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Authors

Jih, Jane

Lee, Yea Eun

Chinn, Tiffany

et al.

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TITLE: Patient-Generated Photos: a Means of Gaining Context about Patient Medication Practices

RUNNING TITLE: Patient Medication Practice Photos

AUTHORS:

Jane Jih MD, MPH, MAS,^{1,2,3} Yea Eun Lee BSN,^{1,2} Tiffany Chinn BS,^{1,2} Michael A. Steinman MD⁴

¹Division of General Internal Medicine, University of California San Francisco

²Asian American Research Center on Health, San Francisco, CA

³Multiethnic Health Equity Research Center, University of California San Francisco

⁴Division of Geriatrics, University of California San Francisco and the San Francisco VA Medical Center

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Corresponding Author:

Jane Jih, MD, MPH, MAS

Associate Professor of Medicine, Division of General Internal Medicine

Co-Director, [Multiethnic Health Equity Research Center](#)

Co-Director, [Asian American Research Center on Health](#)

University of California, San Francisco

480 16th Street, Room 83K

San Francisco, CA 94158

email: jane.jih@ucsf.edu

phone: 415.885.7563

Introduction

Patients with multiple chronic conditions (MCC) often experience polypharmacy which can lead to adverse drug-drug interactions, worsen adherence, and falls.^{1,2} Patient medication practices (e.g., how patients store, remember and use prescribed and over the counter medications and medication-related supplies like glucose test strips) can contribute to medication-related complications. Patient-generated photos depicting medication practices at home could have clinical utility by revealing opportunities to optimize medication regimens as our prior pilot work on photo-based patient-clinician communication around diet-related discussions in primary care showed positive impacts on information exchange and clinical recommendations.^{3,4} As part of a broader study to develop a photo-based patient-clinician communication tool to support discussions about multiple factors important to MCC care, we report on the content and potential impact of patient-generated photos about medication practices from a diverse sample of older adults with MCC.

Methods

We recruited patients from two adult primary care clinics that were age 65+, self-reported 2+ chronic conditions from the Elixhauser Comorbidity Index,⁵ and spoke English, Mandarin or Spanish. First, we completed in-language audio-recorded semi-structured interviews lasting 30-60 minutes exploring MCC self-management including medication practices via telephone or video conferencing. Next, after the interview, participants were given semi-structured photo-taking prompts to take photos about MCC-important factors including how they store and keep track of medications and medication-related supplies such as glucose test strips. Participants chose what type and how many photos to take using their own smartphone, and digital photo files were sent

to the research team. The research team used thematic analysis informed by grounded theory to code interview transcripts and concurrently, without patient participation, we systematically coded patient-generated photos using a two-step coding approach for visual data developed by our team.⁶

Results

Our cross-sectional study had 15 patient participants with mean age 76.7 years and 60% from a racial and ethnic minority group with 20% preferring to speak non-English languages (Table 1). About 47% self-reported more than 5 chronic conditions.

Participants reported an average 8 medications per day with 60% meeting criteria for polypharmacy defined as 5+ medications.¹ Relevant themes about medication practices identified from the interviews included patient medication storage practices and locations, strategies to promote medication adherence in their daily routines, effects of social support and functional limitations on medication practices, and use of over-the-counter medications and supplements including traditional Chinese medicines.

Representative quotes complementing photos taken by participants are featured in Figure 1. Of a total of 214 photos, we identified 39 photos taken by 11 participants that contained visual content relevant to medication practices. Half the photos (n=19) only depicted content relevant to medication practices. The remaining half (n=20) showed additional health-related contextual information beyond medication practices. This added contextual information illustrated the home environment (such as the kitchen, bathroom, dining room), storage spaces (pantry, drawers), and prepared meals (not pictured). For example, in Figure 1, photo C depicts six medication pill box organizers which may be an unanticipated approach to medication use. Photo B and E depict prescription medication stored with many over the counter medications and other

household items. Photo G and H illustrate a medication bottle and list in English provided to a participant that is Spanish-speaking and limited English proficient.

Discussion

Our findings provide initial proof-of-concept of how patient engagement to take medication-focused photos could provide added insight and context that is clinically relevant in the care of medically complex older adults. The photos taken after minimal patient guidance when shared in a clinical visit could present opportunities to revisit medication safety and deprescribing that would complement current practice strategies. The photos can also serve as a communication tool to uncover patients' daily lived experiences that are taken for granted but have implications in co-developing realistic, safe patient-centered care plans.

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Conflicts of Interest

Jane Jih, Yea Eun Lee and Tiffany Chinn report no conflicts of interest. Michael Steinman receives royalties from UpToDate and honoraria from the American Geriatrics Society.

References

1. Steinman MA. Polypharmacy—Time to Get Beyond Numbers. *JAMA Intern Med.* 2016;176(4):482-483. doi:10.1001/jamainternmed.2015.8597
2. Ming Y, Zecevic A. Medications & Polypharmacy Influence on Recurrent Fallers in Community: a Systematic Review. *Can Geriatr J.* 2018;21(1):14-25. doi:10.5770/cgj.21.268
3. Jih J, Nguyen A, Woo J, et al. A photo-based communication intervention to promote diet-related discussions among older adults with multi-morbidity. *J Am Geriatr Soc.* 2023;71(2):577-587. doi:10.1111/jgs.18145
4. Faisal S, Ivo J, McMillan C, Grindrod K, Patel T. In-home medication management by older adults: a modified ethnography study using digital photography walkabouts. *Age Ageing.* 2022;51(1):afab207. doi:10.1093/ageing/afab207
5. Elixhauser A, Steiner C, Harris DR, Coffey RM. Comorbidity measures for use with administrative data. *Med Care.* 1998;36(1):8-27.
6. Jih J, Nguyen A, Woo J, Ly A, Shim JK. Using Photographs to Understand the Context of Health: A Novel Two-Step Systematic Process for Coding Visual Data. *Qual Health Res.* Published online September 5, 2023:10497323231198196. doi:10.1177/10497323231198196

Figure 1 Legend. Representative patient participant-generated photos with visual content relevant to medication practices with accompanying patient narratives from semi-structured interviews.

Table 1. Socio-demographics and health characteristics of primary care patient participants with multiple chronic conditions (n=15)

| Patient participant characteristic | % or mean +/- SD |
|--|-------------------------|
| Age, mean (years) +/- SD (range) | 76.7 +/- 6.6 (67-89) |
| Female, % | 47% |
| Self-reported race and ethnicity,* % | |
| American Indian or Alaskan Native | 7% |
| Asian | 33% |
| Black or African American | 7% |
| Hispanic or Latino | 20% |
| More than one race | 7% |
| Native Hawaiian or Other Pacific Islander | 7% |
| Non-Hispanic White | 40% |
| Preferred language, % | |
| English | 80% |
| Mandarin | 7% |
| Spanish | 13% |
| Married, % | 67% |
| Completed high school or equivalent or less, % | 33% |
| Health insurance,* % | |
| Medicaid | 27% |
| Medicare | 87% |
| Private | 40% |
| Number of chronic conditions, % | |
| 2-4 chronic conditions | 53% |
| 5+ chronic conditions | 47% |
| Number of medications taken daily, mean +/- SD (range) | 8.0 +/- 7.4 (0-31) |
| Self-reported health status, % | |
| Excellent/very good | 27% |
| Good | 53% |
| Fair | 27% |
| Annual household income, % | |
| <\$30,000 | 27% |
| \$30,000-\$40,000 | 7% |
| ≥\$40,000 | 60% |
| Do not know/not sure | 7% |

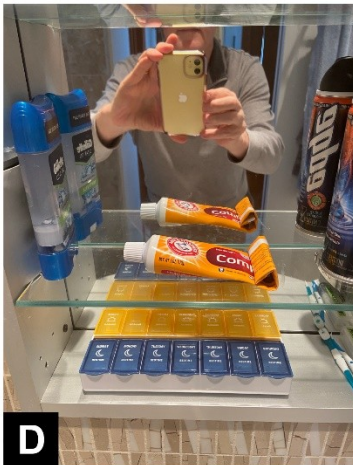
SD = standard deviation *Participants may select more than one



A During their interview, the participant shared that they keep their medication in a kitchen drawer next to their stove “to remind me while I’m cooking, this is why you’re not eating good food because of all the medication you’re taking.”



B Participant has separate boxes of both prescribed and OTC medications in a cabinet, some labeled “teeth”, “eyes”, “nose + ears”. In their interview, the participant mentioned using a pill box, then shared a photo revealing they fill multiple daily pill boxes. While the participant rarely misses a medication, they stated “occasionally, there’s unexpected chaos...I’ll come back and find that little box still full.”



D Participant keeps medication in a pill box next to their toothbrush. As a reminder to take their medications, several participants paired taking medications with tasks in their daily routine such as brushing their teeth.



E Participant stores prescribed medication (bottom shelf) in a storage closet that contains other OTC supplements and household items.



F This participant marked their medication bottles with AM and PM. In the interview, they described having a pill box that is paired with a self-created chart to remind them of the medications they should take during different times throughout the day.



G Participant receives medications from a prescription delivery service that includes both a list of when to take the medications and bags containing either morning or evening medications. In their interview they stated “it is easier for me...this way, I don’t forget whether I got the pill out or not.” The prescription labels provided are in English, therefore the participant has handwritten the purpose of the medication in Spanish, which is their primary language.

