

AMENDED Exhibit 85

PLAINTIFFS' OMNIBUS OPPOSITION TO DEFENDANTS' MOTIONS FOR SUMMARY JUDGMENT

Case No.: 4:22-md-03047-YGR

MDL No. 3047

In Re: Social Media Adolescent Addiction/Personal Injury Products Liability Litigation

[WIP] Association between parent and teen attentiveness to their social media use (potential problematic use) (MYST)

Research Report

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These are WIP cross-sectional results from Wave 1 of the Meta Youth and Social-Emotional Trends (MYST), a longitudinal survey of approximately 1000 US teens with parental consent, linked with behavioral data about teens' experiences on IG and FB. See [HYPERLINK "https://docs.google.com/document/d/1q3cnDXz9f4pit3vudLaxz0Fp-KmFT_yrrREuC7eO9_/edit" \l "heading=h.pfghcaow3lk6" \h] for more background and planned analyses.

[Extremely WIP below]

Summary

(Still writing/editing these)

- TODO: Write a bullet point with one-line about survey and define low attentiveness and low capability.
- (TODO: Revise after defining att and cap above) The majority of teens and parents (72 and 66%, respectively) reported experiencing challenges with attentiveness (possible unintended, unaware, and/or habitual use) "often" or "always" on at least one social media platform. Teens perceived the most challenges with TikTok, parents on Facebook.
- About 1 in 10 parents (11%) and 1 in 3 teens (28%) reported experiencing challenges with capability (
- Parents who report greater feelings of attentiveness over their own social media use have teens who report greater feelings of attentiveness over their own social media use. The association is small but is robust to controlling for parent and teen demographics and parent's marital and employment status.

- No association between parent survey PU and teen behavior
- Teens who spend more time on Instagram and have other behaviors that have been associated with potential problematic use are more likely to have parents that perform more digital caregiving or digital supervision (DEFINE)

Background

TODO: A paragraph here motivating these analyses. AAP meetings, parental controls in product, education for parents, other PU-related product work, etc. A little bit about what PU is, why it's important, and how we currently measure it. (Make clear that 'attentiveness' is a dimension of what we used to call PU.)

- One area of concern when it comes to teens' social media use is the potential that they engage in excessive or problematic use, which may disrupt other important life activities ([HYPERLINK "https://www.hhs.gov/sites/default/files/sg-youth-mental-health-social-media-advisory.pdf" \h]).
- Teens may sometimes be using social media more than they intended to without paying attention to it, such as engaging in habitual use or getting caught up in what they are doing. Teens may also believe that it's challenging to limit their use or feel like it's hard to exert self-control, which is a general challenge during adolescence. (cites for types of low control behavior from literature; cites for our survey development)
 - These experiences are not unique only to teens - adults, especially young adults, also can have these experiences at times regarding social media use. (cites past research for prevalence estimates)
- Apart from having challenges around intentional use or limiting use, some teens may just plain be using a lot - even including when they deliberately intend to. Parents can play an important role in providing guardrails around their teens' social media to ensure that the time they spend is in balance with other important things in their teens' lives. (cites for supervision context;)
- Finally, parents and teens might report similar experiences as each other around their experiences using and controlling their use of social media. One important reason might be that they have similarities in their behavior patterns and may need similar support, including support for parents in helping their teens. There may also be broader household factors that contribute to these challenges, affecting many members of a family. Expert organizations like the American Academy of Pediatrics cite the importance of parents setting an example for their children by regulating their own social media use and adhering to family-wide rules for social media boundaries and balance (AAP [HYPERLINK "https://link.springer.com/article/10.1007/s40429-024-00559-x" \h]; articles). If parents and teens are having similar challenges, then similar solutions might apply.

Commented [1]: [REDACTED] and [REDACTED]
I'd like your help writing this paragraph.

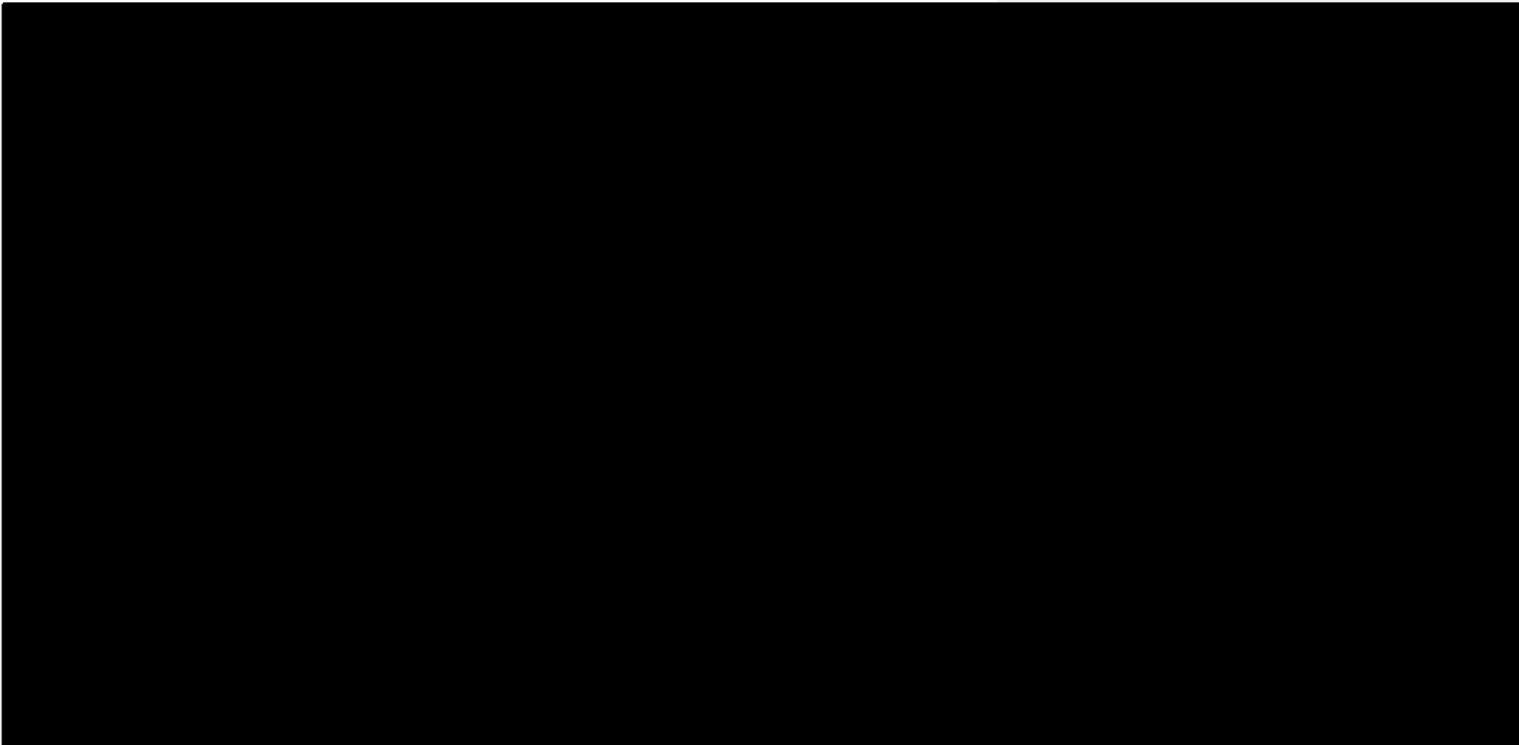
Most of the RQs below come from our 1:1 [REDACTED] you can see our notes from that discussion in our 1:1 doc: <https://docs.google.com/document/d/1G75R0TbX-iQIRmFk8yADfpYrhmnNXbyilrT8w89NNjls/edit>

Commented [2]: added some bullets with an outline of thoughts and things to cover - would need to flesh out with cites but also want to make sure we are scoped to a set of useful takeaways. have we received guidance yet about how to write these reports, in terms of how much to reference external literature/the broader space, or be really scoped to our product needs?

Commented [3]: [REDACTED] reminder to share that paper you mentioned
Assigned to [REDACTED]

- Our goal is to understand opportunities for supporting parents and teens with using social media intentionally, and empowering parents with the information and tools needed to support their teens. To that end, we first sought to understand how much parents and teens report similar challenges regulating social media use, to inform how the information and tools may be presented to be most relevant and useful. Parents' own social media experiences can affect their perceptions of their teens' experiences ([[HYPERLINK "https://www.sciencedirect.com/science/article/pii/S2590291122000481" \h](https://www.sciencedirect.com/science/article/pii/S2590291122000481)]) and parental opinions of time management tools' effectiveness is correlated with app sentiment ([[HYPERLINK "https://fb.workplace.com/groups/1288930768602423/permalink/1590751948420302/" \h](https://fb.workplace.com/groups/1288930768602423/permalink/1590751948420302/)]), so supporting parents themselves through challenges may be part of winning over parents.
- We also sought to understand what general factors in people's lives may impact these experiences, so we might consider a broader set of supportive solutions and education. Finally, we investigated which teen experiences were associated with parental involvement in monitoring or supervising teen social media use...

Method



Results

RQ1. How many parents and teens report low attentiveness or low capability over social media use?

Attentiveness

Possible unintended, unaware, and/or habitual use

The majority of parents (68%) and teens (72%) reported low attentiveness on at least one social media platform. [REDACTED]

On average, teens reported more challenges with attentiveness on social media than did parents (see Figure 1). We define **low attentiveness** as values ≤ 1 , corresponding to average responses of "Often" or "All the time" on the attentiveness scale. [REDACTED]. On Facebook, parents reported more challenges, with half (55% of parents) experiencing low attentiveness, while only 12% of teens reported low attentiveness on Facebook. Statistics are weighted to reflect IG teen MAP in the US [HYPERLINK \ "_7midhep5cwit" \h]].

The majority of teens and parents (72 and 66%, respectively) reported low attentiveness across at least one social media platform (last plot in Figure 1).

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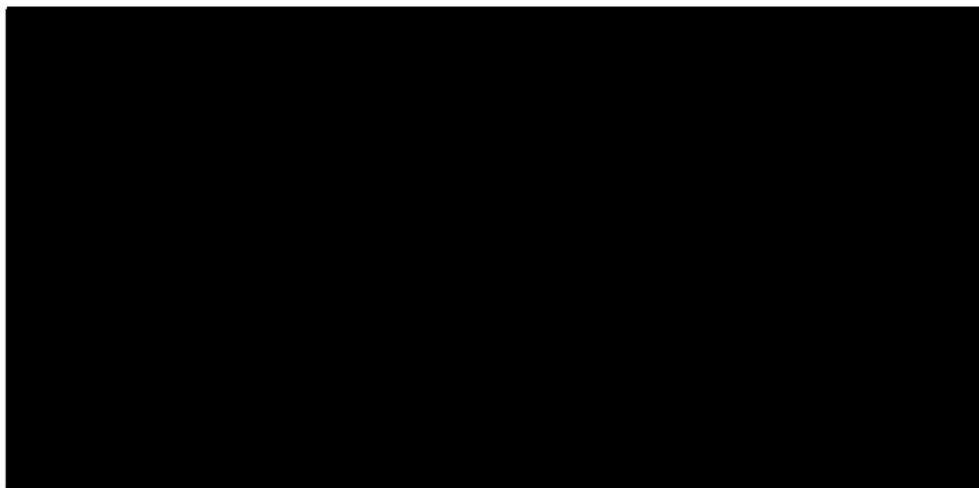


Figure 1. Percentages of parents and teens who reported experiencing low attentiveness to social media "often" or "all the time." [REDACTED] Responses are weighted to reflect IG teen MAP in the US [HYPERLINK \ "_7midhep5cwit" \h]].

Commented [7]: Is the text in these images too small for y'all to read? The text in the figures zooms with your screen, but I don't love that the labels in the figure are smaller than the 11-point Arial in the document itself.

I can work more on the way the plots render if this text is too small.

(Note that because the images zoom easily, we can zoom for sharing with others, and zoom for screenshotting to include in decks)

Commented [8]: not too small for me. it is a bit confusing that the order of the bars (parent, teen) isn't consistent across the plots.

Commented [9]: Wow, good catch! I hadn't noticed that and will have to dig to figure out why the group order switched in some of the facets.

Commented [10]: because the weighting is by the teens (which makes sense), how can we interpret this cohort of parents?

Capability

Perceived self-efficacy to exert control, if desired

Teens and parents report fewer challenges with capability than attentiveness. A greater proportion of teens than parents experience challenges with capability (see Figure 2).

We define **low capability** as values ≤ 1 , corresponding to average responses of “a little confident” or “not at all confident” on the capability scale. One-fifth of teens (20%) reported low capability on TikTok, and parents had the most challenges on Facebook, though only 7% reported low capability.

Roughly 1 in 10 parents (11%) reports low capability on at least one social media platform and about 1 in 3 teens (28%) does (last plot in Figure 2).

Teen and parent low capability by platform

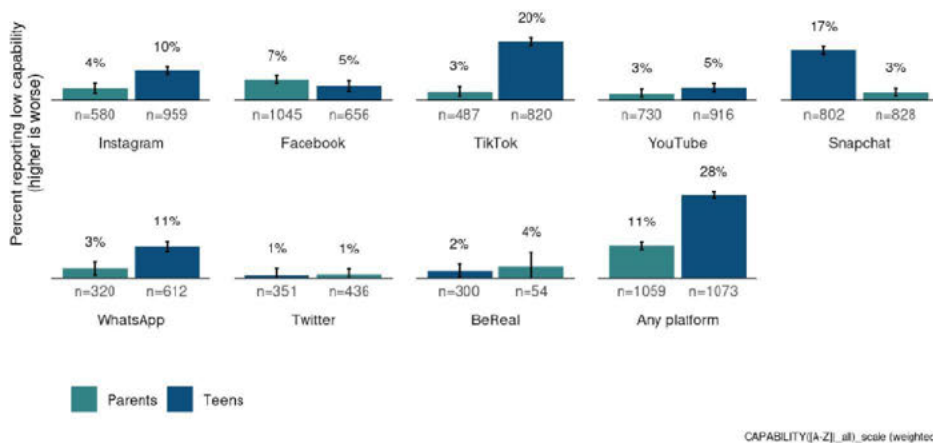


Figure 2. Percentages of parents and teens who reported experiencing low capability over social media: feeling “not at all confident” or only “a little bit confident” in their ability to exert control over their use if they desired.

RQ2. How are parental and household factors associated with parental and teen attentiveness on any social media platform?

Parental attentiveness

Fathers, older parents, and those who are retired report greater levels of attentiveness to their use of social media (Figure 3). The association with retiree status is on top of the

Commented [11]: [REDACTED] you had proposed this RQ. Is this analysis what you had in mind? Let me know how to make it more useful.

I'm not sure what to make of the findings / whether this is useful or not to AAP / other parent organizations. The tldr is that most household factors aren't associated with parental PU (not surprising); it's mostly parent demographics. Retired parents report greater attentiveness, though I'm not sure whether that's meaningful/useful or possibly spurious.

Parents in households in which a family member has experienced consistent mental health challenges (as reported by the parent) do report worse attentiveness, and I think that's understandable but also I'm not sure what to say about it.

_Assigned to [REDACTED]

association with age. Parents who report that a family member has experienced consistent challenges with emotions, concentration, or behavior (a measure of potential family mental health risk) report less attentiveness to their social media use (more challenges). Regression models available here [\[\[HYPERLINK \l "_7midhep5cwit" \h \] \]](#).

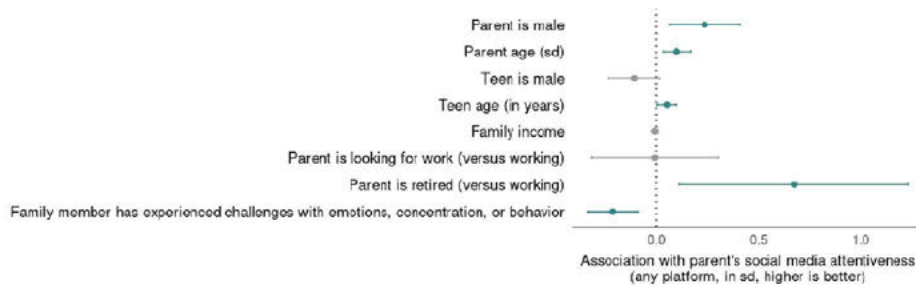


Figure 3. Association between parent's own social media attentiveness scale (any platform) and parental/household factors. All covariates were included in a standardized linear regression; for details see [\[\[HYPERLINK \l "_7midhep5cwit" \h \] \]](#). Some non-significant variable levels are omitted from the plot for simplicity. Statistically significant values ($p < 0.05$) are indicated in color.

Many household factors were not associated with parents' social media attentiveness, including the responding parent's marital status, highest household education level, household income, employment (e.g., looking for work versus working; only retirement status was associated with attentiveness), household size, who lives at home, home ownership, living in an urban/suburban/rural region, geographic region, whether the teen reported experiencing homelessness, whether the teen reported having a disability, and the number of adverse experiences the teen reported experiencing in their life.

Family and household factors only explain about 4% of the variance in parents' reported attentiveness, suggesting that many other factors influence how much attentiveness parents feel over their use of social media.

Teen attentiveness

Parental and household factors have little association with teens' reported levels of attentiveness to their social media use. Teens who identify as male and those who are younger report greater attentiveness, but family income, parental marital status, and other household characteristics (listed above) were not associated with the teens' feelings of attentiveness. Parental education may have an association with teen attentiveness; teens living

Commented [12]: seems like this should be the lead-in... helps contextualize that while there were some effects from household factors, it's not explaining the whole story.

does this control for how much they are using each platform? meaning, are these factors also associated with more/less use in general?

this also brings up my earlier question of whether these are averaged attentiveness scores across all platforms they use

Commented [13]: this article saying parent-child dynamics more influential than other aspects of household; curious what [REDACTED] has found

<https://www.sciencedirect.com/science/article/pii/S0010440X22000244>

in households in which neither parent completed high school (6% of teen households, weighted to reflect IG US teen MAP) reported greater attentiveness than teens who have a parent that completed high school. No other parental education levels were associated with teens' attentiveness.

Teens who reported a greater number of life experiences on the Adverse Childhood Events Scale (ACES; a measure of the extent to which teens experienced stressful events that may contribute to problematic use), such as having a close relationship with someone who was a problem drinker or alcoholic, or experiencing bullying or harassment at school, reported less attentiveness over their social media use.

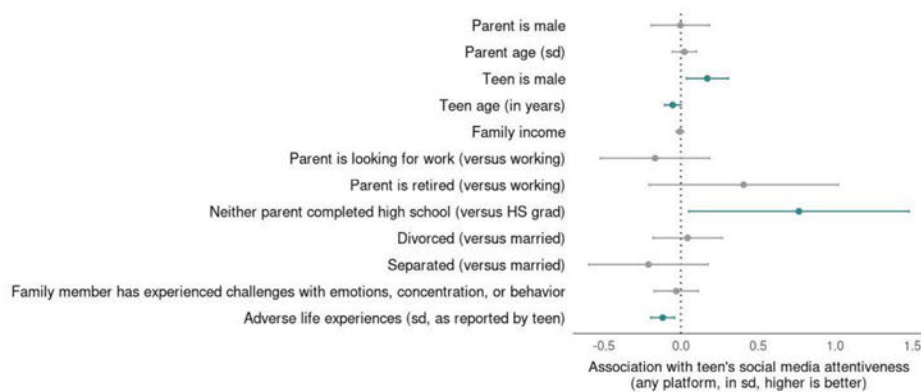


Figure 4. Association between teen's social media attentiveness scale (any platform) and parental/household factors. All covariates were included in a standardized linear regression; for details see [\[HYPERLINK \l "_7midhep5cwit" \h \]](#). Statistically significant values ($p < 0.05$) are indicated in color.

RQ3. How does a parent's survey measures of attentiveness and capability relate to their teen's survey measures of attentiveness and capability?

Parents who report feeling more control over their own social media use have teens who report feeling more control. The association is small. There is a small, positive correlation ($r=0.11$) between a parent's attentiveness and their teen's attentiveness, and a similar correlation ($r=0.11$) for capability with a parent-teen dyad.

These results are robust to the inclusion of demographic and household covariates (parent and teen genders and ages, parent marital status, and household highest education, see Figures 5 and 6 and [\[\[HYPERLINK \l "_7midhep5cwit" \h \] \]](#) for model details. Every standard-deviation of parental attentiveness is associated with about 1/10th of a standard deviation in teen attentiveness. Results are similar for capability.

The models each only account for approximately 3% of the variance in the teen's survey measures suggesting that many other factors influence how much attentiveness and capability teens feel over their use of social media.

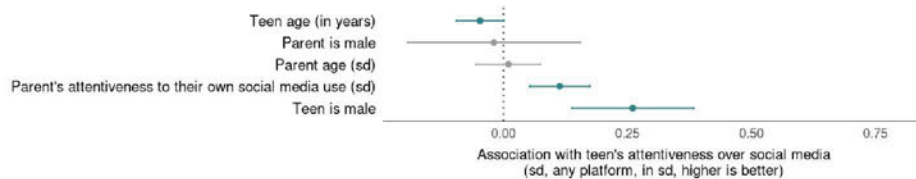


Figure 5. Association between a parent's survey measure of attentiveness over their own social media use and their teen's survey measure of attentiveness, as well as teen and parent demographics. All covariates were included in a standardized linear regression; for details see [\[\[HYPERLINK \l "_7midhep5cwit" \h \] \]](#). Statistically significant values ($p < 0.05$) are indicated in color.

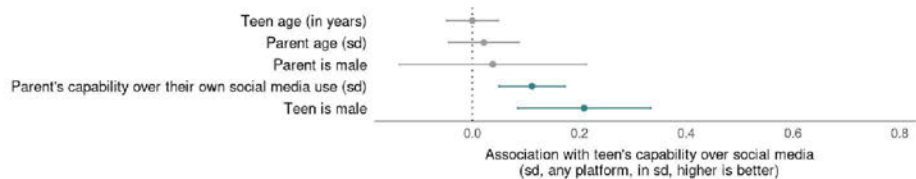


Figure 6. Association between a parent's survey measure of capability over their own social media use and their teen's survey measure of capability, as well as teen and parent demographics. All covariates were included in a standardized linear regression; for details see [\[\[HYPERLINK \l "_7midhep5cwit" \h \] \]](#). Statistically significant values ($p < 0.05$) are indicated in color.

RQ4. How do a parent's survey measures of attentiveness and capability relate to their teen's on-platform behavior?

Although there is a small association between parent and teen survey measures of attentiveness over social media, **we do not detect any association between parents' survey measures of attentiveness and their teens' activity on Instagram.**

Previous internal research has identified [HYPERLINK "https://docs.google.com/presentation/d/1ui138vpOFslxw4u4pAQpZktStgEb2g2xiSVRbaB2co/e dit" \ "slide=id.g2036dd37659_0_12" \h] that are associated with survey measures of low attentiveness and low capability over social media use. These behaviors include total time spent; total number of sessions; repeat, no-engagement sessions; and a [HYPERLINK "https://fb.workplace.com/groups/1288930768602423/permalink/1311754819653351/" \h] representing the degree and quantity of these potentially PU-related behaviors.

In the present study, we examine whether parents' survey measures of attentiveness or capability are associated with these on-platform behaviors by their teen on Instagram for the 28 days prior to the teen's survey. We do not detect an association. For regressions, see [HYPERLINK \ " _7midhep5cwi" \h].

RQ5. How many parents perform digital caregiving and supervision activities for their teen?

Definition of digital caregiving, digital supervision. (Need clarity from [REDACTED]): What survey measure is the intended measure for digital supervision /caregiving? From parent survey: SOCIAL2 (sum of yeses), SOCIAL2 (specific items), DIGITAL_CAR1A/1B from teen survey?

Figure 7 shows the percent of parents who reported doing digital caregiving and supervision activities for their teens, and Figure 8 shows the percent of teens who say their parents follow or monitor them on Instagram or Facebook.

Commented [14]: this is outdated - I don't think you used this though? this is info about the correct score: <https://fb.workplace.com/groups/1288930768602423/permalink/1459052961590202/> (though it does link to the 2022 version for explanation)

Commented [15]: [REDACTED] to provide definition / links to other places where these concepts have been researched internally/externally
Assigned to [REDACTED]

Commented [16]: I'll flesh this out in the next day or so. These questions are all drawn from past internal work - there's no "set" way to measure this concept, but I have some thoughts! it'd be great to map general parenting concepts of permissiveness (not monitoring/setting rules/being hands-off), authoritative (setting some rules, talking openly, not being draconian) and authoritarian (setting very strict rules, not talking openly, doing things behind the teen's back) to the SOCIAL2 survey scale. in general, authoritative parenting is linked with better outcomes for youth, so the question would be whether that holds for digital parenting as well

Commented [17]: [REDACTED] is this the best/only survey measure for digital caregiving / supervision? Any others that I need to incorporate?
Assigned to [REDACTED]

Commented [18]: And this question has several parts; if there are particular items that I should use as the DV let me know, or if you think I should combine them into a score (i.e., the fraction of questions they answered 'yes' to).

Commented [19]: Regardless of whether we choose sum(SOCIAL2) or SOCIAL2_3 == 1, or SOCIAL2_4 == 1, or DIGITAL_CAR1A == 1 or DIGITAL_CAR1B == 1, they're all non-stat-sig. No association with teen survey measures of attentiveness or control.

I just want to know which ones were intended to be our measures of digital caregiving/supervision for writing the report and making the figures.

Please read the following list and select the things you have done for your teen.

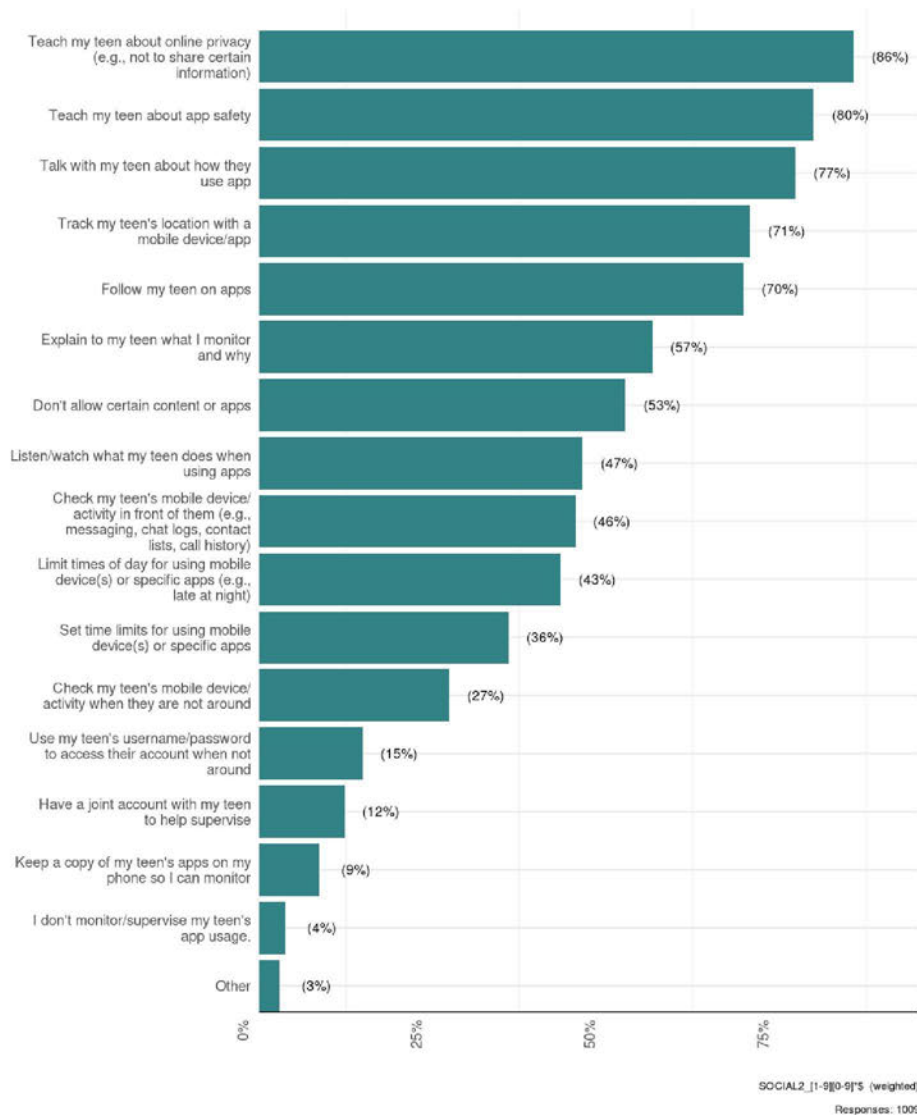


Figure 7. Percent of parents who reported doing digital caregiving and supervision activities (weighted by their teens' demographics to reflect IG US teen MAP).

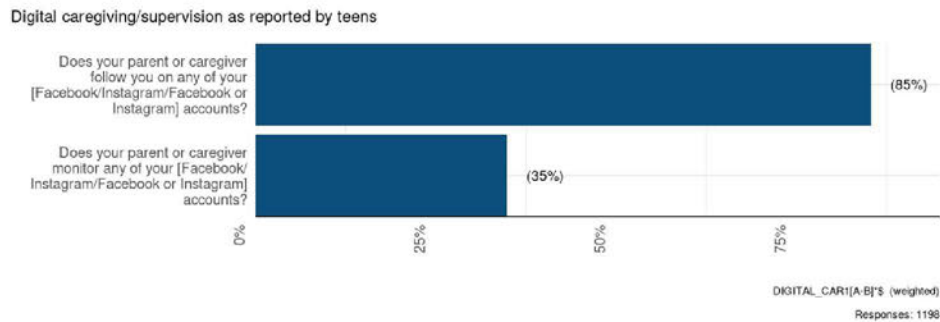


Figure 7. Percent of teens who said their parents followed or monitored them on Facebook/Instagram.

RQ6. How does a parent's digital caregiving and digital supervision relate to their teen's survey measures of attentiveness and capability?

There is no association between either parental reports or teen reports of parental digital caregiving/supervision and teens' survey measures of attentiveness or capability.

Regression models are available in [\[HYPERLINK \l "_7midhep5cwit" \h \]](#).

RQ7. How does a parent's digital caregiving and digital supervision relate to their teen's on-platform behavior?

Teens who have more potentially problematic activity on Instagram have parents who are more likely to perform digital caregiving and supervision (see Figure 8). These associations are generally hold for both parental reports and teen reports of what the parents do.

Commented [20]: so more usage, including high usage/potentially low control usage, is associated with parental involvement; parental involvement not based on teens' own perceptions of their usage. this makes sense -- it's what is more obvious to parents -- especially total time spent

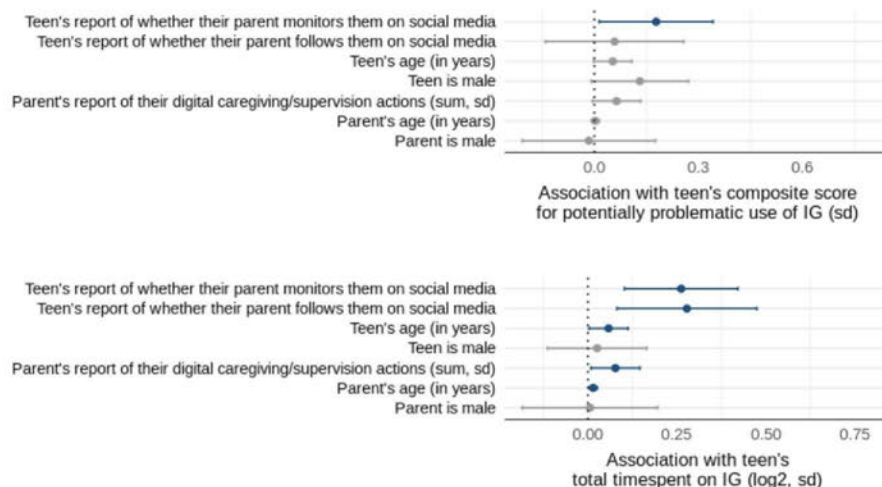


Figure 8. Association between parent- and teen-reported parental digital supervision/caregiving behaviors and teens' activities on Instagram (top: composite behavioral score of activities associated with potential problematic use, bottom: total time spent). Regression models are available in [\[HYPERLINK \l "_7midhep5cwit" \h \]](#).

Teens whose parents say they perform more digital supervision/caregiving activities (the sum of their 'yes' responses to the list in Figure 7) spend more time on the platform and have a marginally higher composite score of potential PU-related behaviors ($p=0.07$). Furthermore, teens who say their parents follow them on social media spend more time on the platform and have more sessions. Teens who say their parents monitor them on social media have a larger composite score of potential PU-related behaviors, spend more time, and have more sessions. Regression models available in [\[HYPERLINK \l "_7midhep5cwit" \h \]](#).

One exception to this pattern is that teens who say their parent follows them on social media have a smaller percentage of repeated no-engagement sessions ($B=-0.23$, $p = 0.02$, not shown).

Commented [21]: No idea what to make of this. We're doing a lot of statistical tests so this feels potentially spurious, given the direction of all of the other variables. I'm inclined to leave it out of this report and only include it in the appendix. What do y'all think?

Planning not to include these

Do we care about these parent responses now, or want to work them into a different note about parent experiences / feelings / attitudes?

Parent PATT4, 5 (familiarity/satisfaction with monitoring tools)
 Parent PATT1, PATT2, PATT3 (positive role of media)
 Parent SMCONCERN_PARENT (concerns about teens' use of social media)
 MAAP (parenting confidence)
 PARENTCHILDCONNECT (how connected do you feel to teen)
 LIFECONCERNS_PARENT

(for distributions of these, see [[HYPERLINK](https://www.internalfb.com/intern/anp/view/?id=4818495)
 "https://www.internalfb.com/intern/anp/view/?id=4818495" \h])

Commented [22]: @ [REDACTED] -- do you think we should share distributions of responses to these questions in this report or have a separate report with these?

My preference is a separate report, since this one's already long and these are somewhat different concepts (e.g., familiarity with router tools, etc.)

RQ7a. Relationship between parent survey PU and teen EWB?

- DV is teen EWB
- IVs are (separately) parent attentiveness, capability
- Consider the other household covariates in a regression

Commented [23]: @ [REDACTED] Do we care about the teen EWB as an outcome in this research report? It's already getting very long, so I'm inclined to leave these teen EWB ones out. (I also didn't see any correlation between parent PU and teen EWB, but haven't done any regressions or robustness checks.)

I'm planning to leave it out.

RQ8a. Relationship between parent digital caregiving methods and teen EWB?

- Same as above, but with SOCIAL2 as IV.

Footnotes

1. Survey weighting: All survey responses were weighted with graviton based on the teen's gender, recommended_age, account tenure, followers, followings, l28, mobile_l28, primary_interface to reflect IG US teen (13-17) MAP. Parent responses were weighted based on their teen's account. Weights did not change distributions substantively; more weighting details are in the [[HYPERLINK](https://www.internalfb.com/intern/anp/view/?id=4784349)
 "https://www.internalfb.com/intern/anp/view/?id=4784349" \h].
2. Cronbach's alpha values reported here are for teens on Instagram. Alpha values on other platforms and for parents were similar ([[HYPERLINK](#)

"<https://www.internalfb.com/intern/anp/view/?id=4810275>" \h }).

3. Regression models and robustness checks are in the [[HYPERLINK "https://docs.google.com/document/d/1emoNmVwDDgecXoTUgCmSfy9LZOEsGYkaP3bqLTrr_1I/edit"](https://docs.google.com/document/d/1emoNmVwDDgecXoTUgCmSfy9LZOEsGYkaP3bqLTrr_1I/edit) \ "heading=h.73agpzyd0mxf" \h }] Additional analyses and survey measure distributions are available in the following notebooks (request permission to view): (1) [[HYPERLINK "https://www.internalfb.com/intern/anp/view/?id=5052302"](https://www.internalfb.com/intern/anp/view/?id=5052302) \h], (2) [[HYPERLINK "https://www.internalfb.com/intern/anp/view/?id=4818495"](https://www.internalfb.com/intern/anp/view/?id=4818495) \h], (3) [[HYPERLINK "https://www.internalfb.com/intern/anp/view/?id=4806110"](https://www.internalfb.com/intern/anp/view/?id=4806110) \h].

Commented [24]: TODO: When finished, summarize what's in this linked document here