# Exploring Photo Sharing to Engage Intergenerational Families on Health

 $\begin{array}{c} \text{Jomara Sandbulte}^{1[0000-0002-7798-2853]}, \ \text{Elitza Georgieva}^{1[0000-0002-7944-7141]}, \\ \text{Fanlu Gui}^{1[0000-0002-5707-4786]}, \ \text{Jordan Beck}^{1[0000-0003-0198-8121]}, \ \text{and John M. Carroll}^{1[0000-0001-5189-337X]} \end{array}$ 

Pennsylvania State University, University Park PA 16802, USA {jmb89, ekg5182, fog5044, jeb560, jmc56}@psu.edu

Abstract. Sharing photos is a common practice for family members to inform and connect with each other. Sharing photos inspires recollection, reminiscence, and feelings of connectedness. Could it also be an effective channel for sharing health information and supporting healthy activity? In this paper, we examine how photo-sharing practices can help family members, specifically elderly parents and adult children, share health information. We present preliminary results from an interview study investigating photo-sharing benefits for non-collocated elderly parents and their adult children to encourage healthy lifestyles within the family. We discuss photo sharing as a viable strategy to engage family members in sharing health information.

**Keywords:** Health  $\cdot$  Photo Sharing  $\cdot$  Intergenerational Families  $\cdot$  Family Informatics.

### 1 Introduction

Previous studies have examined intergenerational families' interests in collecting and sharing health information within the family [8, 13], which reaffirm the importance of supporting families in sharing health information. However, most studies have considered families living together and parents with minor children [8, 13]. In this paper, we focus on non-collocated families made up of elderly parents and their adult children. Since many young adults assume responsibility for the care of their aging parents [5], understanding and awareness of parents' current activities and health behaviors can be important. However, adult children face challenges in having this awareness when their parents are far away. How can an adult child provide care when his/her parents are non-collocated?

Studies have explored how families use different mechanisms to share health information, including photos [2, 15]. Sharing photos is beneficial to inspire memory collection [11, 12], support communication [9, 14, 16] and social connectedness [1, 7], and encourage reciprocity and reminiscence [4, 10]. Inspired by this work, we were interested to know whether photo sharing might also be useful for families provision of care, specifically on health. We claim that photos provide visual insight into healthy behaviors/activities while bringing families together.

#### 2 Sandbulte et al.

In this paper, we describe an interview study of how elderly parents living apart from their adult children share health information, and, on the basis of this, we argue that photo sharing is a viable strategy to encourage more health information sharing. For the purpose of this study, we operationalize "health information" as any information relevant to an individual's mental or physical health including social activities, healthy eating, or physical activity.

#### 2 Methods

We recruited participants for an interview study from a local senior center and through snowball sampling with these recruits. Participants were 60+ years old and lived independently/apart from their adult children. A total of eight participants agreed to join an hour long interview (See Table 1). With participants' consent, we audio-recorded each interview and took detailed notes. Interviewers asked several questions related to family relationships, frequency and nature of conversations with family members, and participants' current photo-sharing practices and challenges. Researchers used thematic analysis [3] on the transcripts to construct themes within the data.

Relatives living... Participants Locally Across Towns/States Across Countries Granddaughters in Seattle and Colorado; Stepson & Mom's family P1(female) Daughter in New Mexico; Parents in Florida in England P2 (female) Sister in Florida Daughter in New York City; Son in Boston P3 (female) P4 (female) Daughter in Washington, DC; Sisters in Baltimore Daughter in Tokyo P5 (female) Adult son Siblings in California; 6 children in Pennsylvania P6 (male) Adult son Adult children in Pennsylvania P7 (female) Adult son Mother and sister in Buffalo; Son in Baltimore P8 (male) Adult son Son in Baltimore

Table 1. Participants Information.

## 3 Findings

#### 3.1 Families Use Different Tools to Share Photos

Participants mentioned different technologies to share photos such as texting, email, Facebook (for adult children), and Instagram (for grandchildren). In one instance, user age was called out as a factor influencing the decision to use (or not) a particular tool. Instagram was framed as a tool for grandchildren – not for elderly parents. However, three out of eight participants mentioned printing and sharing physical photos. For example, P2 said: "I print the pictures [from cruise trips] and add them at a photo album. When I want to show it to people, I bring the album with me and show the pictures. Mostly for my siblings and friends at the senior center."

## 3.2 Sharing Photos is Stimulating and Inclusive

Our data revealed that sharing photos can enhance family gatherings: "When we have family dinners, we sit at the tables and show pictures on our phones: 'Let me bring up this pictures that I want you to see.' "(P3) Also, it may help family members to start conversations: "The photos capture one moment of the story, but you might expand it as a story and give more details about how that happened." (P6)

Elderly parents described feelings of "inclusion" when they shared photos and when family members shared photos with them: "because it includes them, something funny happens here, and if I take a picture of it and send it to them, they can all laugh at it. It encourages family interaction." (P5) Inclusion appeared in close proximity to comments emphasizing disconnection and absence: "Even when someone is not there, it keeps us connected." (P1) Some participants suggested that their own feelings of inclusion stemmed from just knowing what was going on with their family members: "What they [grandchildren] look like today, what things they are learning and doing." (P6)

Additionally, elderly parents described some experiences of sharing photos in terms of positive affect. Participants described some recollections in terms of fun: "they [photos] are fun to remind me that we had fun with them [grandchildren]." (P5) "I like to share photos. It's fun. And I know the enjoyment I get out of see people's pictures, so I hope they feel the same way." (P8)

# 3.3 Photos Showcase Families' Healthy Social and Physical Activities

Photo sharing appeared to be a way for elderly parents to share physical health information with their adult children. Elderly parents reported sharing photos of themselves being physically active and participating in social activities. For example, P1 said: "I photo-document what we did each week, the activities from the gardening group. And we take pictures and send them out." Similarly, P4 said: "I do a lot of hiking, my husband and I do a lot of hiking. So any hikes we go, I'd pick the four or five best pictures to make an album (on Facebook)." Furthermore, all of the participants mentioned sharing photos of vacations within their families. For example, P3 said: "I went to Italy with my husband. I took many pictures and I sent them [pictures] to my daughter." In some cases, participants explained that sharing photos of physical activity or being active was a way to let family members know that they are in good shape: "...because most people in my age especially can't get out in the woods." (P4)

Moreover, participants mentioned positive affect when creativity shows in their photos: "... I loving doing things with my pictures; besides sharing them, I make cards [and] I make calendars, I give for this group [gardening] a calendar with a different picture each month." (P1) Similarly, P3 said: "I love to take pictures of buildings or architecture or nice vignette in the park. That's my artistic side coming up."

#### 3.4 Technological Constraints Undermine Photo Sharing

Participants described different challenges of sharing photos, including interface design and accessibility. For example, P1 claimed that using a smartphone for photo sharing is not "intuitive". And P3 said that the smartphone's form factor is not as convenient as a computer, thus: "(On the iPhone) It's hard to type, so I don't respond so much quickly than an email, that's challenging." Finally, sharing photos using multiple platforms is another challenge. For instance, P1 said: "We take pictures of the residents' hands [while gardening] and send them to the rest of the group [through email]. There's about 12 of us, and not everybody is on Facebook, so we can't do that."

## 4 Discussion, Limitations and Future Work

Our interview study led to the insight that, when it comes to elderly parents and their adult children, families use multiple channels for sharing photos, photo sharing is stimulating and inclusive, and photo sharing is a way for older adults to showcase their healthy social and physical activities. Prior research has identified a need for tools that can engage families in working together toward their collective health [13]. Based on our preliminary findings, we believe that photo sharing has potential to encourage families on sharing more health information with each other. However, when it comes to elderly parents, it is clear that there are challenges that must be addressed, such as: unintuitive interface design, form factor, and the variety of channels for sharing. Elderly parents could benefit from a dedicated space for sharing photos with family members.

Given that smartphones can be difficult for elderly parents to use due to the size of their keyboard, such a space should be designed for tablet or web use. Finally, the design itself ought to be intuitive. In addition, it would seem necessary to provide some kind of framework to shape the kinds of health information that family members might share. Our participants mentioned using different tools to share photos including photos pertinent to health. Since elderly parents found multiple tools challenging, it might be beneficial to create a space dedicated to sharing *only* health information as a way of protecting against this kind of confusion. Users could continue to use multiple other platforms to share other kinds of photos.

This preliminary study presents findings from an interview study that recruited elderly parents living apart from their adult children. Although interviews have some drawbacks [6], we believe that they are an appropriate method for understanding older adults' current photo-sharing practices. Furthermore, our sample could have been larger to reach saturation. As for next steps, we plan to collect data from adult children participants and combine both generations' perspectives to draw insights into the design of tools that will better support intergenerational families on recording and sharing sustainable health information via photos.

#### References

- Biemans, M., van Dijk, B., Dadlani, P., van Halteren, A.: Let's stay in touch: Sharing photos for restoring social connectedness between rehabilitants, friends and family. In: Proceedings of the 11th International ACM SIGACCESS Conference on Computers and Accessibility. pp. 179–186. Assets '09, ACM, New York, NY, USA (2009). https://doi.org/10.1145/1639642.1639674
- Binda, J., Yuan, C.W., Cope, N., Park, H., Choe, E.K., Carroll, J.M.: Supporting
  effective sharing of health information among intergenerational family members.
  In: Proceedings of the 12th EAI International Conference on Pervasive Computing Technologies for Healthcare. PervasiveHealth '18, ACM, New York, NY, USA
  (2018). https://doi.org/10.1145/3240925.3240936
- Braun, V., Clarke, V.: Using thematic analysis in psychology. Qualitative research in psychology 3(2), 77–101 (2006)
- Brewer, R.N., Jones, J.: Pinteresce: Exploring reminiscence as an incentive to digital reciprocity for older adults. In: Proceedings of the 18th ACM Conference Companion on Computer Supported Cooperative Work and Social Computing. pp. 243–246. CSCW'15 Companion, ACM, New York, NY, USA (2015). https://doi.org/10.1145/2685553.2699017
- 5. Center, P.R.: Pew research center family support in graying societies (01 2013), http://www.pewsocialtrends.org/2015/05/21/family-support-ingraying-societies/
- Creswell, J.W.: Qualitative inquiry & research design choosing among five approaches. Thousand Oaks, CA (2007)
- van Dijk, B., Dadlani, P., van Halteren, A., Biemans, M.: Life changes, connection stays: Photo sharing and social connectedness for people with special needs. In: Proceedings of the 28th Annual European Conference on Cognitive Ergonomics. pp. 135–142. ECCE '10, ACM, New York, NY, USA (2010). https://doi.org/10.1145/1962300.1962327
- Grimes, A., Tan, D., Morris, D.: Toward technologies that support family reflections on health. In: Proceedings of the ACM 2009 International Conference on Supporting Group Work. pp. 311–320. GROUP '09, ACM, New York, NY, USA (2009). https://doi.org/10.1145/1531674.1531721
- Kim, J., Zimmerman, J.: Cherish: Smart digital photo frames for sharing social narratives at home. In: CHI '06 Extended Abstracts on Human Factors in Computing Systems. pp. 953–958. CHI EA '06, ACM, New York, NY, USA (2006). https://doi.org/10.1145/1125451.1125635
- Lee, H.C., Cheng, Y.F., Cho, S.Y., Tang, H.H., Hsu, J., Chen, C.H.: Picgo: Designing reminiscence and storytelling for the elderly with photo annotation. In: Proceedings of the 2014 Companion Publication on Designing Interactive Systems. pp. 9–12. DIS Companion '14, ACM, New York, NY, USA (2014). https://doi.org/10.1145/2598784.2602769
- Lee, H.C., Hsu, J.Y.j.: Picmemory: Enriching intergenerational family interaction and memory collection. In: Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems. pp. 3715–3718. CHI EA '16, ACM, New York, NY, USA (2016). https://doi.org/10.1145/2851581.2890233
- Mols, I., Hoven, E.v.d., Eggen, B.: Making memories: A cultural probe study into the remembering of everyday life. In: Proceedings of the 8th Nordic Conference on Human-Computer Interaction: Fun, Fast, Foundational. pp. 256–265. NordiCHI '14, ACM, New York, NY, USA (2014). https://doi.org/10.1145/2639189.2639209

- Pina, L.R., Sien, S.W., Ward, T., Yip, J.C., Munson, S.A., Fogarty, J., Kientz, J.A.: From personal informatics to family informatics: Understanding family practices around health monitoring. In: Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing. pp. 2300–2315. CSCW '17, ACM, New York, NY, USA (2017). https://doi.org/10.1145/2998181.2998362
- 14. Piper, A.M., Weibel, N., Hollan, J.: Audio-enhanced paper photos: Encouraging social interaction at age 105. In: Proceedings of the 2013 Conference on Computer Supported Cooperative Work. pp. 215–224. CSCW '13, ACM, New York, NY, USA (2013). https://doi.org/10.1145/2441776.2441802
- 15. Tee, K., Brush, A.B., Inkpen, K.M.: Exploring communication and sharing between extended families. International Journal of Human-Computer Studies **67**(2), 128–138 (2009)
- Waycott, J., Davis, H., Vetere, F., Morgans, A., Gruner, A., Ozanne, E., Kulik,
   L.: Captioned photographs in psychosocial aged care: Relationship building and
   boundary work. In: Proceedings of the 32Nd Annual ACM Conference on Human
   Factors in Computing Systems. pp. 4167–4176. CHI '14, ACM, New York, NY,
   USA (2014). https://doi.org/10.1145/2556288.2557290