

Account Password Sharing in Ordinary Situations and Emergencies: A Comparison Between Young and Older Adults

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Abstract

Sharing account passwords with others is a prevalent yet risky practice. We explore password sharing behaviors in ordinary situations and hypothetical emergencies, perceived security risks, and user interest in password manager features that could facilitate secure sharing. We surveyed ($n = 208$) young adults (18-24) and older adults (65+) to see how their sharing habits differed. Our findings suggest that younger adults are more likely to share passwords in ordinary situations, but older adults are more likely to share in emergencies. Both groups expressed security concerns in ordinary situations, but less so in emergencies. The majority of people (>50%) were interested in a password manager feature that facilitates secure account sharing, but both young and older adults were reluctant to pay a premium for it.

1 Introduction

In today's digital age, managing numerous online accounts requires strong passwords. However, the practice of password sharing persists [1, 3–6, 9], raising concerns about compromised security. While the importance of password security is widely recognized, the act of sharing passwords creates vulnerabilities that can be exploited by malicious attackers. Password managers offer a secure solution for managing multiple online account credentials, overcoming the challenges of remembering numerous passwords and preventing reuse. However, despite their benefits, adoption rates remain low [2, 7, 8, 10].

In this work, we aim to understand password-sharing behavior in ordinary situations and emergencies, users' level of concern regarding security of sharing account passwords, and the level of user interest in a password manager feature that facilitates secure account sharing. We aim to answer the following research questions:

- RQ1: How do password-sharing behaviors differ between young adults and older adults, and between ordinary situations and emergencies?
- RQ2: What are security concerns regarding sharing account passwords in ordinary situations and emergencies?
- RQ3: How interested are people in the emergency contacts or beneficiaries feature in password managers?

2 Methods

We designed a survey in Qualtrics and recruited young adults (18-24) and older adults (65+) in the US through Prolific. Our study method was approved by the Carnegie Mellon University IRB. All study materials can be found in the Appendix. Each participant received \$1 as compensation. In total, we received 108 valid responses from young adults and 100 responses from older adults. We analyzed the quantitative results of the survey by reporting percentages based on age groups and running statistical tests. Two researchers conducted thematic analyses of participants' responses to free response questions.

3 Results

3.1 Account Password Sharing Behaviors

From a chi2 test, we see that in ordinary situations, younger adults are more likely to share than older adults in ordinary situations ($p < 0.001$). As shown in Figure 1, older adults are more likely to share in emergencies ($p = 0.012$).

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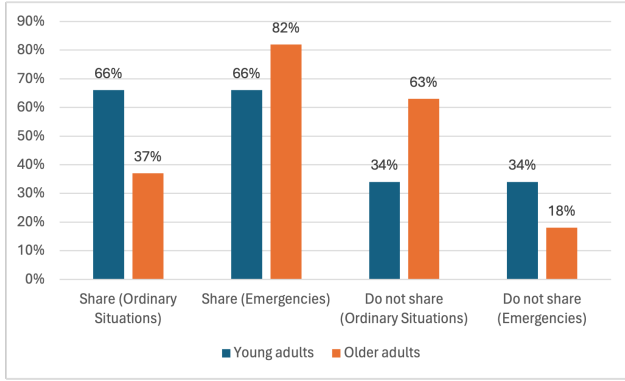


Figure 1: Password Sharing Behaviors In Ordinary Situations and Emergencies

3.2 Security Concerns

We also explore user concerns regarding security regarding password sharing behaviors when sharing passwords in everyday situations and emergencies (Figure 2). Using Wilcoxon signed-rank tests, we see that older adults have lower levels of concern regarding password sharing in emergency situations compared to ordinary situations ($p < 0.001$). Security concern levels among young adults do not appear to differ between ordinary and emergency situations ($p = 0.496$), which may be due to a lack of perceived urgency. Interestingly, there was no difference in security concerns between older and young adults in ordinary situations ($p = 0.113$) or in emergencies ($p = 0.113$) from Mann-Whitney-Wilcoxon tests.

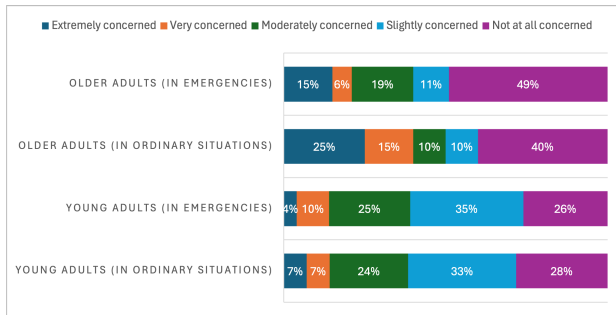
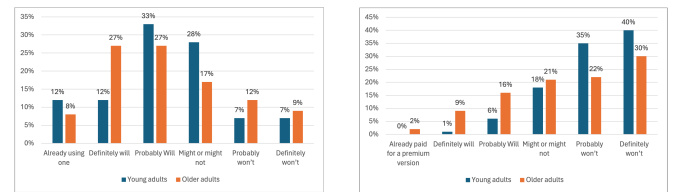


Figure 2: Levels of security concerns

3.3 Emergency contacts or beneficiaries feature in password managers

As shown in Figure 3a, people were interested (over 50%) in the password manager feature for secure emergency sharing, especially older adults. A free-response question was asked to explore the underlying reasons. Some viewed the feature as a potentially secure way to share account access with trusted individuals in case of emergencies. As P21 stated, "I haven't

really thought of sharing my passwords in emergencies, but now that I am aware I would be open to having a secure way to allow friends and family access to my passwords" Some highlighted the importance of ensuring the accessibility of their digital assets beyond their lifetime. As Y52 noted, "Just for my music distribution platform. If I die, the music must live." Younger adults expressed a higher level of stress associated with planning for emergencies. As Y28 noted, "really want to but I might put it off because the concept is stressful to me." In contrast, older adults tended to have already considered emergencies and might have even made plans regarding digital asset access. As O11 noted, "I very much want my sister, my executor of my estate, to be able to access everything so that she can take care of the business part of things if I am unable to"



(a) How likely are people to use a password manager if it allows them to set up emergency contacts or beneficiaries

(b) How likely are people to pay for premium versions of password managers that allow them to set up beneficiaries

Figure 3: Interest in Feature of Password Managers

As shown in Figure 3b, fewer people (under 40%) were willing to pay extra for this feature, with young adults even less likely than older adults for a variety of reasons, ranging from trust to having other methods. A free-response question was asked to explore underlying reasons. Both younger and older adult participants expressed security concerns. As O1 noted, "I would not pay for a premium password manager for the same reason I don't use the basic ones in Chrome - I don't trust them." Younger adults more frequently reported that death is not a pressing concern at their current life stage. As Y13 noted, "Young enough that death doesn't seem a serious concern yet." In contrast, some older adults reported a preference for leaving this information in written form. As O9 noted, "I can leave the appropriate parties the information in written form and update it when I change passwords....all at no charge."

4 Conclusions

Our results show that young adults share passwords more often than older adults, but both groups are worried about the security risks. Despite security concerns, older adults are more likely to share passwords in emergencies due to perceived urgency. People are interested in a secure password-sharing feature for emergencies, but not enough to pay extra for it.

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A Survey Questions

1. Do you share account passwords with other people? Choose one: Yes; No
2. (Question 2 only appears if participants select no on Question 1) Why do you not share account passwords with other people? [free text]
3. (Question 3 only appears if participants select yes on Question 1) What types of online account passwords do you share with other people? Select all that apply: Social media; Banking; Investment; Entertainment; Shopping; Email; Other: _____
4. (Question 4 only appears if participants select yes on Question 1) How many account passwords do you share passwords for? Choose one: 1-5 accounts, 6-10 accounts, 11-15 accounts, 16 accounts or more
5. (Question 5 only appears if participants select yes on Question 1) Why do you share these account passwords? Select all that apply: Save money; Convenience; Share information; In case of emergency; Other: _____
6. How concerned are you with security when sharing account passwords (e.g., those who know your password might hack into your other accounts)? Choose one: Extremely concerned; Very concerned; Moderately concerned; Slightly concerned; Not at all concerned
7. How concerned are you with privacy when sharing account passwords (e.g., those who know your password could view your whole browsing history)? Choose one: Extremely concerned; Very concerned; Moderately concerned; Slightly concerned; Not at all concerned
8. In an emergency situation, or in case of death, would it be important to you for other people to have access to your online account passwords? Choose one: Yes; No
9. (Question 9 only appears if participants select no on Question 7) Why would you not share account passwords with other people in emergencies? [free text]
10. (Question 10 only appears if participants select yes on Question 7) What types of online account passwords would you share with others in emergencies? Select all that apply: Social media; Banking; Investment; Entertainment; Shopping; Email; Other: _____

11. (Question 11 only appears if participants select yes on Question 7) How would you share account passwords in emergencies? *Select all that apply: Via phone call; Via text message; Written text on paper; In-person conversation; Other: _____*
12. How concerned would you be with security when sharing account passwords in emergencies (e.g., those who know your password might hack into your other accounts)? *Choose one: Extremely concerned; Very concerned; Moderately concerned; Slightly concerned; Not at all concerned*
13. How concerned would you be with privacy when sharing account passwords in emergencies (e.g., those who know your computer password could view your whole browsing history)? *Choose one: Extremely concerned; Very concerned; Moderately concerned; Slightly concerned; Not at all concerned*

A password manager is a software application that helps you store and manage your passwords for various online services. It essentially acts like a secure digital vault for all your passwords. Examples include:

- (1) password managers built into browsers, such as Chrome, Firefox, etc.
- (2) password managers built into operating systems, such as MacOS Keychain.
- (3) third-party applications installed on devices, such as 1Password, LastPass.

14. Based on the description, what is a password manager? *Choose one (answers are displayed in a random order): An identity verification method in which a user must supply at least two pieces of evidence; A digital tool that helps users store and manage login information for various online accounts; A note-taking app that helps store users' passwords for various online services; A text file that helps store users' passwords for various online services*
15. Do you use password managers? *Choose one: Yes; No*
16. (Question 16 only appears if participants select no on Question 15) Would you be interested in using a password manager? *Choose one: Yes; No*
17. How likely are you to use a password manager if it allows you to set up emergency contacts or beneficiaries (individuals you designate to inherit the contents or have access to the accounts upon your incapacitation or death)? *Choose one: Already using one; Definitely will; Probably Will; Might or might not; Probably won't; Definitely won't*

18. Why did you select the above option? *[free text]*
19. How likely are you to pay for premium versions of password managers that allow you to set up beneficiaries (individuals you designate to inherit the contents or have access to the accounts upon your incapacitation or death)? *Choose one: Already paid for a premium version; Definitely will; Probably Will; Might or might not; Probably won't; Definitely won't*
20. Why did you select the above option? *[free text]*
21. How old are you? *Choose one: 18-24 years old; 25-34 years old; 35-44 years old; 45-54 years old; 55-64 years old; 65+ years old*
22. What is your gender? *Choose one: Male; Female; Non-binary / third gender; Prefer to self-describe: ___; Prefer not to say*
23. Choose one or more races that you consider yourself to be. *Choose one: White or Caucasian; Black or African American; American Indian / Native American or Alaska Native; Asian; Native Hawaiian or Other Pacific Islander; Other; Prefer not to say*
24. Are you of Spanish, Hispanic, or Latino origin? *Choose one: Yes; No; Prefer not to say*
25. What is the highest level of education you have completed? *Choose one: Some high school or less; High school diploma or GED; Some college, but no degree; Associates or technical degree; Bachelor's degree; Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS etc.); Prefer not to say*
26. What was your total household income before taxes during the past 12 months? *Choose one: Less than \$25,000; \$25,000 - \$49,999; \$50,000 - \$74,999; \$75,000 - \$99,999; \$100,000 - \$149,999; \$150,000 or more; Prefer not to say*
27. Do you have feedback on the survey? *[free text]*

B Participant Demographics

In total, we recruited 225 participants by posting two studies on Prolific. Of the 208 participants who passed the attention check, 108 were young adults and 100 were elder adults. The full table that shows the demographics of the participants can be found in Appendix B.

Table 1 shows the demographics of study participants.

C Codebooks

Table 2, Table 3, Table 4, and Table 5 show the codebooks for free-responses to survey questions 2, 9, 18, 20, respectively.

	Young Adults (18-24 years old) n = 108	Older Adults (65+ years old) n = 100
<i>Gender</i>		
Female	55 (50.93%)	61 (61%)
Male	43 (39.81%)	39 (39%)
Non-binary / third gender	9 (8.33%)	0 (0%)
Prefer not to say	1 (0.93%)	0 (0%)
<i>Race</i>		
White or Caucasian	67 (62.04%)	95 (95%)
Black or African American	13 (12.04%)	3 (3%)
American Indian / Native American or Alaska Native	0 (0%)	1 (1%)
Asian	28 (25.93%)	1 (1%)
Native Hawaiian or Other Pacific Islander	1 (0.93%)	0 (0%)
Other	5 (4.63%)	1 (1%)
<i>Highest Level of Education Completed</i>		
Some high school or less	2 (1.85%)	0 (0%)
High school diploma or GED	17 (15.74%)	8 (8%)
Some college, but no degree	37 (34.26%)	20 (20%)
Associates or technical degree	6 (5.55%)	15 (15%)
Bachelor's degree	43 (39.81%)	32 (32%)
Graduate or professional degree	3 (2.78%)	25 (25%)
<i>Household Income Before Taxes During the Past 12 Months</i>		
Less than \$25,000	17 (15.74%)	18 (18%)
\$25,000-\$49,999	26 (24.07%)	28 (28%)
\$50,000-\$74,999	14 (12.96%)	20 (20%)
\$75,000-\$99,999	20 (18.52%)	14 (14%)
\$100,000-\$149,999	18 (16.67%)	12 (12%)
\$150,000 or more	7 (6.48%)	7 (7%)
Prefer not to say	6 (5.55%)	1 (1%)

Table 1: Demographics of study participants.

Code	Description	Examples
Security Concerns	Participants are concerned about unauthorized access to their accounts and the potential for misuse.	"Passwords are secrets. I'm not going to compromise my security.", "I sometimes share passwords between accounts, knowing one password can lead to accessing my other non-related accounts."
Privacy Concerns	Participants prioritize keeping their account information and activity private.	"Because I value my privacy and account data. The stuff can be given out to other people, its too risky that it could leak.", "I don't feel comfortable with people being able to see everything I do online."
No Need	Participants don't see a reason to share passwords because they manage their accounts themselves or don't share them with anyone.	"Because I do not feel the need to share my information with others.", "No one needs to know my passwords."
Distrust	Participants don't trust others with their passwords or don't feel comfortable sharing them.	"I do not trust anyone with my personal information.", "Because I don't trust others with it. They could send them to other people who then could hack into your accounts"

Table 2: Codebook for why people don't share account passwords in ordinary situations.

Code	Description	Examples
Privacy Concerns	Participants are worried that others may see private information in their accounts.	"I wouldn't want people to possibly find personal information about me that would cause them to think differently of me forever.", "My accounts should remain private."
Security Risks	Participants fear unauthorized access or misuse of accounts in emergencies.	"because they could clean out my accounts and I wouldn't be coherent to stop them"
Distrust	Participants don't trust others with their passwords, even in emergencies.	"Because I am simply not close to anyone nor do I trust anyone enough to have share accounts that may have sensitive things."
No Need	Participants don't believe their accounts contain valuable information for emergencies.	"None of my other accounts have anything I care to let people see.", "If there was a need to access any of my accounts, there are proper ways to contact the companies. No one needs my account passwords."
Alternatives Exist	Participants believe there are better ways to access information in an emergency (e.g., joint accounts, physical documents).	"They will have to figure it out some other way, like with my health insurance card in my wallet."
No Thought	Participants had never thought about this topic.	"I did not think about that."
Not Relevant	Participants felt that the account information wouldn't be relevant in emergencies.	"I'm more concerned with resolving the emergency first", "I may, it just is not important to me as my online life most likely won't be on my mind when in an emergency."

Table 3: Codebook for why people don't share account passwords in emergencies.

Code	Description	Examples
Increased Security	Participants view the feature as a potentially secure way to share passwords with trusted contacts in case of emergencies.	"I haven't really thought of sharing my passwords in emergencies, but now that I am aware I would be open to having a secure way to allow friends and family access to my passwords"
Ease of Use	Participants appreciate the potential ease of use of this secure sharing feature.	"It would make an easy way to share the info.", "If it's easy to set up, then sure i'll use one."
Benefit to Others	Participants believe emergency access will be helpful to loved ones in case of something happening to them.	"I want my loved ones to have access to my accounts if something were to happen to me so they can deal with any financial concerns."
Longevity of Digital Assets	Participants thought it was important to ensure the accessibility of their digital assets beyond their lifetime.	"Just for my music distribution platform. If I die, the music must live. "
Need More Information	Participants expressed a need for more information about the specifics of the feature.	"I don't know if I could trust it. I would have to research it."
Either Works	Participants thought that either the traditional approach of pen and paper or the new password manager approach would work.	"I have gotten along fine without one, but it wouldn't hurt to set up. "
Reluctant to Think	Participants expressed a higher level of stress associated with planning for emergencies and reported a general reluctance to contemplate such scenarios.	"really want to but I might put it off because the concept is stressful to me."
Security Concerns	Participants are worried about the security of password managers and hesitant to store passwords electronically.	"Scared that hackers will hack into password manager and access my passwords", "I don't trust password managers - anything and everything can be hacked these days!"
Distrust	Participants don't trust anyone enough to share their passwords, even through a password manager.	"Not that close with anyone to give them access to my online accounts or any reason why anyone needs this."
Already Use Password Managers	Participants already use password managers.	"Because I use it already."

Table 4: Codebook for why people choose to use/not use a password manager.

Code	Description	Examples
Financial Constraints	Participants cited financial limitations as a primary reason for not paying for premium password manager features.	"I don't have disposable money.", "I'm on a strict budget."
Security Concerns	Participants are concerned about the security of password managers and hesitant to store passwords electronically.	"I would not pay for a premium password manager for the same reason I don't use the basic ones in Chrome - I don't trust them.", "IT WOULD BE A WASTE OF MONEY TO BE HACKED."
Alternative Solutions	Participants prefer free alternative solutions for managing passwords or sharing information with beneficiaries.	"I'm assuming there's useful, free alternatives.", "I can leave the appropriate parties the information in written form and update it when I change passwords....all at no charge."
Death Not a Present Concern	Death is not a pressing concern at current life stage.	"Young enough that death doesn't seem a serious concern yet.", "I am not at an age where I feel like it would help I am pretty young and in good health"
Need More Information	Participants are unfamiliar with password managers with beneficiary features and need more information.	"I don't know much about this subject and would need to learn more.", "Had not heard of doing this before; would need more information."
Positive Reaction	Participants find the concept of beneficiary access appealing and might consider paying for it.	"I will like to pay for the maximum protection of my most important information.", "It is worth something to me as long as it is not too expensive."
Already Paid for Premium	Participants already paid for premium versions of password managers.	"Because I do it already."

Table 5: Codebook for reasons for people's willingness to pay for premium versions of password managers.