Relationship of Supervision, Side Effects and Complexity to Adherence and Antipsychotic Treatment

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Background

- Schizophrenia affects 1% of the population world-wide[1]
- Schizophrenia is a debilitating illness that may be effectively managed by the use of antipsychotic medications
- The median medication adherence rate for patients with schizophrenia is around 55%[2]

1. Schizophrenia.com 1996-2004 2. Fenton et al. 1997

Complications due to Medication Nonadherence in Schizophrenia

- Increased Morbidity
  - Change in living situation
    - Independent → Supervised living → Hospital
  - Increased hospitalization
    - 2.4 times as likely in nonadherent patients[1]
  - Increased cost
    - In 1999 the National Institutes of Health ranked schizophrenia as the 5th most costly chronic illness in the United States[2]
- Increased Mortality
  - Under debate

1. Valenstein, M. et al 2001 2. Schizophrenia.com

Risk Factors for Antipsychotic Nonadherence

- Patient related risk factors
  - Poor insight
  - Negative attitude toward or subjective response to medication
  - Previous nonadherence
  - Shorter duration of illness
  - Current or past history of substance abuse
  - Severity of psychotic symptoms (?)
- Medication related risk factors
  - Higher antipsychotic dose (?)
  - Medication complexity
  - Antipsychotic type
- Environment related risk factors
  - Poor alliance with therapist or clinician or less outpatient contact
  - Poor family involvement
  - Instability of living arrangements

Lacro et al 2002

Objective

- To determine whether adherence to antipsychotic treatment was affected by:
  - Availability of medication supervision
  - Medication side effect burden
  - Complexity of the medication regimen

Study Participants

- Data extraction collected as part of a larger ongoing study
  - Study participants
    - Older outpatients with schizophrenia or schizoaffective disorder
    - On maintenance therapy with antipsychotic treatment
  - Study focus
    - Identify risk factors associated with medication nonadherence
    - Determine effectiveness of multimodal intervention to improve medication adherence and patient outcomes
  - Baseline data used in this analysis

Medication Possession Ratio (MPR) and Medication Adherence

- 12 months of pharmacy refill records
- Calculation
  - MPR = $\frac{\text{(Number of Days Drug was Available)}}{\text{(Total time)}}$ [1]
- Adherence Assignment
  - Adherent
    - MPR = 0.80 – 1.10
  - Nonadherent
    - MPR < 0.80 or > 1.10
  - Multiple antipsychotics
    - Considered to be nonadherent if found to be nonadherent to a single antipsychotic medication

1. Dolder et al 2002

Available Medication Supervision

- None
  - Independently responsible for that administration of his or her medications
- Some or complete
  - Some
    - Responsible for medication administration but receives some form of medication administration assistance such as reminders, cues, to obtain refills, organization of adherence aids or dispensing of medications from a care provider
  - Complete
    - All aspects of medication consumption are managed by a third party

Assessment of Side Effects

- Udvalg Klinische Undersogelser Scale (UKU):
  - Monitors the presence and severity of non-neurological side effects associated with antipsychotic medication[1]
- Abnormal Involuntary Movement Scale (AIMS):
  - 12-item instrument that assesses abnormal involuntary movements[2]
- Barnes Akathisia Scale (BAS):
  - 4-item scale that assesses drug-induced akathisia
  - Global severity rating on a 6-point scale (0 = absent, 5 = severe)[3]
- Simpson-Angus Extrapyramidal Scale (SAES):
  - Instrument used to measure drug-induced parkinsonism[4]
- Positive and Negative Syndrome Scale (PANSS):
  - 30-item rating instrument that evaluates positive, negative, and other symptoms in patients with schizophrenia[5]

1. Lingjaerde et al 1987 2. Guy W. 1976 3. Barnes TRE 1989 4. Sweet et al 1993 5. Kay S et al 1987

Assessment of Medication Complexity

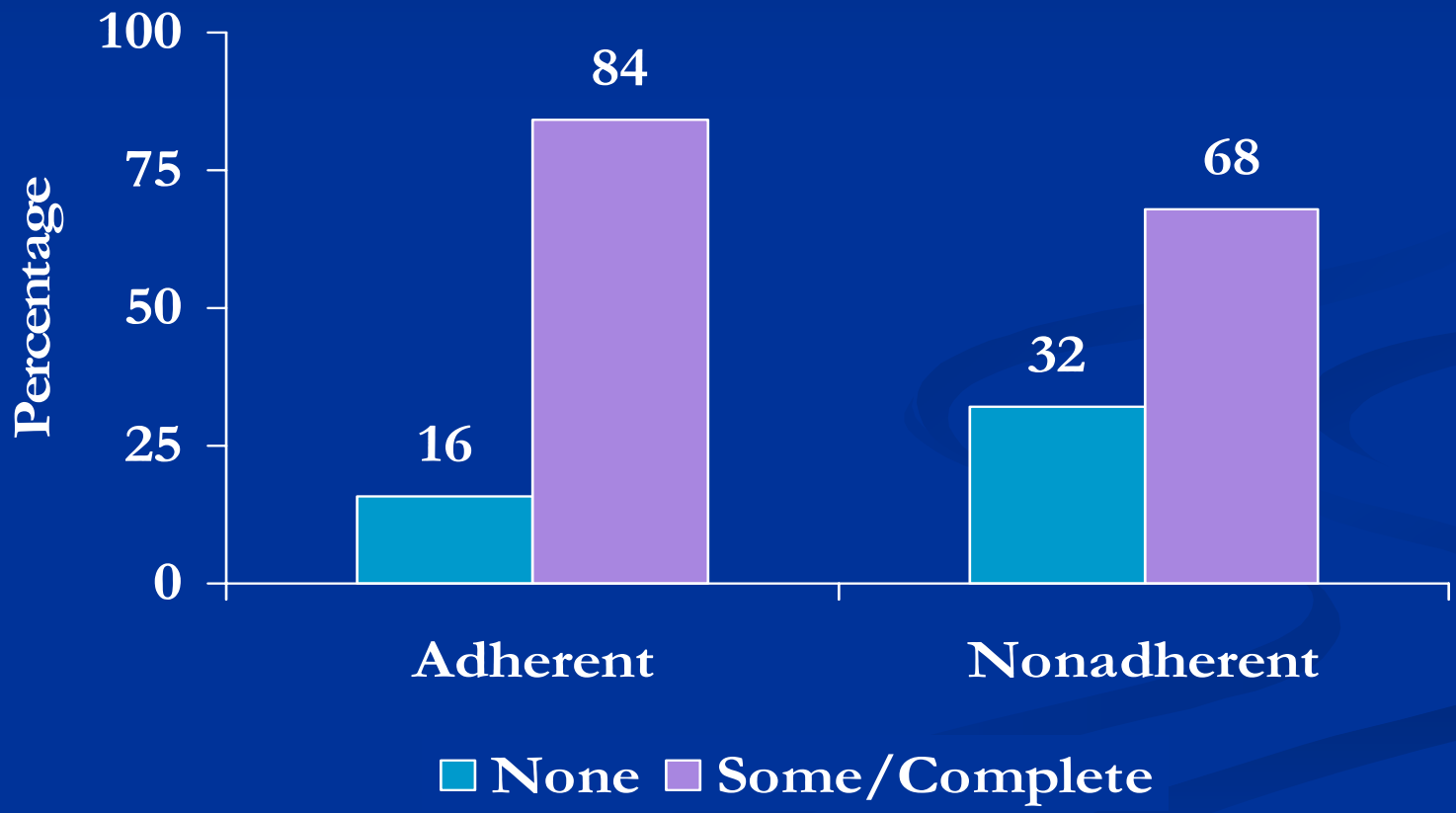
- Medication Complexity Index
  - Number of administration times per day for all scheduled medications
- Antipsychotic Polypharmacy
  - Antipsychotic type of treatment
    - Atypical only vs Typical only vs Atypical + Typical
  - Monotherapy vs polytherapy
- Number of medications
  - Antipsychotics
  - Other psychotropics
  - Nonpsychotropics
  - All medications

Demographics

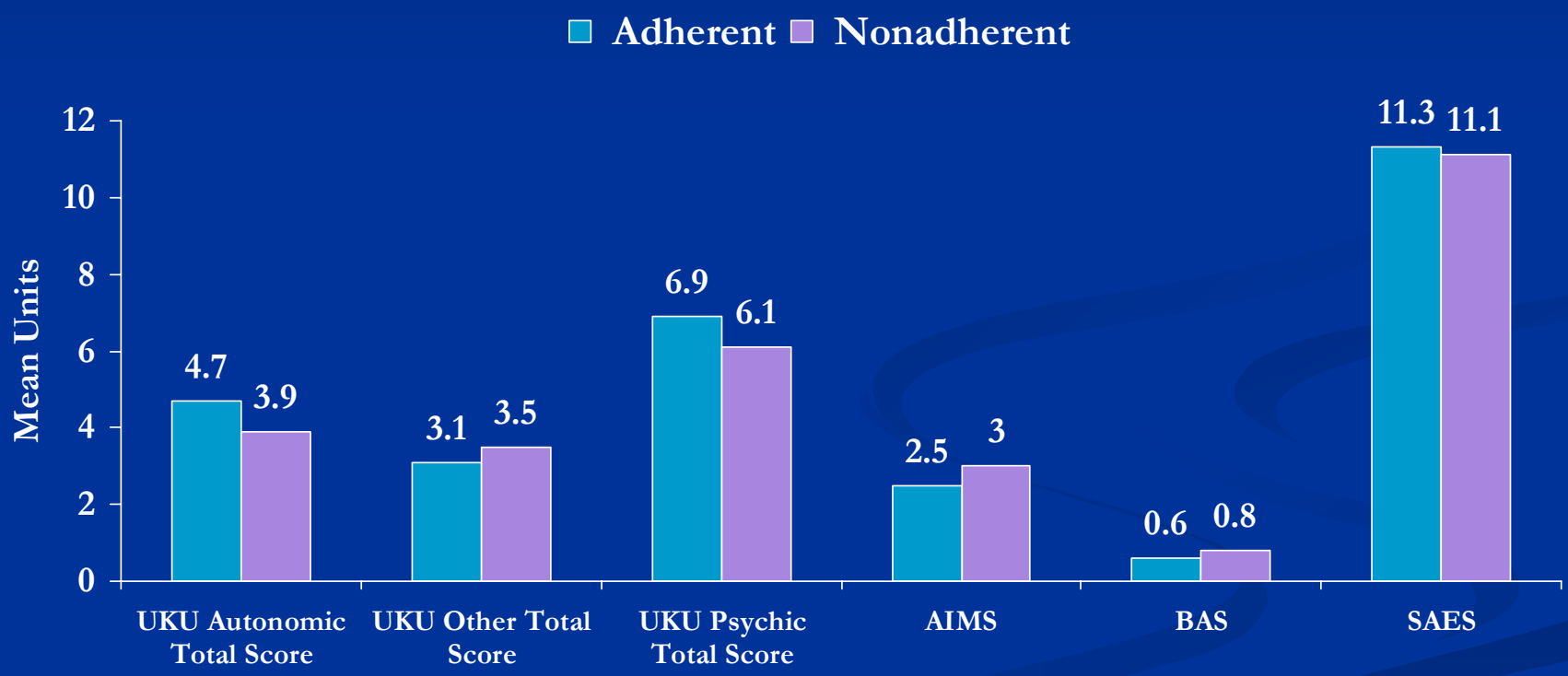
	Adherent (n = 89)	Nonadherent (n = 28)	Total Subjects (n = 117)
Age, years Mean, (SD)	51.8 (6.7)	52.0 (7.1)	51.8 (6.7)
Male Gender n, (%)	58 (65)	19 (68)	77 (66)
Ethnicity, Caucasian n, (%)	68 (76)	22 (79)	90 (77)
Diagnosis, Schizophrenia n, (%)	64 (72)	20 (71)	84 (72)
PANSS total score Mean, (SD)	55.0 (13.7)	50.9 (9.7)	54.0 (13.0)

Medication Oversight

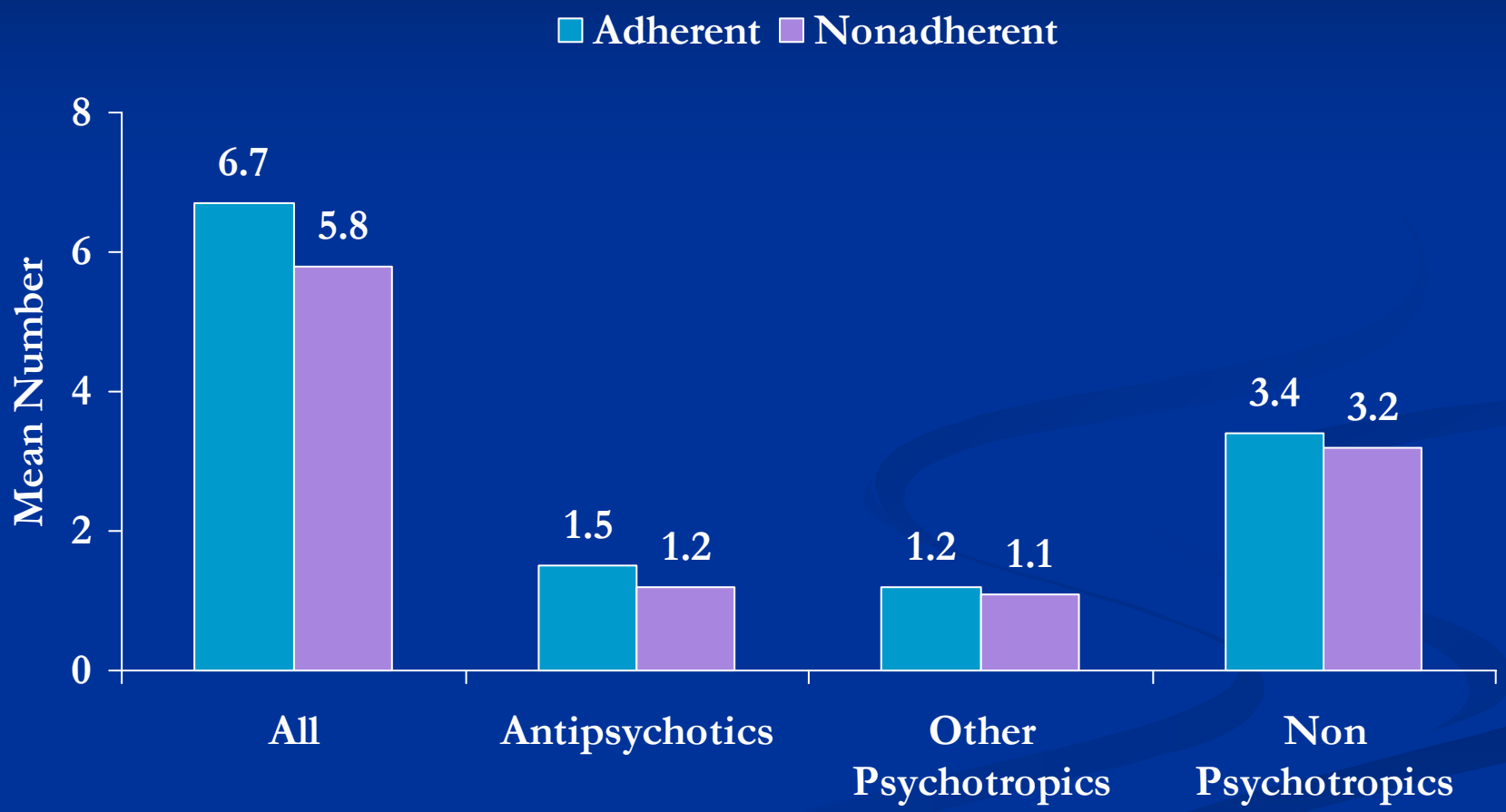
$X^2 = 3.521$, df = 1, p = .0047



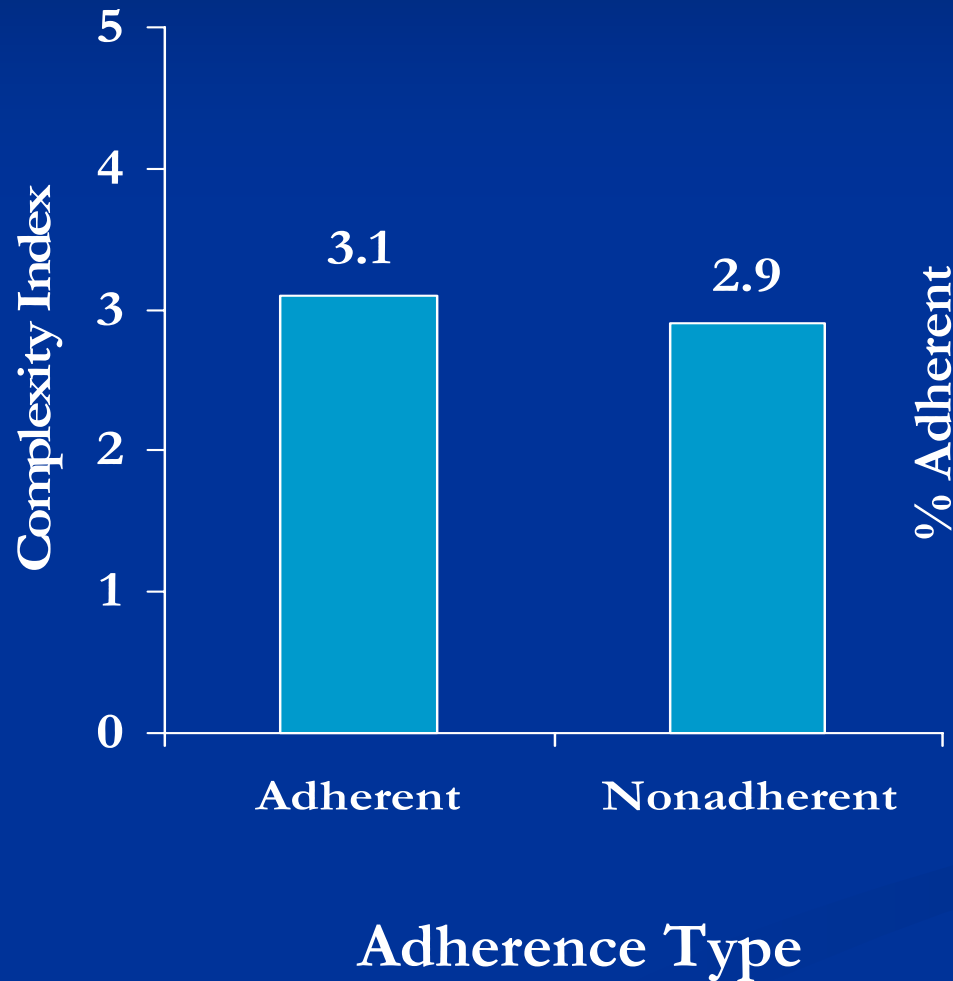
Side Effects

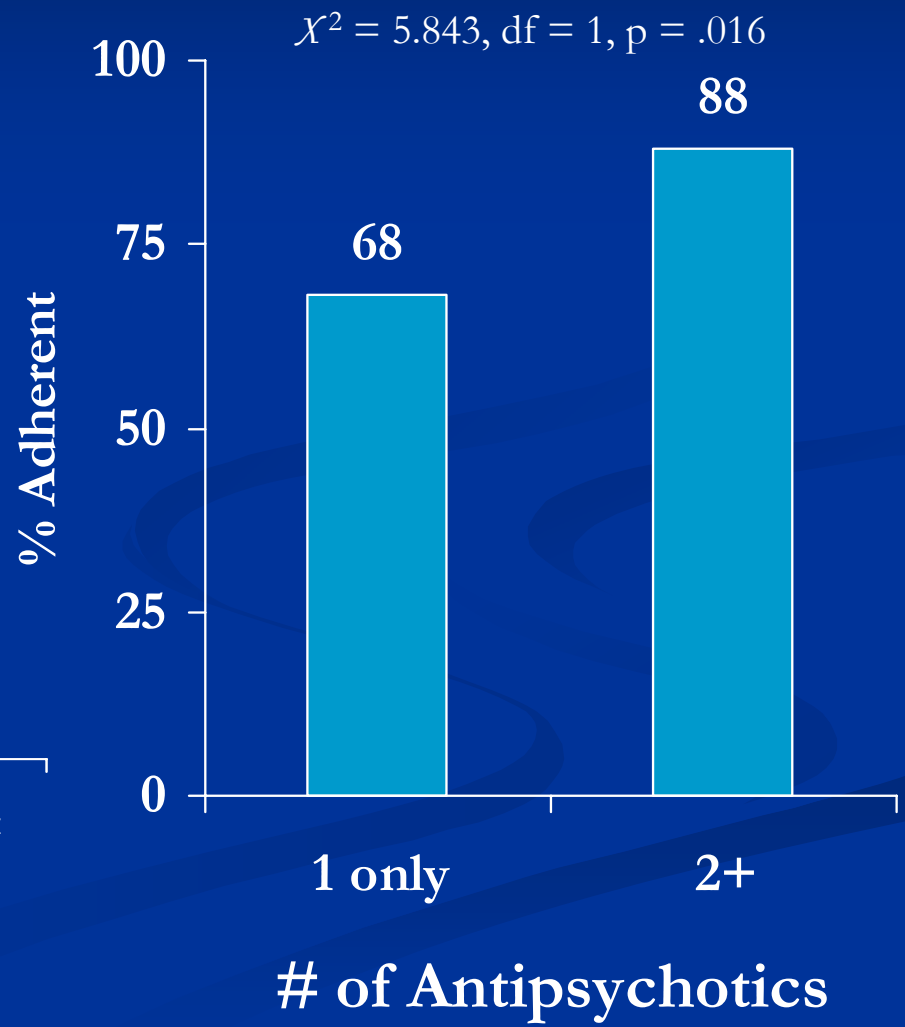


Medication Use



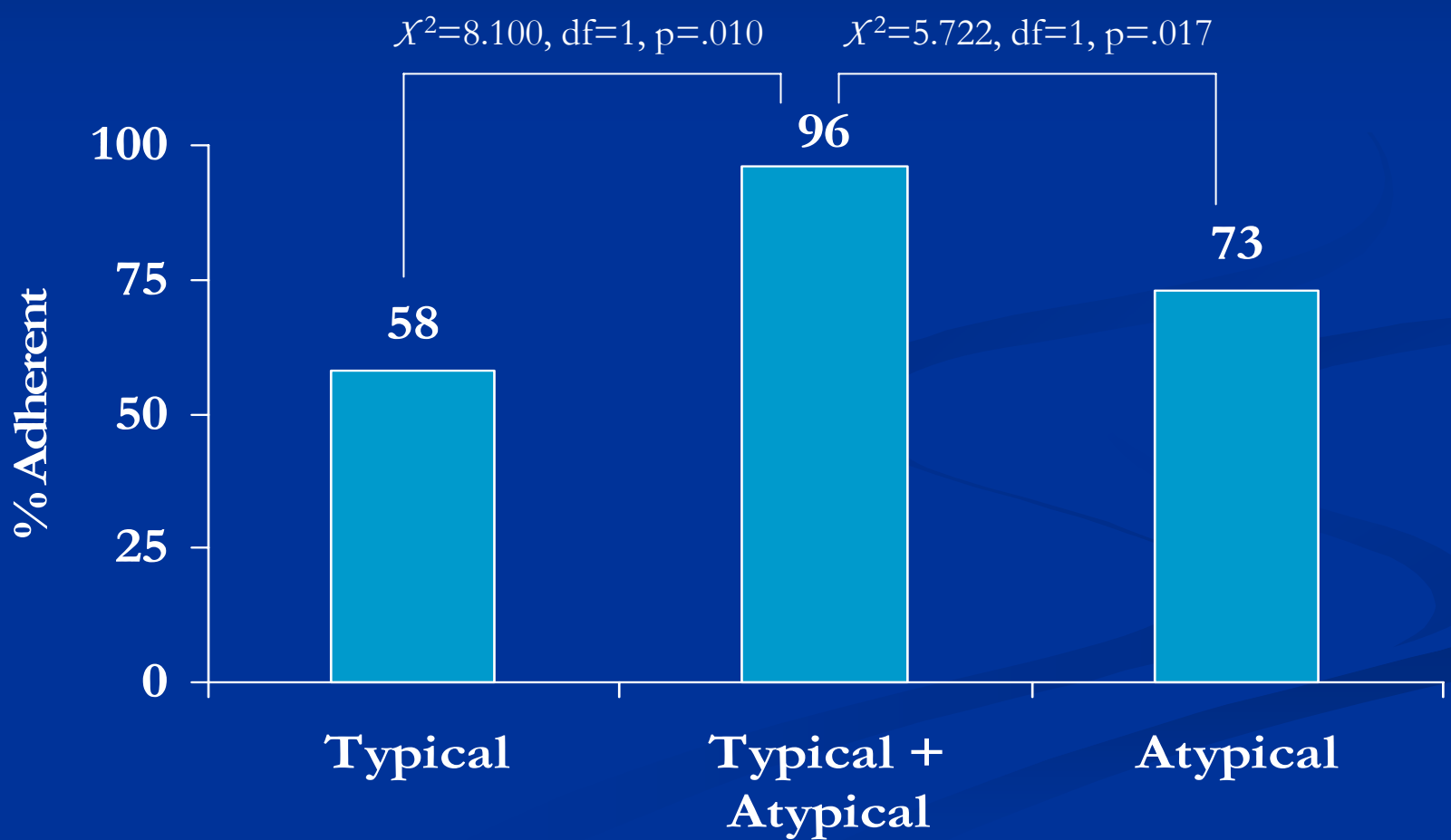
Medication Complexity and Antipsychotic Polypharmacy





Antipsychotic Type

Overall: $X^2 = 7.687$, df = 2, p = .021



Discussion of Limitations

- Patient population
  - Predominantly older white males
  - Small population size
  - Data collection
    - Pharmacy refill records brought in by patient
      - Accurate recollection of pharmacies used
      - Completion of numerous release forms if applicable
- Medication possession ratio calculation
  - Does not take into account lost medication for patients who appear to be excess fillers and thus non-compliant
  - Although it is a good estimate it is not 100% representative of patient compliance
  - Extra medication accrued from hospitalizations
- Analysis of antipsychotic polypharmacy
  - Did not exclude as needed medications

Conclusion

- Preliminary analysis of our data suggests:
  - Medication oversight may increase medication adherence
  - Antipsychotic polypharmacy may positively impact medication adherence
  - An antipsychotic regimen including both typical and atypical antipsychotic medications may increase adherence over single typical or atypical antipsychotic therapy
  - Medication side effect burden and complexity of the medication regimen do not have a significant effect on medication adherence

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