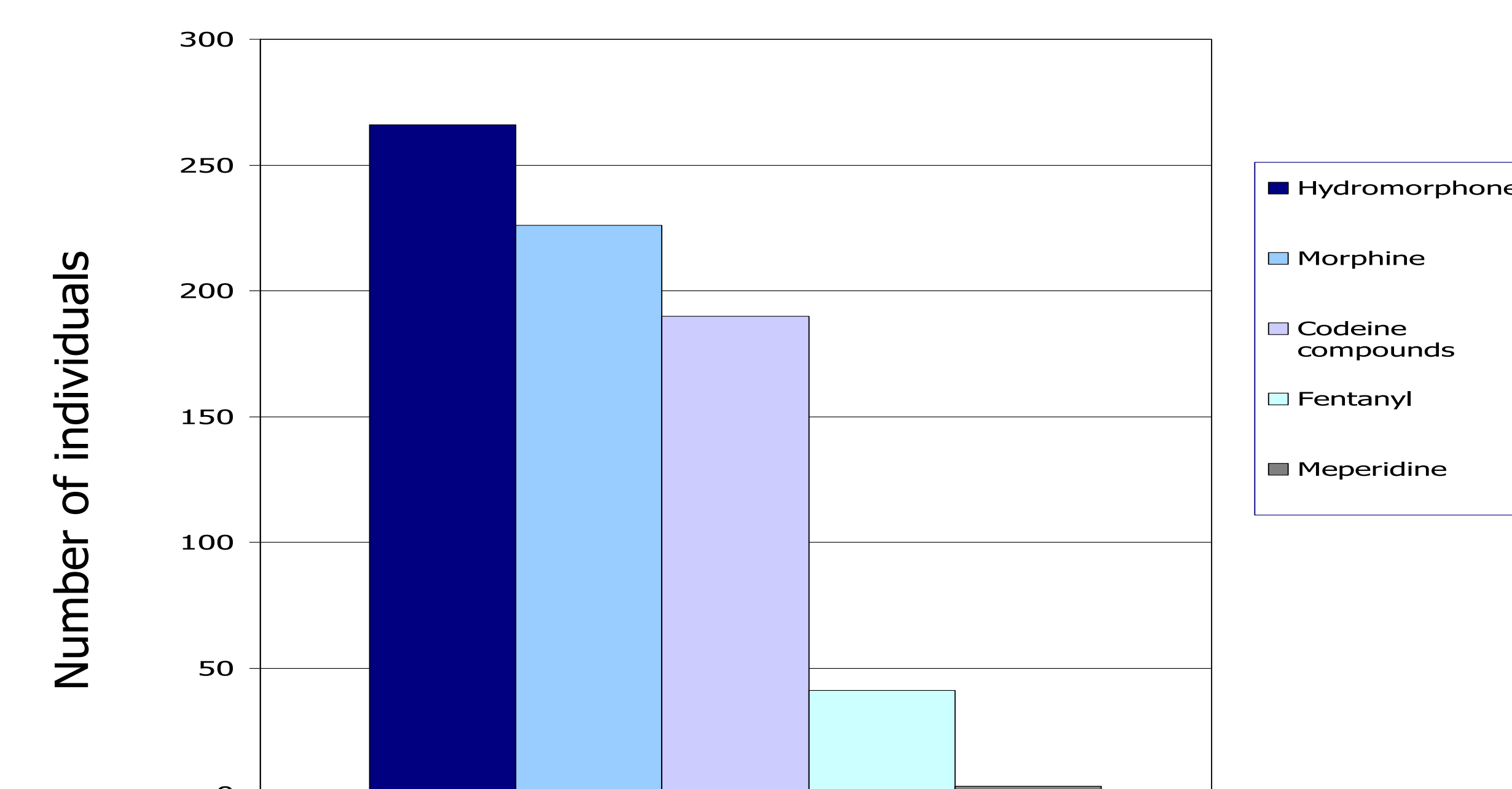
## LIMITATIONS

- Captures only **prescribed** medications that are **Pharmacare benefits**.
  - Captures only filled prescriptions, not actual **use**.
  - Excludes individuals age 66+ covered by other prescription insurance, e.g. Department of Veterans' Affairs (DVA), Non-insured Health Benefits (NIHB) for First Nations, private insurance, and out-of-pocket payment.

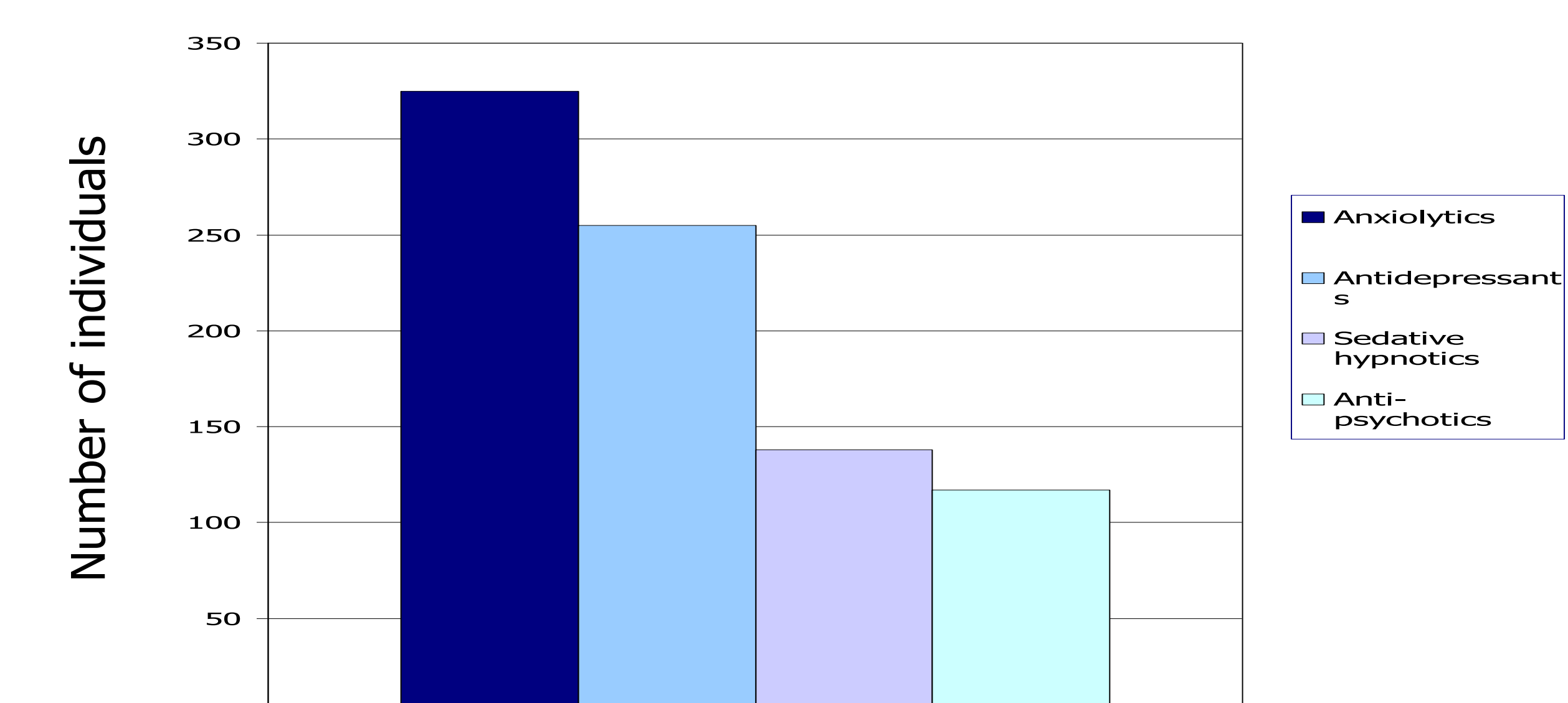
## RESULTS

### Summary of Medication use in 27 weeks prior to death

Fills any prescription (Rx), (n,%)	1165 (89%)
Analgesics	
Any plain opioid, (n,%)	429 (32.7%)
Opioid combinations, (n, %)	190 (14.5%)
Non-opioid analgesics, (n, %)	159 (12.1%)
Gastro-intestinal agents,	524 (40.0%)
Any psychotropic medication, (n, %)	453 (34.6%)
Systemic anti-infective	400 (30.6%)
Diuretics, (n,%)	289 (6.8%)
Systemic corticosteroids, (n,%)	250 (19.1%)
Anti-emetics, (n,%)	94 (7.2%)
Anti-epileptic agents, (n,%)	60 (4.6%)



Number of individuals filling at least one prescription for specific opioid and opioid combination analgesics in the 27 weeks prior to date of death.



Number of individuals filling at least one prescription for psychotropic medications in the 27 weeks prior to date of death.

## DISCUSSION and CONCLUSIONS

- Findings demonstrate the complexity of medication use in this population during the last 27 weeks prior to death.
- That only one-third of study population filled prescriptions for plain opioid analgesics highlights the potential for unmet need.
  - In particular, among older CRC patients, males and patients who are diagnosed at advanced stages.
- The negative relationship between the use of plain opioids and in-hospital death highlights the important role of access to appropriate pain management in the provision of end-of-life care within the community.
- Next steps will include multivariate analyses to examine factors associated with the use of specific classes of medication, adjusting for potential confounding variables.