Identifying relevant dimensions to the measurement of adolescent social media experience via focus groups with young people: A registered report

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**Abstract**

**Background**: While work on the relationship between social media use and adolescent mental health has allowed for some progress, research in this area is still relatively new and shows mixed evidence. This is partly the consequence of a rapidly changing field, resulting in conceptualisation and measurement issues that hinder progress. **Aim:** Given the need for robust conceptualisation, the current study aims to understand adolescents’ experiences, motivations, and perceptions of social media use. This will contribute to our understanding of salient dimensions and language to inform the development of an adolescent social media experience measure related to mental health. **Method:** The current study will use a qualitative design and the sample will include a total of 32 adolescents aged 11 to 15 in Northwest England. Four focus groups, one for each of our target year groups (Years 7 to 10 of English schools), with 8 adolescentsin each, will be conducted. Transcripts will be analysed using thematic analysis.

*Keywords:* social media, adolescent mental health, adolescent voice, focus groups

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Adolescent social media use is a hotly contested topic: while there are concerns about the negative effects on mental health, its predominance, particularly in the wake of the COVID-19 pandemic, mean its potential positive effects are also starting to be demonstrated (Cauberghe et al., 2021). Fundamentally, this area is still relatively new, with research tending to be of lower quality, based on coarse measurement (Orben, 2020; Valkenburg et al., 2022). To add to this landscape, the field is highly polarised with some work arguably aiming to instil a sense of alarm (e.g.,Twenge, 2020) while other research has focused on methods and open science highlighting the lack of any evidence substantiating firm conclusions (e.g., Orben & Przybylski, 2019). To shed light on this debate and generate robust estimates of the effects of social media on adolescent mental health, psychometrically reliable and valid instruments must be developed. The current study represents the first stage in this endeavour, reporting on early to mid-adolescents’ (ages 11-15 years) conceptualisation of social media experience to inform measure development in line with best psychometric practice (Flake et al., 2017; Vogt et al., 2004).

**The Construct of Interest and its Conceptualisation**

Social media use is complex, encompassing multiple levels of conceptualisation and analysis (Meier & Reinecke, 2021). Still, current evidence on the relationship between social media use and adolescent mental health relies largely on measures of estimated frequency and duration (Schønning et al., 2020; Valkenburg et al., 2022), overlooking the nuanced levels that can further explain this relationship. For over a decade research has tended to focus on the influence of surface-level aspects (e.g. time spent, an issue discussed by Walther, 2010), and a lack of attention to nuanced behaviour and underlying mechanisms persists (e.g., social capital, loneliness; Keles et al., 2020; Meier & Reinecke, 2021; Schønning et al., 2020; Valkenburg et al., 2022). The current study therefore focuses on the experience of social media interaction as it relates to mental health (Meier & Reinecke, 2021). This is in line with the hypothesis that adolescents’ responses to social media and its content are potentially more impactful for mental health than the time spent on social media – which is better measured by objective data (Valkenburg et al., 2022). We consider this experience to be vital since it allows consideration of aspects relating to underlying mechanisms. These can potentially capture how social media impacts mental health and who is more susceptible to this impact (Meier & Reinecke, 2021; Schønning et al., 2020; Timpano & Beard, 2020). Whether, for example, chatting on social media platforms influences mental health cannot be fully captured without understanding and assessing the underlying mechanism. One such mechanism could be that “this interaction enables the individual to stay connected to others”. This could then inform the development of a dimension of social media experience that focuses on “social capital”, as has been theorised elsewhere (Meier & Reinecke, 2021; Qi et al., 2018).

Identifying our focal concept as “adolescent social media experience” is only the first in the multi-step iterative process of construct conceptualisation (also referred to as concept explication; Chaffee, 1991). This is the first and most crucial step in measure development, that should draw on multiple sources (Carpenter, 2018; Flake et al., 2017; Vogt et al., 2004). Since the available inputs to analysing the impact of social media use on mental health are somewhat coarse (Valkenburg et al., 2022) we hope to develop putative dimensions that reflect social media experiences *linked to mental health.* These will later be triangulated in other studies not reported here (see Figure 1), as part of our ongoing iterative process of conceptualisation and item development (Chaffee, 1991). We are therefore not aiming to document all possible levels of behaviour and experience encompassed in social media use.

A comprehensive literature review (e.g. of existing measures) and Delphi study with key stakeholders are often suggested as the first steps within measure development (Carpenter, 2018; Chaffee, 1991; Detmar et al., 2006; Herdman et al., 2002). However, we opted for a bottom-up focus groups approach as our initial groundwork in understanding relevant dimensions. This is vital, given that while such experiences or mechanisms have been studied and theorised to an extent (Schønning et al., 2020; Valkenburg et al., 2022), the limited qualitative work here is a major threat: Adolescence is a period of vulnerability to poor mental health with unique, often only internally accessible challenges (Rapee et al., 2019) likely to colour the constructs of interest here.



*Figure 1. Flowchart of planned studies for the development of definition, dimensions, and items. The grey parts represent the current study, and the last box represents the common aims across all studies, including the current one.*

**Psychometric Issues and Best Practice**

While self-report data have been shown to be inaccurate for considering time spent on social media (Parry et al., 2021; Verbeij et al., 2021), when considering nuanced subjective experience, self-reporting is likely key. Moreover, it is cognitively appropriate (de Leeuw, 2011; Riley, 2004), and vital for considering social media experiences proximal to mental health (Black, 2022; Deighton et al., 2014). A few self-report measures of social media behaviour/experience with relevance for mental health that move beyond frequency or duration, have been developed. However, a key limitation of such measures is their insufficient or unclear conceptualisation with the target adolescent population. Rather than drawing on the experiences of adolescents to develop sensitive dimensions, these measures have tended instead to carve out approximations based on other frameworks. For example, widely used measures of social media addiction (e.g., Andreassen et al., 2017) are theoretically grounded in nicotine dependence, diagnostic, and gambling addiction criteria, even though the use of such criteria might not be appropriate to assess non-substance behavioural addictions (Flayelle et al., 2022; Fournier et al., 2023). Furthermore, measures based on diagnostic criteria (e.g., van den Eijnden et al., 2016), are by design more likely to reflect clinician, not adolescent conceptualisations. Even newer measures that focus on potential mechanisms and have shown some promise by considering age-appropriateness (e.g. Rosič et al., 2022), have not drawn on *conceptualisation* with adolescents, but rather relied on adapting adult measures. Similarly, while some work with adults thoroughly conceptualised relevant social media experience constructs through qualitative work before proceeding to item development (Lee & Hancock, 2023; Lee et al., 2021), these robust procedures have not, to our knowledge, been applied with adolescents.

**Stakeholder Engagement in Measure Development**

Adaptation of measures to other populations is considered poor psychometric practice, where development does not include consultation with the target population (Terwee et al., 2007), as appears to be the case in this area of work. Not consulting the target population poses a significant problem because even measures that achieve high reliability might represent a poorly defined construct. That is, basic psychometric statistics such as internal consistency without initial conceptual validation work, are arguably meaningless (Clifton, 2020; Flake et al., 2017). Furthermore, there is consensus that adolescents must navigate a unique constellation of biological, social, and cognitive development that impacts their daily experience and mental health (Rapee et al., 2019). In turn, this is likely to impact how they experience and are affected by social media. We therefore argue progress in understanding adolescent social media experience is likely to hinge on bottom-up consultation with young people (Lee et al., 2021).

 Conducting focus groups in the initial stages of measure development therefore provides an opportunity for participants to discuss ideas and issues in a language and framework that makes sense to them (Madriz, 2003). Focus groups are considered to elicit open responses, that can be used to understand both the experiences and phraseology used by the target population. This in turn can directly inform more valid item development (Haynes et al., 1995; Vogt et al., 2004).

More broadly, there is also a growing commitment to providing space for young people to have a voice on issues that affect them, including in health-related research (Adler et al., 2019; Department of Health & NHS England, 2005; Inchley et al., 2021). Patient and public involvement in research is an active partnership – children and young people should be meaningfully involved in ways that facilitate them to legitimately influence the research process. This is consistent with the model proposed by Lundy (2007) which posits that young people not only have the right to express their view, they must be given the opportunity to do so, and their view must be given appropriate weight and be acted upon, as appropriate. By conducting focus groups first, we are prioritising the voices of young people in the research process and using their voices to give the critical ‘on-the-ground’ perspective (Fredricks et al., 2016), enabling progress in understanding the relationship between adolescent social media use and mental health.

**The Qualitative Registered Report Format in Psychometric research**

There have recently been calls for improved transparency in measure development, including to strengthen the validity of claims made on their basis (Flake, 2021). The current registered report therefore offers two key features to ensure the transparency of our measure conceptualisation. First, it sets a clear aim and initial conceptual focus that is suited to a review-before-results-are-known approach. This is to understand which experiences young people view as relevant to inform the development of putative dimensions of social media experience. Second, the current study is designed to uncover both example experiences and language that can be further tested (Vogt et al., 2004), consistent with the idea that open qualitative research can be ideal to generate future hypotheses (Haven & Grootel, 2019). Specifically, and consistent with the iterative process of construct conceptualisation (Chaffee, 1991), dimensions elicited will go on to be further explored and refined (see Figure 1). We argue that transparency within measurement is particularly valuable within the polarised nature of the social media/mental health literature due to the potentially higher vulnerability to bias at the analysis or publication stage. For instance, it may be difficult to publish findings that suggest social media experience as conceptualised by young people bears little resemblance to existing scales in journals that have championed their use.

**The Current Study**

Given the need for robust conceptualisation and therefore qualitative work, the current study aims to understand adolescents’ social media experiences that are relevant to mental health (aim 1). We acknowledge, however, that each level of social media use (Meier & Reinecke, 2021), including the experience itself, does not exist in a vacuum. Therefore – and while acknowledging the bidirectionality of this relationship (Flannery et al., 2023) – our focus groups aim to also capture adolescents’ views on the antecedents (e.g. motivations, individual differences) and effects (on mental health) of social media use (aim 2). We argue that without these we cannot fully understand and thus conceptualise our construct of interest. The current study will thus contribute to our understanding of salient dimensions and language to inform the development of the social media experience measure. Given the bottom-up youth-focused design of our measure development, the current focus groups also aim to inform the design of future studies in the measure development process (aim 3; see Figure 1 – unique aim). Our research questions are as follows:

*RQ1: How motivations behind adolescent social media use relate to mental health?*

*RQ2: What are adolescents’ social media experiences in light of mental health?*

*RQ3: What are adolescents' views of mental health risks and benefits associated with using social media?*

**Method/Protocol**

**The Research Team and Reflexivity Statement**

The core team conducting the data collection and analysis are all female aged 19-34. We have different personal experiences of and motivations for using social media. Collectively, we have research experience in the areas of adolescent mental health, loneliness, social media, and lived-experience/co-production. We thus recognise that our biases, experiences, and exposure to the literature, will bring other viewpoints to the data, and are committed to capturing and unpacking these through the analysis and interpretation (e.g. through reflexive note-taking). We will be guided by participants’ views, and, as discussed below, our focus group schedule is deliberately open to provide space for a variety of responses to be elicited.

Given this, we have also registered qualitative hypotheses. Qualitative hypotheses are not intended to be tested, as the data is not suited to the null-hypothesis significance paradigm (Karhulahti et al., 2023), and are not necessarily rooted in prior literature or the study’s research questions. Instead, they relate to the research team’s extant knowledge and experience and act as a mechanism for transparency (Karhulahti et al., 2023). Based on our own experiences and perceptions, and our overall engagement with previous literature (as part of this report, or through our own work; e.g., Panayiotou et al., 2023), we consider the following qualitative hypotheses, which have relevance for all three research questions:

*H1: We expect heterogeneity in the motivations and experiences of social media use and types of platforms used, especially between different age groups.*

*H2: We expect that social media experience will be multidimensional with key dimensions like cyberbullying, social comparison, fear of missing out, and social support and connection to be discussed.*

**Involving young people in Co-Production**

The current study has been designed in consultation with three Young Researchers (YRs, aged 19-21) (co-authors MA, LCB, PN), who are part of the study team for the duration of the project. They are recruited through Common Room, a consultancy organisation specialising in engaging young people as partners in research, policy, and service improvement around mental health. The YRs have ensured that the focus groups schedule, study procedures, and ethical considerations are appropriate and aligned with adolescents’experiences. The initial participant facing materials and focus group schedule were developed by MP, JHD and LB, but were revised based on feedback by the YRs prior to submission to the University Ethics committee. Two further rounds of revisions were undertaken with the YRs to create the final schedule. The YRs will co-facilitate the focus groups and be involved in the analysis as part of the coding team, and in dissemination (see supplementary materials for more details).

**Participants**

Adolescentsaged 11-15 years (school Years 7 to 10 in the English system) who self-identify as current or prior social media users will be eligible to participate in the study. This criterion is purposefully broad (e.g. not specifying a certain numbers of hours per day or week usage) to acknowledge that there will likely be variation across age groups in social media use behaviours. Participants will need to be able to independently participate in the focus group discussion, without requiring the presence of a supportive adult. This is due to the group-based nature of the data collection, as the presence of an adult in the room would likely affect the confidentiality of the other participants and may impact research processes and the data collected (Pyer & Campbell, 2013).

Adolescentswill be recruited through four secondary schools in Northwest England, via a convenience sampling approach. We have chosen to recruit within the specified age range given the increased mental health symptomatology in secondary school ages (Patalay & Fitzsimons, 2018) and the fact that 91% of that population engages with social media (Statista, 2022). We will ask schools to lead on recruitment, considering the make-up of the group to support the representation of diverse backgrounds and a range of perspectives. Specifically, we will ask teachers to invite individuals across gender, ethnic, socio-economic and marginalised groups (e.g., LGBTQ+) as far as possible. In order to help us navigate the ethics in practice of accessing young people in a school setting (Fecke et al., 2022) there will not be pre-specified quotas of diversity for teachers to meet. This also recognises that some socio-demographic characteristics might be more easily accessible to teachers than others. To support this, we will collect demographic information about adolescents, with the aim to conduct further focus groups if we identify that particular groups of adolescentsare not represented, where possible.

We plan to conduct four focus groups, one for each of our target year groups (Years 7 to 10) with around 8 adolescentsin each (total *N* = 32) (Guest et al. 2017) in June – July 2023. Focus groups will therefore be homogenous in terms of year group with one year group sampled per school. We will initially overrecruit (*N* = 10 adolescents per school/year) to mitigate against attrition. If 9 – 10 adolescentswish to participate, we will conduct two smaller focus groups of four – five participants within a given school.

**Focus Group Schedule**

The focus groups will be guided by a semi-structured schedule of open-ended questions (available at <https://osf.io/g7fkh/>). The focus group schedule includes 12 open-ended questions (with pre-determined and responsive probes) across four areas of interest: (a) how they use social media, (b) motivations for using social media, (c) their experiences of using social media, and (d) their perceptions of social media effects. Given our contention that previous approaches to conceptualisation of adolescent social media experience measures are coarse, the questions are purposefully open and do not focus on the items or dimensions of existing measures. Rather, they map onto generic themes/levels of social media use (Meier & Reinecke, 2021; Vogt et al., 2004).

We recognise that, as with the research team, young people’s views and experiences of social media use do not exist in a vacuum and are likely shaped by prior research and associated headlines. These are also likely influenced by their own mindsets (Lee & Hancock, 2023), which itself can shift during the focus groups discussions (Parker & Tritter, 2006). Therefore, we acknowledge that our approach, while bottom-up within the wider measure development framework, might not be entirely bottom-up for the participants. The aim of the focus groups is therefore to highlight potential gaps in previous conceptualisations and identify constructs that may have been omitted from existing conceptual frameworks (Detmar et al., 2006).

**Focus Groups Procedure**

Focus group preparation and delivery will be steered by Krueger and Casey (2014) practical guidance. The focus groups will take no more than one hour and take place in a private space within each school (e.g., an empty classroom). Flipcharts will be used to make notes of social media platforms and definitions of social media, to help facilitate the focus groups discussions. Post-it notes will be available throughout the focus groups for participants to write down additional thoughts based on discussions. The post-it notes are there for participants to use if there are things they want to share, but do not feel comfortable sharing in the group setting. Post-its will be collected at the end and anything written down will be typed up and added to the end of the transcript to be included in the analysis. Participants will receive a £15 voucher as a thank you for their time.

Focus groups will be conducted by two facilitators (JHD or LB, with one of the YRs) to allow for support in safeguarding procedures, notetaking, supervising recording equipment, and observing group interactions (Gibson, 2007). However, the inclusion of the YRs in the data collection team serves a further benefit beyond practical delivery. There can be heightened power dynamics at play when undertaking research with adolescents (Lane et al., 2019; Morrow, 2008). Bringing in young peopleas researchers is an opportunity to minimise these power dynamics and create a more welcoming research environment, closing the gap between the researchers and the participants. While the involvement of the YRs is not meant to facilitate a peer research process (Coppock, 2011), as the YRs stated, they see themselves as a ‘bridge’ between MP, JHD, and LB, and the participants. This can be valuable, as YRs may facilitate follow-up questions or ‘prompts’ that are closer to the experience of adolescents, thus supporting a more effective interpretation and feedback loop between researchers and participants (see supplementary materials for more details on the procedures).

**Analytical Approach**

The transcripts will be analysed using thematic analysis (TA), specifically drawing on Braun and Clarke (2006, 2019) guidance for reflective thematic analysis. This approach fits with the aims of the study to better understand adolescents’ views and experiences and support an expansive conceptualisation of social media experience, that can be further built upon in the next phases of this project (see Figure 1). Whilst we will not adopt a priori ‘codebook’, we adopt a somewhat deductive approach by structuring our focus group schedule and data analysis on broadly defined themes that are important for the aims of our study: types of platforms, behaviours on social media, motivations for use, perceptions of effects, and experiences of social media. However, we will also adopt an inductive approach where new overarching themes or subthemes may be created in the process.

This ‘hybrid’ approach to TA has been described elsewhere (Swain, 2018) and allows room for new ideas and themes to be developed through engagement with the data (Braun & Clarke, 2021). Aligned with the aims of this study, we see value in both the development of semantic coding and summative themes to support dimension development, and creating space for reflexive and interrogative discussion. Accordingly, we will adopt a collective approach to coding, not to work towards a more ‘accurate’ coding of the data or establish reliability, but to allow for multiple interpretations and points of view to be incorporated into the coding and theme development process (Tracy, 2010).

**Thematic analysis:**  The six key phases of TA, including practical delivery of each phase in relation to this study, are outlined in Table 1. It will be led by JHD and EB and supported by members of the wider team (MP, LB, and YRs). OD will provide advice and expertise throughout the process, where necessary. JHD, EB and the YRs will first spend some time becoming familiar with the transcripts. They will then independently and systematically work through the transcripts to develop codes. The YRs will code a subset of the transcripts, i.e. the transcripts of the focus groups they facilitated. Therefore, all transcripts will be coded by three members of the team. The coding process will be done through tagging and commenting on words/sections of text on the transcripts on a shared Microsoft Word file. JHD, EB and the YRs will meet regularly throughout the coding process to collectively review coding and agree upon initial codes and definitions. These regular meetings between the team will allow time for peer debriefing, exploring existing or evolving thoughts and ideas, review existing codes, and developing and defining new codes, ensuring that these are grounded in the data. Regular meetings will also enable codes to be produced in an iterative and collaborative way. Meeting minutes will be kept, alongside the comment threads used to manually code the data, to help to keep track of the code development process and the team’s developing ideas. Draft codes will be captured on a shared Microsoft Excel document.

Once all transcripts have been coded, a draft list of codes will be finalised by JHD and EB, and shared with the wider team (YRs, MP, LB, OD) for review and feedback. The wider team will then come together to generate sub-themes within the existing broad themes, as well as consider if themes need to be revised or new themes can be created through interpretation of the data. Following theme and sub-theme generation, a further wider team meeting will be held to review the themes and sub-themes, and consider their quality, boundaries, meaningfulness, and coherence, following guidance by Braun and Clarke (2012). This will lead to the creation of an initial thematic map, indicating themes and sub-themes, and thematic relationships. Finally, this will be shared back with the wider team to review and feedback. We will document the process of theme generation with reflexive notes. The final themes and sub-themes will be presented as a thematic map and in a table, with a colour grading to indicate frequency and verbatim quotes to exemplify sub-themes (more details can be found in the supplementary materials).

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Table 1: *The phases of reflexive thematic analysis*

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| **Phase** | **Description** | **Delivery** |
| Phase 1: Data Familiarisation | Immersion in the data and capturing ideas relating to the research questions and broader themes, as well as wider questions and ideas | JHD, EB and YRs will take time to read through the transcripts and note down any immediate thoughts or questions. |
| Phase 2: Generating initial codes | Systematic line-by-line coding to organise interpretation of data at a granular level.  | JHD and EB will systematically work through each transcript to identify codes within the text. YRs will systematically work through their allocated transcripts. JHD/EB/YRs will meet regularly (at least weekly) to discuss identified codes, and generate/review/revise initial codes and definitions. Draft codes will be captured and stored in a shared Excel file.  |
| Phase 3: Constructing themes | Examining coded and collated data to generate sub-theme within overarching themes; develop hierarchies in themes. Consider the need for new themes. | The final initial list of codes will be circulated to thew wider team for feedback, which result in a wider team meeting to re(de)fine codes.The wider team will meet to identify sub-themes and potential new themes and begin to assign codes to these. This will be facilitated by a visual collaboration tool such as Miro or Trello. The process will be documented with reflexive notes and meeting minutes. |
| Phase 4: Reviewing themes | Reviewing draft themes to consider how coherent they are internally and in relation to each other. Creating a theme hierarchy to organise into themes and sub-themes.  | The wider team will meet to review draft themes and sub-themes, guided by Braun and Clarke’s (2012) guide. This will be facilitated by a visual collaboration tool such as Miro or Trello. During this phase themes may be split or merged, redefined, or new themes created. The process will be documented with reflexive notes and meeting minutes. |
| Phase 5: Defining and naming themes | Delineate a theme’s boundaries and place it within context of the broader study. | JHD and EB will refine the list of developed themes and sub-themes and create a thematic map. This will be shared with the wider team for review and feedback. |
| Phase 6: Reporting | Report on analytical interpretation and importance; illustrate with quotes | The Stage 2 registered report will be written collaboratively across the research team. A report will be shared with participating schools. |

**Ethics**

Full ethical approval for this study has been received by the University of Manchester Research Ethics Committee (Ref: 2023-16353-28116). Informed opt-in consent will be sought from participants’ parents/guardians and informed assent will be sought from participants prior to the beginning of the focus groups. We plan to publish the focus group transcripts as ‘safeguarded data’ (UK Data Service, 2022, February 23b) for future scientific use via the UK Data Service. We have elected to restrict access of the published data (as opposed to make it ‘open data’) due to our safeguarding duty to adolescents and given that full anonymisation in qualitative data is challenging, with potential for indirect identification (Harris et al., 2020; Tamminen et al., 2021). Explicit parental consent and participant assent will be obtained for the depositing of data.

Transcripts will be anonymised by the research team in a four-step process, guided by the UK Data Service (2022, February 23a), Karhulahti (2022), and Tamminen et al. (2021). First, the focus group transcripts will be reviewed and pseudonymised to remove any direct identifiers (e.g., names). Second, indirect identifiers (e.g., locations) will be reviewed to assess the extent to which a participant or third party can be identified in through the transcripts. Third, indirect identifiers will be blurred, redacted, or replaced (e.g., “location X” instead of named location) as appropriate. Fourth, the remaining disclosure risk will be re-assessed. Where content is deemed to be potentially identifiable but not harmful, the transcripts will be published as ‘safeguarded data’. Beyond these four steps, if it is deemed that there is a potential risk of harm in a participant being identified, the data will be published under a higher level of restriction on the UK Data Service, as ‘controlled data’.

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**Author Contributions**

Conceptualisation: All authors; Design: All authors; Writing original draft: JHD, LB, MP; Writing, review & editing: All authors.

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