Patient Pill Organization Strategies and Adherence Measured in a Cross-Sectional Study of Hypertension

Matthew P. Genelin[1], Laura Helmkamp[2], John F. Steiner[1,3], Julie A. Maertens[2], Rebecca Hanratty[1,4], Suma Vupputuri[5], Edward P. Havranek[1,4,7], L. Miriam Dickinson[1,2], Irene V. Blair[6], Stacie L. Daugherty[1,2,3,7]

1) University of Colorado School of Medicine, Aurora, CO. 2) Adult and Child Consortium for Outcomes Research and Delivery Sciences (ACCORDS), University of Colorado, Aurora, CO. 3) Kaiser Permanente Colorado, Institute for Health Research, Denver, CO. 4) Denver Health and Hospital Authority, Department of Medicine, Denver, CO. 5) Kaiser Permanente Mid-Atlantic States, Mid-Atlantic Permanente Research Institute, Rockville, MD. 6) University of Colorado Boulder, Department of Psychology and Neuroscience, Boulder, CO. 7) Colorado Cardiovascular Outcomes Research Group, Denver, CO.

Background

- In controlled clinical trials, medications are dispensed at regular intervals with pill amounts set by the study team, often in prepared packaging (i.e., blister packs), strengthening the accuracy of pill count measured adherence
- In pragmatic clinical trials, medication refill intervals and pill amounts vary by patient and pill count measured adherence may be affected by patient pill organization strategies (e.g., use of pill boxes)
- The strategies patients use to organize medications (eg, pill dispenser) may be reflected in adherence measured at follow-up
- In a pragmatic clinical trial, we evaluated the association between patients' pill organization strategies and adherence measured using pharmacy-fills, self-report, and pill counts

Methods

Study Population (N= 731): Secondary Analysis*

- Receiving antihypertensive treatment
- Self-identified Non-Hispanic African American/ Black patients or White patients
- 61.3% Women, 52.9% African-American
- Patients recruited from 11 primary care clinics in Colorado and Maryland
- At enrollment, all asked if they use the following strategies:

Pill Organization Strategies:
Finish previous refills first
Use a pill dispenser
Combine same prescriptions
Combine dissimilar prescriptions

Other Factors that May Influence Adherence:
Took pills as needed (Clinician Instructions)
Shares pills
Takes different dose (Clinician Instructions)
Takes different dose (Self-Choice)

Pill Count Adherence calculation:

$$\frac{(\#\ \text{pills dispensed}) - (\#\ \text{pills remaining})}{\#\ of\ pills\ expected\ since\ refill}$$

Pharmacy-fill Adherence:

- Used medication supply obtained over 12-months compared to proportion of days covered (PDC)

Self-Reported Adherence (VOILS):

- Average over 7 previous days

Results

Figure 1: Pill Organization Survey Questions and Response Frequency (N = 731)

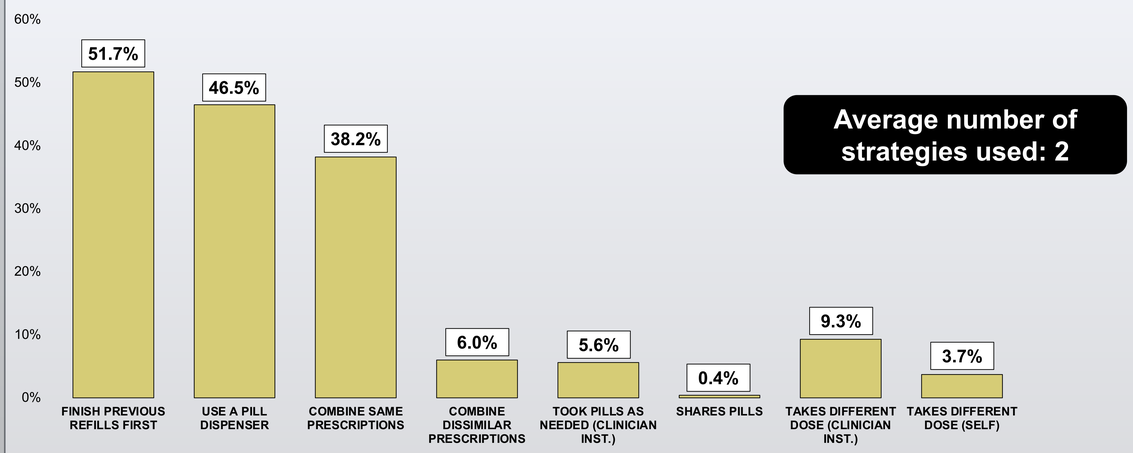


Figure 2: Pill Count Adherence by Pill Organization Strategy

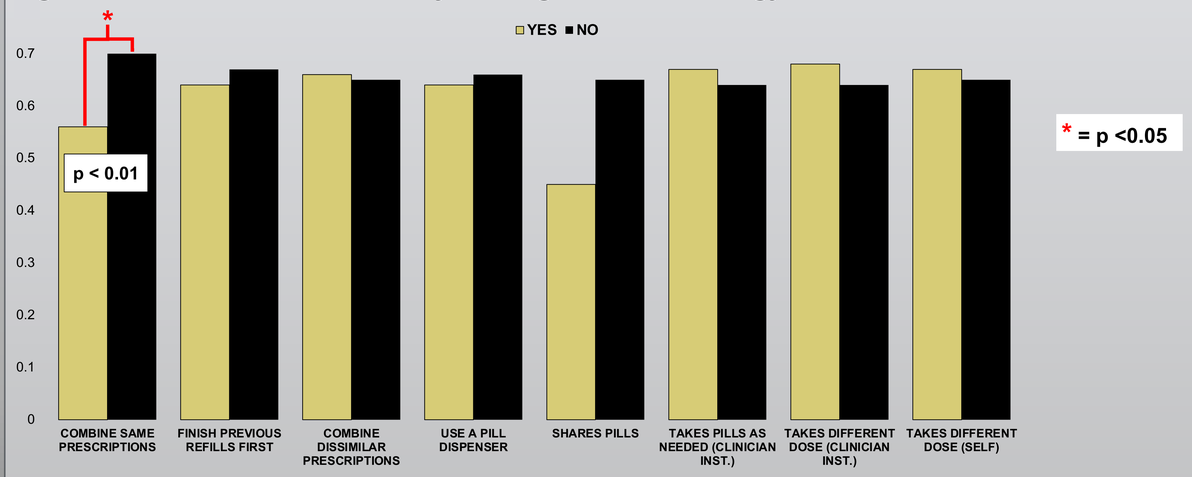
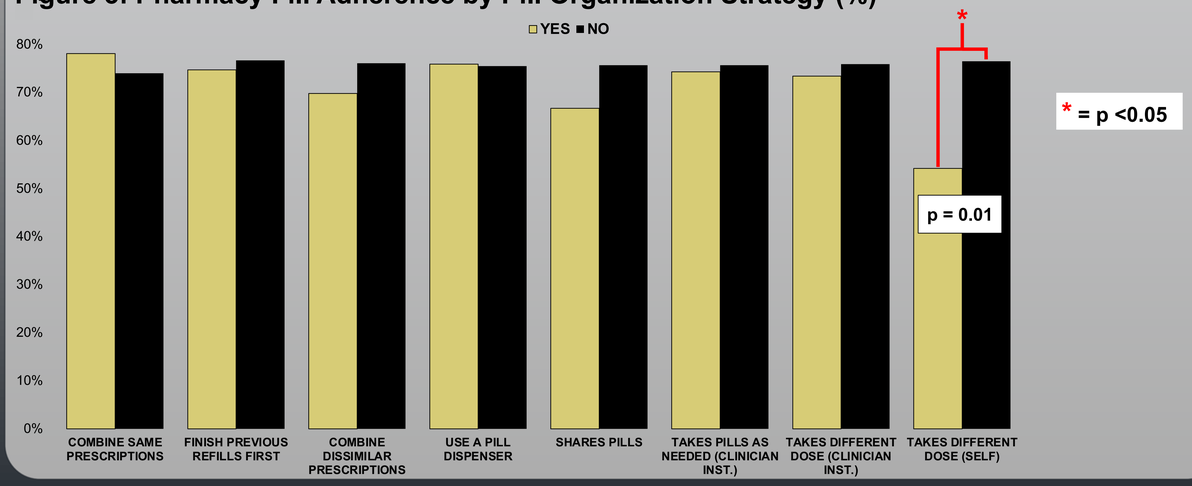


Figure 3: Pharmacy Fill Adherence by Pill Organization Strategy (%)



Results Continued

- Patients used a median of 2 organization strategies
- Pill organization strategies were:
  - Associated with lower pill count adherence in those who combine same prescriptions (Figure 2)
  - Associated with lower pharmacy fill adherence in those who take a different dose per their choice (Figure 3)
  - Not associated with self-reported adherence (Data not shown) **

Limitations

- Up to 19% of patients did not bring pill bottles to their enrollment visit
- This was a cross-sectional study, disallowing causal conclusions
- Other less common strategies were not studied
- The association between strategies and clinical outcomes (e.g., blood pressure) was not measured

Conclusions and Implications

- Over 80% of participants used pill organization strategies
- Some pill management strategies may result in imprecise adherence estimates using pill counts or pharmacy fill measurements
- No strategy was significantly associated with self-reported adherence suggesting a possible advantage of this measure
- Clinicians and researchers should discuss pill management strategies with patients to understand how these strategies may unduly influence what is presumed to be objective measures of patient adherence

ACCORDS
ADULT AND CHILD CONSORTIUM FOR HEALTH OUTCOMES RESEARCH AND DELIVERY SCIENCE
UNIVERSITY OF COLORADO | CHILDREN'S HOSPITAL COLORADO

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* Of Data from a prospective randomized clinical trial, HYVALUE Trial
** See supplemental data sheet