

AMENDED Exhibit 84

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] SRT Project Idea Research Plan - Meta & Youth Social Emotional Trends

Meta & Youth Social Emotional Trends is an internal-facing study using NORC at the University of Chicago as the vendor partner. It will follow a cohort of ~4,000 U.S. teens (13-17 years old) and their parents over a period of ~10 months to understand teens' Facebook and Instagram use (e.g., late night use, interactions with friends, as measured by log data) in relation to their social and emotional lives (e.g., social support, anxiety). The study, which will gather data on a subset of teens' social media and internet use more broadly to help contextualize their Facebook and Instagram use, will launch in the fall 2023, and collect data throughout the school year, ending late spring 2024. The goal of the study is to help inform evidence-based decision-making about how Meta can continue to support teen users.

In April 2022, following resolution of a senior leadership-level legal escalation, we implemented several methodological changes to Phase 3 of the study (Phases 1 and 2 were completed in Fall 2022). The tables below outline the original methodology and the key changes we are making, followed by a high level project timeline.

Summary of Project Revisions

	Original	Revised
Population	U.S. teens (13-17)	- U.S. teens (13-17) - Teens' parents/caregivers
Study Length & Timing	~6 months (Summer-Fall 2023)	~10 months (academic school year 2023 - 2024)
Recruitment	National, using: - FB/IG Ads placed by NORC - QPs on FB/IG	National, using: - FB/IG Ads placed by NORC - Google Ads placed by NORC
Data	- Off-platform survey (teens/parents) - Log data (teens)	- Off-platform survey (teens/parents) - Log data (teens) - Online/apps passive tracking (teens)
Constructs	- Social & Emotional lives (teens) - Life events (teens) - Digital caregiving (parents)	- Social & Emotional lives (teens) - Life events (teens) - Digital caregiving (parents) - Parent tech use - Tech use concerns (teens/parents) - General life concerns (teens/parents) - Teen autonomy (teens/parents)

High-level Timeline

		Q2 23	Q3 23				Q4 23			Q1 24			Q2 24		
		June	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Approval	SRT														
	LaMa														
	IRB														
	Contract addendum														
Prep	Pipelines														
	Analysis Plan														
	Instrument Rev														
	Passive tracking set-up														
Implement	Data Collection														
	Analysis														
	Reporting														

High-level Dissemination Plan (pending XFN approval)

Planned Reporting	ETA			Audiences	
	Baseline	Mid-Point	Final		
Topline Findings	N/A	March 2024	Sept 2024	xMY & xMWB Leadership, Senior Exec Leadership	
Product/feature prio rec	Oct 2023			xMY & xMWB Leadership	
Targeted topical deep-dive (e.g., SSI, RT, Parent concerns)				xMY, xMWB and select partner team XFN (e.g., xMFC, IGWB, XI)	

Sequence of Approvals

Phase	What's Being Approved?	Who Needs to Approve	ETA Approval Date	Status
Overall Project	- Overall study design - Estimated budget - Variables (log and survey)	UXR and CDS leads (Chad, Alex Dow), Pratiti, Antigone, David G.; Flagged to Alex S. and Adam M. Sponsorship from [REDACTED]; support from EDSRX	4/26/22	COMPLETE
Project Idea	Material required to go into contract: - Project concept - Partner - General approach and methods	Comms Privacy Policy Legal	7/11/22	COMPLETE
Phase 1 (on-platform recruitment pilot)	- Exact pilot recruitment options to test - Text of pilot screener - Text of pilot ads - Exact sample size and sampling plan for each pilot recruitment option	Comms Privacy Policy Legal	July 2022	COMPLETE
Phase 2 (Instrument development)	- Cognitive interview guide - WIP survey items to test	Comms Privacy Policy Legal	October 2022	COMPLETE
Phase 3 (longitudinal survey)	- Parent and teen consent for longitudinal survey (including ability to pair up log data) - Final approval of log data pairing process - Final survey instrument - Final list of log data	Comms Privacy Policy Legal	December 2022	COMPLETE
	- Senior leadership approval	Legal Escalation	April 2023	COMPLETE
	- Methodological changes: - Extended timeline - Revised consents - Revised recruitment methods - Final survey instrument	Comms Privacy Policy Legal	June 2023	COMPLETE

Internal Reporting	- Decks for targeted internal sharing	Comms Legal	Ad-hoc as results available (Dec 2023, Sept 2024)	FORTHCOMING
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RESEARCHER(S)

- Social Impact Research: [REDACTED], [REDACTED]
- CSS: [REDACTED], [REDACTED] Moira Burke
- External Partner: NORC

Study Snapshot

The table below provides a snapshot of the important high-level details on the project:

Primary RQ	Methods	Primary Goals
What is the relationship between teens' social and emotional lives and their FB/IG use, over time?	A longitudinal survey, paired with FB and IG log data, conducted in partnership with NORC, designed to explore the RQ in the 1st column, among teens in the U.S. The survey will be administered at regular intervals over a 6-month period. Phases to make the study possible: Phase 1: On-Platform Recruitment Pilot Phase 2: Instrument Development Phase 3: Longitudinal Survey	Help X-Meta teams (product, policy, and research) make evidence-based decisions about how to best support its teen users.

BUSINESS OBJECTIVES & MOTIVATION

Meta is currently implementing a holistic, topic-based, company-level [HYPERLINK "https://docs.google.com/document/u/0/d/16kxyYBTHPd3FcWu9Emi7ymYgpZkGusoj98EylrKTbps/edit" \h]. Our vision is to actively engage with others to understand the role we may have in the world as we strive to improve and demonstrate that we care about the way people interact with our products.

One of the most prominent critiques of social media companies in recent years focuses on the complex relationship between social media and teen mental health.

Therefore this study:

- Addresses a primary external critique about Meta's role in teens' lives.

- Addresses growing calls from the academic community and policymakers about the type of research social media companies should be conducting (e.g., longitudinal, using log data).
- Helps Meta better understand the product-specific pathways that influence teens' social and emotional lives.
- Demonstrates Meta's commitment to better understand whether and how social media use is playing a role in the teen mental health crisis in the US.

RESEARCH QUESTIONS

Overall

RQ. What is the relationship between teens' social and emotional lives and their FB/IG use, over time?

Sub-Questions [We [[HYPERLINK "https://docs.google.com/spreadsheets/d/1-eW5Ny8sbRZLvt2akN8Cb9AIIsSLuggVbWhH8-KmcsM/edit"](https://docs.google.com/spreadsheets/d/1-eW5Ny8sbRZLvt2akN8Cb9AIIsSLuggVbWhH8-KmcsM/edit) \l "gid=715656472" \h] *these subquestions, and the variables we will use to answer these subquestions, in partnership with key stakeholders, and focusing on product/strategic impact.*]:

RQa. What is the relationship between teens' social and emotional lives and the ways that they use FB and IG actively and passively, over time?

RQb. What is the relationship between teens' social and emotional lives and their interaction with specific FB and IG product features (e.g., photo filters, autoplay, NUA signals, notifications), over time?

RQc. How is the relationship between teen's social and emotional lives and their FB/IG use over time, different for teens with different individual characteristics (e.g., different ages, FB/IG account tenure, experience with digital caregiving methods, and level of mental health risk)?

ANTICIPATED IMPACT

- Advance our understanding of how teens use social media and how it may be associated with their social and emotional lives, including their mental health, in both positive and negative ways. Identify and hone our understanding of the individual- and product-specific pathways associated with better and worse social and emotional health during adolescence.
- Identify and hone our understanding of the platform-, product-, and content-specific ([[HYPERLINK "https://docs.google.com/document/d/19Z18E7aTXAwKxKQ8-L9h9Ab0QdKzSxsCHSQTAlSgHbk/edit"](https://docs.google.com/document/d/19Z18E7aTXAwKxKQ8-L9h9Ab0QdKzSxsCHSQTAlSgHbk/edit) \l "bookmark=id.g7xk4wnd1kjh" \h]-related and [[HYPERLINK "https://docs.google.com/document/d/19Z18E7aTXAwKxKQ8-L9h9Ab0QdKzSxsCHSQTAlSgHbk/edit"](https://docs.google.com/document/d/19Z18E7aTXAwKxKQ8-L9h9Ab0QdKzSxsCHSQTAlSgHbk/edit) \l "bookmark=id.g7xk4wnd1kjh" \h] product

solutions), as well as the individual-specific ways to help different teens get the most out of social media and avoid potential harms.

- For example (Amplification): help identify specific products, patterns of content exposure/engagement, or use of specific settings that we could target for future experimental research, policy, and product work to improve the experiences of our youngest users.
- With the above understanding, guide and inform the product work of the Central Well-Being Product team, as well as other partner teams (i.e., IG Well-Being, Youth Platform), as well as adjacent but relevant X-Meta teams (e.g., teams working on graph connections, teen engagement, and certain partnerships teams. Results from this study can help product teams: 1) prioritize what to focus on in terms of product development; 2) prioritize populations to focus on in product development; 3) make decisions about the types of default product settings might be most appropriate for youth; and 4) understand what types of guardrails to consider when building products for teens.
- Help identify how different caregiver characteristics affect the influence that FB/IG use has on teens socially and emotionally, to help inform the types of tools, resources, and support materials Meta builds for caregivers and families.
- **NOTE ON CAUSALITY:** This is a longitudinal study and thus it will help us better understand the relationship between FB/IG use and social/emotional lives over time. However, it is not an experimental study (which can but does not necessarily allow for causal conclusions), and thus we CANNOT make causal claims based on our findings.

KEY AUDIENCES

- Key internal audiences: Well-being leads; Central Well-Being Product Team, Core Supporting Narratives workstream; IG Well-Being and Connections Leads; Youth Platform Leads; Teens Understand workstream; Youth Privacy; Youth Reality Labs, Measuring the Mission leads

RESEARCH FOUNDATION

A. Previous Research

Relevant internal reviews:

- [HYPERLINK "<https://docs.google.com/document/d/1B6lCjNS27AVsd2G5-xGhb999qMvkve5zCQLJXQEjVwQ/edit>" \l "heading=h.k5c68t200mev" \h]
- [HYPERLINK "<https://docs.google.com/document/d/1rqrXI7-WjWcmVc8wk3yEMwArcYBFtK-KWwRsbPnUnPk/edit>" \l "heading=h.9oppj5xd5mrc" \h]
- [HYPERLINK "<https://docs.google.com/document/d/1XzsN3oL0dRxdWwyoD50VvG1USzhtG2mJmanLWnKN5IY/edit>" \h]

- [HYPERLINK "https://docs.google.com/document/d/18ROHotFs-gnmD1zYb3fZ195C36z7zDj4zWp1NDayLiE/edit" \l "heading=h.2mx9jhryz9ia" \h]
- [HYPERLINK "https://docs.google.com/document/d/1JLFOZHqy0KOS0_PTMgMaS8f_8FtaOXBI/edit" \h](see section on teens and young adults)

Concerns about the role that social media plays in teen mental health are likely amplified by teens' [HYPERLINK

"https://www.common sense media.org/sites/default/files/uploads/research/2019-census-8-to-18-key-findings-updated.pdf" \h] social media use, as well as the fact that adolescence is a time of [HYPERLINK "https://pubmed.ncbi.nlm.nih.gov/15939837/" \h] for mental health challenges. One of the primary reasons why key stakeholders, including parents, policymakers, and academics are [HYPERLINK "https://www.aappublications.org/news/2021/10/19/children-mental-health-national-emergency-101921" \h] about teens is the troubling increase in some teen mental health challenges (e.g., depression) in some countries, including the [HYPERLINK "https://www.cdc.gov/healthyouth/data/yrbs/pdf/YRBSDataSummaryTrendsReport2019-508.pdf" \h] and the [HYPERLINK

"https://files.digital.nhs.uk/AF/AECD6B/mhcyp_2020_rep_v2.pdf" \h]. These increases are cited by the US Surgeon General in a recent [HYPERLINK

"https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf" \h] that both: 1) acknowledges that evidence [HYPERLINK

"https://libres.uncg.edu/ir/uncg/f/M_Jensen_Annual_2020.pdf" \h] harmful mental health impacts of social media on teens on average; and also 2) expresses a "clear need" for social media companies to invest in using strong research methods (e.g., longitudinal studies and experimental designs) to go beyond the average and better understand the positive and negative impacts of social media on different people, including at different [HYPERLINK "https://acamh.onlinelibrary.wiley.com/doi/full/10.1111/jcpp.13219" \h] and with different [HYPERLINK "https://www.nature.com/articles/s41598-020-67727-7" \h] (e.g., gender).

Additionally, there is very little research that explores the role that social media plays during early adolescence, which is a period of particular [HYPERLINK

"https://srcd.onlinelibrary.wiley.com/doi/epdf/10.1111/j.1467-8624.2009.01380.x" \h] and a time when many youth are first beginning to use social media.

Internally, most of the work (e.g., [HYPERLINK

"https://fb.workplace.com/notes/680819622817774" \h]; [HYPERLINK

"https://fb.quip.com/JGISAIOa0Ok5" \h]; [HYPERLINK

"https://fb.workplace.com/notes/3617612901590972" \h]; [HYPERLINK

"https://fb.workplace.com/groups/groupsresearchannouncements/permalink/2448135175470357/" \h]; [HYPERLINK "https://onlinelibrary.wiley.com/doi/full/10.1111/jcc4.12162" \h]; [

HYPERLINK

"https://thoughtcrumbs.com/publications/burke_chi2011_socialcapitalonfacebook.pdf" \h]; [

HYPERLINK "https://thoughtcrumbs.com/publications/burke_chi2010_sns_and_wellbeing.pdf" \h]), we have done examining associations between on-platform behavior and experiences and

well-being has: 1) used cross-sectional methodology; 2) focused primarily or exclusively on

adults; and 3) when longitudinal, has followed people over a relatively short period of time (i.e., ~1 month). We are aware of 2 internal longitudinal studies in the well-being space that included teen populations ([HYPERLINK "<https://www.internalfb.com/intern/research/p/kcxbxq2i9t/>" \h], [HYPERLINK "<https://fb.workplace.com/groups/2372659726160578/permalink/3738933166199887/>" \h]). These studies have found a mix of findings with respect to the extent to which on-platform behavior and experiences predict changes in well-being over time, depending on the type of behavior and the outcome studied. Generally speaking, studies have not found that overall time spent on Meta platforms is significantly associated with well-being measures, but some specific types of on-platform behavior and experiences can (i.e., specific types of content predict more negative appearance-based comparison, especially for teen girls, and percentage of time spent watching videos predicts increases in loneliness; [HYPERLINK "<https://www.internalfb.com/intern/research/p/kcxbxq2i9t/>" \h], [HYPERLINK "<https://fb.workplace.com/groups/2372659726160578/permalink/3738933166199887/>" \h]).

Overall, both internal and external research points to the need to: 1) examine teen populations separately from adults; 2) explore the nuances of both on-platform behavior and experiences and social and emotional outcomes; 3) utilize longitudinal designs; 4) focus on subpopulations, rather than only average effects across the broader population of teens; and 5) ensure research focuses on clinically meaningful (not only statistically significant) changes in outcomes of interest ([HYPERLINK "<https://www.sciencedirect.com/science/article/pii/S2352250X21002293>" \h]; [HYPERLINK "https://libres.uncg.edu/ir/uncg/f/M_Jensen_Annual_2020.pdf" \h]; [HYPERLINK "<https://acamh.onlinelibrary.wiley.com/doi/full/10.1111/jcpp.13219>" \h]; [HYPERLINK "<https://www.nature.com/articles/s41598-020-67727-7>" \h]). This study would be the first of its kind to use longitudinal methods to examine the relationship between use of Meta platforms and validated scales of social and emotional functioning among teens, using objective log data.

We have also recently conducted additional foundational qualitative research with [HYPERLINK "<https://docs.google.com/presentation/d/1IOVI90TK4i1dJX50crRr5EByytX3wFIRBSJMq482wA/edit?slide=id.p>" \h] that suggests important pathways by which Meta platforms may influence teen mental health. In the current study, we can build on our prior internal well-being work that leverages log data, as well as pathways identified by clinicians, to triangulate and determine where and how objective, on-platform behavior and experiences are playing a role, specifically for teens. This triangulation can help us hone in on the best opportunities for product interventions and solutions for Meta's youngest users.

B. Hypotheses / Theory Building

In developing our research questions, and our hypotheses, we are guided by the [HYPERLINK "<https://pubmed.ncbi.nlm.nih.gov/28686557/>" \h], a widely used framework for understanding how multiple parts of a teen's life and experiences contribute to their social and emotional health, and in particular their mental health. Specifically, the biopsychosocial model suggests that understanding why and how teens function socially and emotionally requires a holistic, integrated view of teens' lives, including: biological factors (e.g., genetics, family history,

developmental stage, physical illness), psychological factors (e.g., personality, cognitive style, psychological orientation), and social/environmental factors (e.g., stressful life events, caregiving style experienced, relationship quality). Additionally, the model suggests that it is the interplay of these factors (e.g., how experiencing a stressful life event affects someone with a particular biological predisposition; how seeing particular types of content on FB/IG affects different genders), that can really help us understand why and how different teens fare better or worse in their social and emotional lives. Within this framework, FB/IG use is conceptualized as a social/environmental factor that contributes to teens' social and emotional health. Using the biopsychosocial model ensures that we measure a range of factors that previous research has shown to be important contributors in teens' social and emotional lives so that we can better understand both: 1) the unique role that different types of FB/IG use are playing; and 2) whether different subpopulations are affected differently by different types of FB/IG use. For this study, variables related to social functioning are considered both important outcomes of interest (e.g., what types of FB/IG use make teens feel more socially supported?) and potential mediating variables to emotional health variables (e.g., what types of FB/IG use make teens feel less anxious, partly because they make them feel more socially supported?). Of note, the variables we include in this study are not meant to exhaustively cover all the factors that influence teen mental health, but rather to ensure inclusion of key, research-backed factors across the biopsychosocial model's buckets.

Variables of interest, applying the biopsychosocial model

Type of Variable in Current Study	Biological Factors	Psychological Factors	Social/Environmental Factors
Independent Variables	–	–	FB/IG use*
Potential Moderators	Gender	Mental health risk	FB/IG tenure, Digital caregiving, Caregiver digital literacy
Control variables	Age, Developmental Stage, Family history of mental health challenges	Social comparison orientation	Life Events, SES, Caregiver perception of social media
Potential Mediators	–	Locus of Control, Future Orientation, Impulsivity	Relationship quality, Social Support, Digital caregiving, FB/IG use*
Dependent Variables	–	Depression, Anxiety, Hope, Negative social comparison, Problematic Use	FB/IG use*, Relationship quality, Social Support

Note: See [[HYPERLINK \l "y6p0ddebjm3x" \h](#)] for how we are operationalizing these variables; *See [[HYPERLINK \l "3uayl6gisqtu" \h](#)] section for how we may operationalize FB/IG use.

Building off of these variables, and the literature motivating their selection, the following table outlines some of our FB/IG-use related hypotheses:

Research Question	Hypotheses
RQa	Teens who engage in more “active” Meta platform use (e.g., messaging, commenting, interacting with friends) will report better social-emotional functioning and fewer mental health symptoms over time compared to those who engage in more “passive” platform use (e.g., scrolling, browsing).
	There is some amount of “passive” Meta platform use (e.g., scrolling, browsing) that is normative and associated with better teen social-emotional functioning over time.
	Teens who engage in more reciprocal interactions or meaningful social interactions with friends and those who actively participate in social support groups on Meta platforms will report better social-emotional functioning and fewer mental health symptoms over time.
	Teens who engage in problematic use on Meta platforms will report poorer social-emotional functioning and more mental health symptoms over time.
	Teens who engage in more late-night sessions on Meta platforms will report poorer social-emotional functioning and more mental health symptoms over time.
	<i>[TBD: Teens who are exposed to more NAC-related content on Meta platforms will report poorer social-emotional functioning and more mental health symptoms over time.]</i>
	<i>[TBD: Teens who are exposed to more integrity-related content or negative social interactions on Meta platforms (e.g., cyberbullying, harassment, and discrimination) will report poorer social-emotional functioning and more mental health symptoms over time.]</i>
RQb	Teens who receive or respond to fewer notifications on Meta platforms will report better social-emotional functioning and fewer mental health symptoms over time.
	Teens who use more NUA signals on Meta platforms will report better social-emotional functioning and fewer mental health symptoms over time.
	Teens who watch more autoplay videos on Meta platforms will report poorer social-emotional functioning and more mental health symptoms over time.
	Teens who use appearance-altering Meta platform products (e.g., photo filters) more often will report poorer social-emotional functioning and more mental health symptoms over time.
RQc	Overall, the relationship between teens’ FB/IG use and their social and emotional lives will vary significantly based on their individual characteristics; teens with higher mental health risk who experience authoritarian digital caregiving style, experience less support from caregivers

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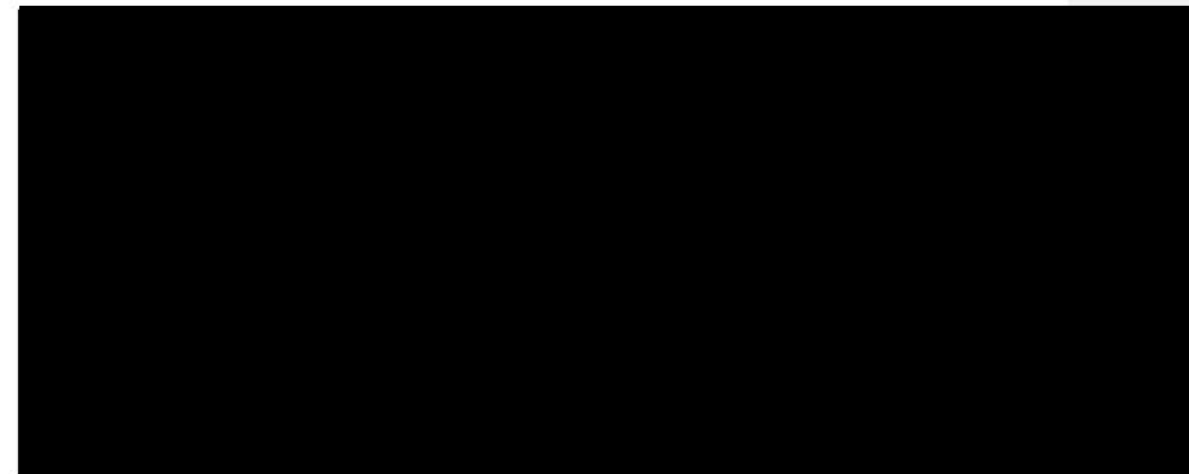
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	and peers, will use FB/IG in different ways, and show poorer functioning in their social and emotional lives.
	Overall, the relationship between teens' individual characteristics (e.g., mental health risk, SES, experience with digital caregiving style) and their social and emotional lives will be significantly stronger than that between their FB/IG use and their social/emotional lives.
	Younger teens will use Meta platforms (e.g., total time spent, type of content posted and viewed) in different ways than older teens.
	New teen Meta users will use Meta platforms (e.g., total time spent, type of content posted and viewed) in different ways than more tenured teens.
	Teens with preexisting mental health challenges will spend more time using Meta platforms than their non-vulnerable peers.
	Teens' Meta platform use (e.g., total time spent, type of content posted and viewed) will vary based on their caregivers' digital caregiving style.
	Teens who receive authoritative digital caregiving (e.g., their caregivers set limits in cooperation with them and facilitate open discussion about social media use) will report improved social-emotional functioning and fewer mental health symptoms over time.
	<i>[TBD: Teen girls will be exposed to more NAC-related content on Meta platforms and will engage in more negative social comparison than teen boys.]</i>
	<i>[TBD: Teen girls will be exposed to more integrity-related content and more negative social interactions (e.g., cyberbullying, harassment, and discrimination) on Meta platforms than teen boys.]</i>

STUDY DESIGN



			FB/IG use, over time.
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The table below provides an overview of the major details of the study:

	Methods	Sample	FB & IG Log Data	Data Access	IRB Review?
Phase 1: On-platform Recruitment Pilot					
Phase 2: Instrument Development					
Phase 3: Longitudinal Survey (see below for [HYPERLINK \V "z1x23x8a56k" \h])					

¹ We will recruit adult parents of teens via a combination of on-platform methods and NORC's existing panel (AmeriSpeak). Parents will have to first provide consent for NORC to contact their teen child to determine teen interest and eligibility to participate in the study. Full enrollment in the study will require both parent and teen consent, including ability to pair survey data with FB/IG log data.

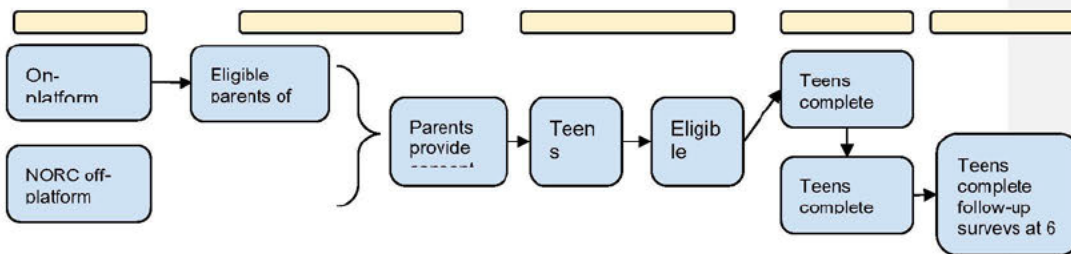
² We will pair teen participants' survey data with their on-platform FB and IG data by using the sandwich survey method. We propose using teens' survey data on emotional and social outcomes to their individual-level log data that provides an objective, robust, and nuanced understanding of how they are using FB and IG, and the experiences

they are having on-platform. For more on the log data we propose to include, see [[HYPERLINK \l "3uayl6gisqtu" \h](#)].

³ We will not store any individual-level survey data in Hive. All data will be stored in g-drive, with access limited only to essential Meta personnel. Log data will be paired with survey data in g-drive, and will be stored there as well (also with access restricted to essential Meta personnel). Additionally, per guidance from PPM, we will pair survey data with FB data in 1 data file, and survey data with IG data in a separate data file (i.e., we will not "soft-match" individual teens' FB and IG data in the same data file).

⁴ We will not share log data with anyone externally, including NORC.

The diagram below outlines the flow of Phase 3 of the study:



B. Research Instruments

We will create our instruments in partnership with NORC. The table below describes the major instruments that will require review, and when such review will be required.

Phase	Research Instrument	Description	Topics Covered	Submit for review
Phase 1: On-platform Recruitment Options				

Phase 2:
Instrument
Development

Phase 3:
Longitudinal
Survey

C. Data Collection

The table below summarizes the types of data we will collect in this study"

Data Type	Description	Submit for Review
Survey		
Log Data		



D. Population & Recruitment

A high-level overview of our sampling plan, by phase, is available [[HYPERLINK \l "ktl4gk8p6pgk" \h](#)]. Final approvals of the sampling will come in May/June (Phase 1), July (Phase 2), and July/August (Phase 3).

For all survey data collected by NORC, they will provide participant consent forms, including for both parental and teen consent (ages 13-17).

E. Analysis Plan

Phase 1: On-platform Recruitment Pilot

- We will use simple descriptive statistics to report and compare proportions of people who complete each step of the on-platform recruitment "funnel" (e.g., CTR for TESSA invitation, complete survey screener in SIMON, are parents of a teen ages 13-17, are interested in participating in the study, consent to being contacted by NORC for next

steps of study enrollment) for each recruitment option (Survey Screener via SIMON, Survey Screener via ViewPoints, FB Ads).

- Further details to be provided during Phase 1 review (May/June 2022).

Phase 2: Instrument Development

- We will qualitatively assess which survey items work best, which wordings need adjustment, via cognitive interviews.

Phase 3: Longitudinal Survey

- *Note on Causal Claims:* this study is designed to improve our ability to make inferences about the relationships between how teens use FB/IG and their social and emotional lives. However, it is an observational, not an experimental study, and therefore we will not be able to make causal claims based on this study.
- The longitudinal analyses will focus on three types of questions:
 - 1) Between-group differences in trends, where groups are defined by either demographics (do girls' differ from boys in the slope of some mental health metric?), outcome of interest breakdowns (do people who score high in a scale differ in some behavior from people who score low?), or behaviors (do people who consume a lot of content of type A differ in their trend in an outcome from people who consume content of type B?). We will employ a mixed model of repeated measures to estimate group differences in trends.
 - 2) Within-person trends in outcomes and behaviors. We will employ latent change score and hierarchical linear modeling to account for participant attrition.
 - 3) Change-point detection in trends, followed by analyses of pre- and post-change-point behaviors. We will employ changepoint techniques (e.g., nonlinear autoregressive trajectory models; ML change detection algorithms) to detect changes.
- Further details will be provided during Phase 3 review (July/August 2022).

PROPOSED TIMELINE

Snapshot:

Phase 1: June/July 2022

Phase 2: July - September 2022

Phase 3: September 2022 - May 2023

For a detailed WIP timeline, see [[HYPERLINK](#)

"[https://docs.google.com/spreadsheets/d/1ChjJS-Zjuzx-](https://docs.google.com/spreadsheets/d/1ChjJS-Zjuzx-MpFqXoBO_5d8T4Ex9AqUO0ihbzLXn5U/edit)

[MpFqXoBO_5d8T4Ex9AqUO0ihbzLXn5U/edit](https://docs.google.com/spreadsheets/d/1ChjJS-Zjuzx-MpFqXoBO_5d8T4Ex9AqUO0ihbzLXn5U/edit)" \l "gid=425272306" \h].

OPEN AREAS TO WORK WITH XFN ON

- Targeting: which FB/IG data can we use to target parents for on-platform recruitment?
- Branding: work on the best way to reveal study branding (if at all).

- Feedback from [REDACTED] (Legal) and Michael (Safety Policy) [REDACTED]
[REDACTED]