



Understanding youth participation in social media challenges: A scoping review of definitions, typologies, and theoretical perspectives

Lara Kobilke^{*}, Antonia Markiewitz

LMU Munich, Germany

ARTICLE INFO

Handling Editor: Bjorn de Koning

Keywords:

Online challenge
Imitation
Harm
Children
Adolescents
Participation

ABSTRACT

Social media challenges (SMCs) have become more diverse and seemingly more extreme, with certain dangerous challenges causing immediate harm to participants and capturing the attention of media outlets and academics. Children and adolescents are the most at-risk groups, often engaging in these challenges without fully understanding the consequences. Nevertheless, most existing research and reporting on SMCs are driven by specific cases or phenomena. Thus, we conducted a scoping literature review of 66 studies that capture the breadth of the research field.

Our review provides several critical insights. First, we identify a pronounced absence of theoretical grounding in the current literature, which we attribute to a focus on single-case and exploratory studies that often lack prior theoretical reasoning. This results in scattered and inconsistent descriptions of SMCs. This underscores the urgency of establishing a unified definition and a robust conceptual framework to explain the varied nature of SMCs. Second, the existing research predominantly fixates on the negative aspects of SMCs, narrowing the scope of analysis and overlooking the diverse intents and potential positive outcomes of engaging with SMCs, especially for young individuals.

We propose a consolidated conceptualization of SMCs, providing a unified definition that captures their multifaceted nature. We introduce a typology to evaluate various SMCs, their underlying intents, and potential consequences, underscoring the necessity of considering a spectrum of SMCs—spanning positive, neutral, and negative—to fully comprehend the potential benefits and risks associated with participation. Our work aims to lay a theoretical groundwork for future research and practical interventions.

1. Introduction

In recent years, the rise of social media challenges (SMCs) has been capturing global attention and concern (Deslandes et al., 2021; Khasawneh, 2019; O’Keeffe, 2016). These challenges range from supporting fundraising campaigns to attempting risky dares and are spread through explicit calls to action, or through copycat behavior induced by peer examples (Bandura, 2001; Burgess et al., 2017), or by their sheer online popularity (Astorri et al., 2023; Pruccoli et al., 2022). SMCs revolve around user-generated content, typically in the form of videos or images on platforms like TikTok, designed to be replicated by others, thereby harnessing the platform’s algorithms and unique identifiers such as hashtags to boost virality and engagement (Nikolinakou & King, 2018). While many challenges offer harmless entertainment or promote good causes, the potentially dangerous challenges have garnered extensive

media coverage, raising alarm bells among youth protection advocates—specifically, challenges that entice young users to engage in potentially harmful tasks (Ortega-Barón et al., 2022).

The concerns arise from several factors. Firstly, adolescents and young adults frequently use social media, exposing them to various challenges, including dangerous ones. Secondly, this exposure is compounded by their preference for specific platforms, particularly TikTok. These platforms use algorithms that may inadvertently promote the spread of potentially harmful challenges (Pruccoli et al., 2022). Their inherent rewarding mechanisms and recommendation systems exacerbate the issue by allowing dangerous content to spread rapidly and gain attention—thus suggesting that engaging in such activities will attract attention and validation from peers (Khasawneh, 2019). Thirdly, the inherent vulnerability of young people, who are in a developmental phase marked by increased susceptibility to social pressure, makes them

^{*} Corresponding author. Department of Media and Communication, Institute of Communication and Media Research, Oettingenstraße 67, 80538, Munich, Germany.

E-mail address: lara.kobilke@ifkw.lmu.de (L. Kobilke).

<https://doi.org/10.1016/j.chb.2024.108265>

Received 6 December 2023; Received in revised form 2 April 2024; Accepted 14 April 2024

Available online 15 April 2024

0747-5632/© 2024 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

prime targets and places them at risk for detrimental media representations (Miller & Prinstein, 2019). Previous research, including content and network analyses, confirms these concerns. For example, challenges such as the Momo Challenge on YouTube have been found to disseminate harmful content with unusually high engagement rates (Kobilke & Markiewitz, 2021), capitalizing on the vulnerability of young users and continually escalating task severity until reaching potentially tragic consequences.

However, defining and conceptualizing *social media challenges* (SMCs) remains, ironically, a challenge. Various studies present divergent definitions, leading to fragmented insights and occasionally contradictory findings about the drivers and outcomes of youth participation in SMCs. For instance, Bonifazi et al. (2022a) describe SMCs as user-initiated video competitions tagged with specific hashtags, emphasizing the community and participatory nature of these challenges, whereas Ward et al. (2021) consider them as risky behaviors that are documented and shared online, highlighting the potential dangers. Other research shifts the focus from mere documentation of activities towards aspects of viral spread and imitation. They argue that the rapid dissemination and the cultural impact of SMCs are what distinguish them from traditional, word-of-mouth dares, highlighting the role of social media in amplifying the reach and speed of challenge adoption (Burgess et al., 2017; Ortega-Barón et al., 2022). Finally, some definitions delve into the psychological and social aspects, such as identity formation and youth culture (Astorri et al., 2023; Roth et al., 2021), suggesting that participation in SMCs can also be a means for young people to explore and express their identities within their peer groups.

Notably, the terminology used to describe SMCs in these definitions—such as “competitions” versus “dares”—carries distinct connotations. A competition involves participants striving to outperform others in a specific task by excelling in a skill. In contrast, a dare typically involves a task that someone is urged to perform for social validation, often entailing riskier behaviors. These examples highlight a significant lack of systematic definitions and terminology (e.g., Kriegel et al., 2021). Furthermore, existing studies often exhibit a narrow scope, both conceptually and methodologically, when approaching SMCs, as demonstrated by the reviews focused on specific case studies (Astorri et al., 2023; Saboia et al., 2020).

These divergent understandings of SMCs present significant implications for empirical research. Firstly, the lack of consensus on what constitutes an SMC complicates the ability of researchers to systematically review and synthesize existing literature, leading to potential biases and gaps in research findings. This fragmentation may result in studies that are incomparable or only relevant within narrow contexts, undermining efforts to build a coherent body of knowledge. Secondly, the varied interpretations of SMCs influence the design of research methodologies, affecting data collection, analysis, and interpretation. If researchers operate with different understandings of what SMCs entail, their findings may reflect these discrepancies rather than genuine patterns. This can hinder the development of effective interventions or policies aimed at mitigating the negative outcomes of harmful challenges, as well as the ability to leverage positive aspects of participatory online behaviors. Therefore, establishing a more unified and comprehensive definition of SMCs is crucial for advancing empirical research and ensuring that studies are both comparable and relevant to a broader set of social phenomena. We therefore ask:

RQ1. How are SMCs defined and characterized across different studies within the field?

Recent literature reviews predominantly focus on specific challenges and their health implications (e.g., Astorri et al., 2023; Kriegel et al., 2021)—with a notable fixation on the negative aspects, respectively extreme and potentially harmful (i.e., dangerous) challenges. This focus is understandable, given the tangible risks associated with negative challenges and their significant presence in media discussions. However, this trend raises critical questions about the breadth of research within

the field. Specifically, it neglects the exploration of positive and neutral SMCs, thereby potentially skewing our understanding of the full spectrum of SMCs. It is crucial to recognize that not all challenges yield adverse effects. Many lead to positive outcomes, like nurturing community spirit, endorsing good causes, or alleviating feelings of isolation, especially during unparalleled times such as the COVID-19 pandemic. This observation prompts us to question whether the conclusions drawn in current reviews truly reflect the multifaceted nature and outcomes of SMCs. Specifically, we must consider whether the research has been guided by a comprehensive theoretical understanding of the entire phenomenon, or whether, perhaps, studies have been disproportionately influenced by media attention and the genuine perceived threat of negative challenges, leading to potential content bias and a narrowed theoretical perspective. Thus, our second research question (RQ2) seeks to critically evaluate the existing literature landscape:

RQ2. Which types of SMCs garner the most interest within the field?

Overall, this review seeks to offer a broader perspective on SMCs, addressing how various definitions, typologies, and theories guiding researchers to their findings have influenced the conclusions drawn about the desirability of youth participation in these challenges. Through a quantitative review of 66 papers, we explore how different studies define, conceptualize, and interpret SMCs based on their theoretical underpinnings and, finally, ask:

RQ3. What impact do theoretical framework choices have on shaping conclusions about the desirability of youth participation in SMCs?

With this review, we aim to consolidate: 1) a comprehensive definition of SMCs that reflects their diverse forms, underlying intents, and possible outcomes, which future studies can draw from; 2) an overview of theoretical approaches to understanding SMCs; and 3) an understanding of the factors that lead to the participation of young people in different SMCs. Our approach to conducting this review is threefold. First, we employ a quantitative, manual content analysis, complemented by open-ended answers, to categorize and assess the definitions, conceptualizations, and findings from each of the 66 papers. Next, we consolidate these findings to gauge the overarching desirability of participation in SMCs, linking this assessment to inconsistencies in definitions and typologies, as well as divergences in theoretical frameworks. Finally, we propose a unified definition and typology of social media challenges and recommend a list of antecedents rooted in theory to better encapsulate the diverse outcomes of social media challenge participation. As our review encompasses the most recent studies on SMCs, our definition and typology are reflective of the latest research as well as the ongoing developments in this rapidly progressing field, such as the positive impacts of engaging in SMCs during the COVID-19 pandemic.

2. Method

This literature review covers research articles and reviews from 2014 to 2023. This period begins with the emergence of one of the first rapidly and widely spread SMCs, the Ice Bucket Challenge, which remains well-known today (Ortega-Barón et al., 2022), and extends up to the day data collection began in 2023. The objective was to systematically identify and synthesize literature regarding the definition of SMCs and of the consequences of participation in these challenges, particularly on children and adolescents who are known to be most prone to participate in SMCs (Astorri et al., 2023).

2.1. Database selection and search strategy

Our systematic search was conducted using three databases: Web of Science (WoS), Google Scholar, and Communication and Mass Media Complete (CMMC). We chose these databases for their capability to access literature in the field of media and communication studies.

Recognizing that WoS tends to overrepresent English-language journals from the STEM fields (Mongeon & Paul-Hus, 2016), i.e., emphasizing computer science studies on SMCs, we complemented our search with CMMC. This database offers insight into both the central and broader aspects of communication studies (Tyler et al., 2008, pp. 57–87), enabling the inclusion of additional research from social studies and humanities. Compared to WoS and CMMC, Google Scholar tends to have a broader scope in its coverage of publications, including those from outside the U.S., non-English language publications, and interdisciplinary fields (Iowa State University Library, 2023). Therefore, we incorporated Google Scholar into our sampling to ensure a comprehensive overview of the latest research and ongoing developments in this rapidly advancing field.

Ten distinct search strings¹ were crafted for these databases to cover the facets of SMCs, particularly focusing on their impacts on younger populations at risk. These strings were:

1. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”)
2. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND (consequenc* OR effect* OR impact*)
3. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND („self-harm“ OR injur* OR suicid*)
4. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND („mental health“ OR well-being OR pressure)
5. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND („mental health“ OR „well-being”)
6. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND (behav* OR dare* OR task* OR participa* OR engag*)
7. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND (risk* OR danger*)
8. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND (disseminat* OR spread* OR algorithm*)
9. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND (protect* OR saf* OR regulat* OR “content moderation”)

10. (“TikTok challenge” OR “YouTube challenge” OR “social media challenge” OR “online challenge” OR “harmful challenge” OR “dangerous challenge” OR “beneficial challenge” OR “helpful challenge”) AND (child* OR adolescent* OR teenag* OR “youth”) AND (scal* OR measur* OR item*)

By using these search strings, we aimed to ensure full coverage of the topic, spanning from the general nature of SMCs to their specific consequences on mental health, well-being, and behavior. All results were merged into a single file.

2.2. Inclusion and exclusion criteria

We included research in this review if it was articles, reviews, essays, or reports that focus on SMCs or similar online phenomena, their impacts, and at least mention their effects on young individuals, such as children, adolescents, and young adults. Exclusion criteria included articles without an English abstract and articles that focused only on adults, not on children or adolescents. We only included articles that explicitly mentioned specific challenges, as well as articles useful for an in-depth understanding of the challenge dynamics and background. We also retained articles that had not undergone peer review, such as problem statements, conference papers, and book entries.

2.3. Article selection process

Search results from all databases were consolidated. Duplicates were removed, and articles were subsequently screened based on their titles, abstracts, and our predefined inclusion criteria. We identified 219 unique articles suitable for full-text screening. Articles were further reviewed to determine their suitability for inclusion in our review; those that did not meet the inclusion criteria based on the abstract were omitted. An overview of the remaining studies is presented in Table 1.

2.4. Data extraction

The process of data extraction was guided by a codebook constructed for the purpose of this review. A coder manually annotated the final list of selected studies using this rule-based codebook to address the research questions. If the coder found themselves uncertain about specific details, they would mark that section for a subsequent review for the first author of this paper. Initially, each paper’s basic details such as the title, authors, year of publication, journal or publisher, and the affiliation country of the authors were recorded. Next, the focus shifted to the content. The coder was instructed to begin their review with the abstract to grasp the essence of the paper. To deepen their understanding, they then moved to the discussion section. If clarity was lacking from the discussion, the introduction and theoretical sections were consulted. To round off their comprehension, the methods and results sections were also briefly skimmed.

After this read, the actual coding process of the paper’s content began. A crucial aspect of the analysis was understanding how each paper defined the term *challenge*. The coder would check if a specific **definition was provided** in the paper and, if so, record it. They also had the liberty to add any notes that would enrich the understanding of the definition. The coder would also assess the **number of distinct challenges** discussed in the article and individually categorize each challenge as **positive, neutral, or negative**. Positive challenges were further broken down based on their nature, such as whether they were charitable (i.e., collecting money and resources for a good cause), community-based (i.e., strengthening one’s community), or self-enhancing (i.e., fostering personal growth and positive habits). On the other hand, negative challenges were differentiated based on the extent of their potential harm, ranging from potentially harmful to potentially lethal. Additionally, all identified challenges were listed by their specific names. Lastly, there was a focus on understanding how challenges were

¹ This decision was driven by Google Scholar’s limitations on search string length and the need to maintain consistency while covering all facets of SMCs by slightly adjusting the last part of the search string.

Table 1
Overview of the 66 studies included in the review.

No.	Author(s)	Year	Affiliated in	Article type/evaluation focus	Age characteristics of focus group
1	Tucker	2014	USA	analysis of YouTube challenges	children/young adolescents
2	Hales et al.	2016	USA	survey	adults
3	Bindhani	2017	India	survey, case study	children/adolescents & their parents
4	Burgess et al.	2017	New Zealand, UK	survey, focus groups	young adults (18–24 years)
5	Siddiqui	2017	India	article	children/adolescents
6	Halder	2018	India	juristic analysis	adolescents/young adults
7	Hirani and Singh	2018	India	review of cases	adolescents
8	Nebhinani and Kuppili	2018	India	problem statement	children/adolescents
9	Pandey and Mukherjee	2018	India	fuzzy QFD, survey	children/adolescents
10	Pramod and Natrayan	2018	India	qualitative content analysis, sentiment analysis	adolescents/young adults
11	Quinn	2018	USA	guide	adolescents
12	Quinn	2018	USA	essay	adolescents
13	Findik and Ceri	2019	Turkey	case reports	children/adolescents
14	Khasawneh	2019	USA	survey, quantitative content analysis	adolescents/young adults
15	Khasawneh et al.	2019	USA	qualitative content analysis	children/adolescents
16	Nelson and Schultz	2019	USA	case study	adolescents
17	Ward	2019	USA	survey	young adults
18	Yan	2019	USA	medical commentaries	children/adolescents
19	Bhattacharya and Kumar	2020	India	discourse analysis	adolescents
20	Cash and Schwab-Reese	2020	USA	in-depth discussion	adolescents
21	Katthab	2020	Finland	content analysis	adolescents/young adults
22	Khasawneh et al.	2020	USA	survey	adolescents/young adults
23	Latha et al.	2020	India	qualitative study	general public
24	Roth et al.	2020	USA	content analysis, thematic analysis	youth/young adults
25	Saboia et al.	2020	Portugal	literature review, content analysis	–
26	Tucker	2020	USA	essay	adolescents
27	Deslandes et al.	2021	Brazil	qualitative content analysis	children/adolescents
28	DeTuro	2021	USA	case study	children
29	Inwood and Zappavigna	2021	UK	affiliation analysis	children & their parents
30	Khasawneh et al.	2021	USA, India	survey	adolescents/young adults
31	Khasawneh et al.	2021	USA	qualitative content analysis	children/adolescents
32	Kobilke and Markiewitz	2021	Switzerland, Germany	network analysis, quantitative content analysis	children/adolescents
33	Kriegel et al.	2021	USA	literature review	children/adolescents
34	Layden	2021	UK	guide	students & teachers
35	Malhotra and Jindal	2021	India	deep learning system	–
36	Peñaranda-Casablanca	2021	Bolivia	case study	children
37	Roth et al.	2021	India	survey, interview	adolescents/young adults
38	Sangra	2021	United Arab Emirates	survey	youth
39	Taylor	2021	Canada	case study	students & teachers
40	Ward et al.	2021	USA, Canada	survey	young adults (18–25 years)
41	Young and Oza	2021	USA	review (medical)	adolescents/young adults
42	Abraham et al.	2022	USA	semi-structured interviews	young adults
43	Bonifazi et al.	2022	Italy	social network-based model	children/adolescents
44	Bonifazi et al.	2022	Italy	social network-based model	adolescents
45	Deslandes and Coutinho	2022	Brazil	case study	children/adolescents
46	Falgout et al.	2022	USA	semi-structured interviews	young adults
47	Gámez-Guadix et al.	2022	Germany, Spain	survey	adolescents
48	Grandinetti and Bruinsma	2022	USA	ethnographic investigation	–
49	Khasawneh et al.	2022	USA	agent-based modeling	young adults
50	Myers and Hudson	2022	UK	literature review	children
51	Ortega-Barón et al.	2022	Spain	survey (explorative, cross-sectional study); scale validation	children
52	Peabody	2022	USA	online intervention	adults
53	Polito et al.	2022	Brazil	legal requirements analysis	children
54	Prucoli et al.	2022	Italy	survey	children/adolescents
55	Sert	2022	UK	medical case report	child(ren)
56	Turan et al.	2022	USA	survey	adolescents
57	van Huijstee et al.	2022	Netherlands	report	–
58	Vasconcelos and Eisenstein	2022	Brazil, USA	literature review	children/adolescents
59	Amarikwa	2023	USA	essay	–
60	Astorri et al.	2023	Italy	literature review	children
61	Cervi and Divon	2023	Spain, Israel	content analysis	–
62	Glasper	2023	UK	editorial	children
63	Madro and Juránková	2023	Slovakia	survey	children/adolescents/young adults
64	Moore	2023	USA	essay	children
65	Park et al.	2023	USA	content analysis	–
66	Patel et al.	2023	USA	case report	adolescent(s)

Note: Age classifications are defined as follows - Children: under 12 years old; Adolescents: 12–18 years old; Young Adults: 19–25 years old.

grouped or classified within the academic papers. This involved **assessing any typologies or clusters** provided by the authors to organize or categorize the challenges.

However, the codebook was not only to capture the overt details and typologies within the studies but also to delve into the theoretical and

methodological underpinnings that formed the backbone of an article. By examining the **theories or frameworks referenced or introduced**, the coder noted the conceptual lenses through which the topic of SMCs was being approached. On the methodological front, the codebook facilitated an examination of **the research designs and methods**

employed in each study to note the prevalence of qualitative versus quantitative studies, the types of data sources used, and the specific analytical techniques applied. For instance, were researchers predominantly using surveys, content analyses, or perhaps in-depth interviews?

3. Results

In the sections that follow, we first present an overview of the varied definitions and conceptualizations of SMCs across the studies reviewed (RQ1). Subsequently, we delve into an analysis of the types of SMCs that have garnered the most attention and interest within the academic field (RQ2). Finally, we explore the implications of conceptual decisions and how they have shaped the practical conclusions drawn about the desirability of SMC participation (RQ3).

3.1. Existing definitions and typologies of SMCs

Considering our first research question—how SMCs are defined and characterized across different studies within the field—it becomes evident that the concept of SMCs is multifaceted with various characteristics that seemingly constitute their essence. Apparently, the phenomenon is yet to be systematically defined. In our sample, only 15 of the 66 papers (23%) provided some kind of definition of the phenomenon, and those studies were very recently published. Reading between the available definitions (Table 2), a core concept of what defines a social media challenge can be derived from a few recurrent themes. Central to this concept is the **user-generated content**, typically taking the form of videos or images on social platforms. This content not only showcases **specific behaviors** but is also crafted with the intention of **being replicated by other users**, either through explicit calls to action or simply due to the inherent allure of the challenge itself. Intertwined with this is the **viral nature** of SMCs. Their virality is marked by their rapid spread as well as higher user engagement numbers compared to similar content, often fueled by platform algorithms, and unique identifiers such as hashtags, visual requisites, or auditory characteristics. User engagement, and recommendations in particular, are crucial as they enhance recognition, recall, and acceptance of the respective content (Nikolinakou & King, 2018). The aforementioned **unique identifiers** are usually specific to each challenge, facilitating the discovery of videos associated with a particular SMC (Burgess et al., 2017). It is these unique identifiers that often distinguish SMCs from other online trends.

While the foundational criteria capture some aspects of what adolescents identify as SMCs, they do not encompass the full spectrum. Scholars including Falgoust et al. (2022) and Park et al. (2023) delved into a more purposeful dimension of these challenges. They underscored the varying **underlying intents** of participating in SMCs, which can be positive (like raising awareness for a good cause), neutral (merely participating in a global online trend), or negative (with the aim to do harm). Building on this perspective, Roth et al. (2021), Deslandes et al. (2021), and Astorri et al. (2023) brought attention to the socio-cultural implications of youth participation in SMCs. They demonstrated how these challenges play a pivotal role in **identity formation** and social interactions, especially for the younger demographic. SMC participation can significantly shape youths' online personas, relationships, and, ultimately, digital identity. Extending the discussion beyond youth culture, Burgess et al. (2017) situated SMCs within the broader landscape of **digital culture**, introducing the term “viral challenge memes.” Their emphasis was on the consistent features, or unique identifiers, that these memetic challenges bring to the digital realm, enhancing their visibility and discoverability. While SMCs might initially appear as modern versions of traditional dares, today's **digital infrastructure provides them with an unparalleled reach**. Astorri et al. (2023) attest to this evolution, contrasting the slower, word-of-mouth propagation from the past with today's swift digital dissemination. However, this acceleration not only amplifies the spread of such challenges but can also inadvertently increase exposure to potentially harmful content, as highlighted by

Table 2
Definitions of SMCs.

Authors	Definition
<i>Core criteria: user-generated content, replication of specific activities, viral nature</i>	
Bonifazi et al. (2022a, p. 1)	“A challenge is a kind of competition that starts when a user posts a video with certain actions and a certain hashtag and invites other users to replicate the same video in their own way.”
Roth et al. (2021, pp. 1–2)	“Social media challenges are activities in which internet users imitate behaviors posted by others on the internet... Users record their actions and circulate content on social media platforms, where they encourage or dare others to repeat the same behavior.”
Ortega-Barón et al. (2022, p. 12531)	“The so-called viral challenges on the Internet refer to actions proposing users to record themselves performing this challenge and disseminate it, in turn, to other users through one or various online platforms.”
Kriegel et al. (2021, p. 172)	“An Internet Challenge is when social media users record and post a video of themselves completing a challenge and encouraging others to repeat and participate in the same challenge.”
Prucoli et al. (2022, p. 2)	“Challenges bring many TikTok users to make videos of their attempts to reproduce the same specific trending tasks.”
Astorri et al. (2023, p. 98)	“Extreme online challenges consist in taking part in challenges proposed on web and sharing the results in videos posted on social media.”
Ward et al. (2021, p. 847)	“Online challenges refer to challenges that you record yourself doing and upload the videos online; they are considered risky if you are putting yourself in a position that could potentially result in physical harm or even death.”
Bonifazi et al. (2022b, p. 1)	“Challenges, that is, video competitions/emulations on a certain topic, which a user can launch and other ones can join.”
Deslandes and Coutinho (2022, p. 2)	“These challenges are shown in videos usually hosted on YouTube, although they also appear on other platforms. Challenges can involve performing unusual tasks.”
van Huijstee et al. (2022, p. 14)	“Challenges: encouraging people to complete certain (dangerous) tasks and then share a video of themselves doing so online.”
Young and Oza (2021, p. 1)	“Social media ‘challenges’ encourage participants to complete potentially dangerous tasks while sharing their completion of the tasks on social media.”
<i>Added criterion: underlying intent</i>	
Falgoust et al. (2022, p. 1)	“Social media challenges, activities performed by an individual or a group that are uploaded to a social networking site (SNS) for the purpose of achieving a specific goal.”
Park et al. (2023, p. 1)	“Social media challenges are activities performed by an individual or a group and uploaded to social media platforms to achieve a specific goal.”
<i>Added criterion: identity formation, youth culture, digital culture</i>	
Roth et al. (2021, p. 1)	“Social media challenges are activities in which internet users imitate behaviors posted by others on the internet, which can be a part of identity creation and social interaction for youth.”
Astorri et al. (2023, p. 98)	“Challenges and risk-taking behavior are intrinsically part of the youth culture as means of seeking self-knowledge regarding their body and their emotions as well as identity construction.”
Deslandes et al. (2021, p. 3)	“The ‘challenge’ modality... can represent a type of activity to be carried out in a mediatic roadmap, pre-defined based on the trends of actions that can arouse the interest of netizens and allow the construction of a favorable self-image.”
Burgess et al. (2017, p. 1)	“We understand them as ‘viral challenge memes’ that manifest a set of consistent features, making them a distinctive phenomenon within digital culture.”
<i>Added criterion: visibility and discoverability boosted by digital platforms</i>	
Astorri et al. (2023, p. 98)	“Challenges among adolescents are not a new phenomenon but have always existed. However, in the past they spread more slowly by word of mouth. Nowadays due to social media platforms these challenges spread more rapidly and tend to occur in clusters.”

(continued on next page)

Table 2 (continued)

Authors	Definition
Pruccoli et al. (2022, p. 2)	“TikTok challenges facilitate and increase the exposure of a growing number of users to all kinds of... problematic content, which adds to the impressive adaptability of the app – through, for instance, the simple creation of new hashtags via the misspelling of previously banned ones – to evade strict oversight.”

Pruccoli et al. (2022).

Transitioning from theoretical conceptualization to applied typologies, literature frequently categorizes social media challenges based on dimensions of danger and overall negativity inherent in these challenges. In our review, 11 out of the 66 papers (17%) introduced one or more SMC typologies to facilitate their analysis. Five studies (Bonifazi et al., 2022b; Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021; Ortega-Barón et al., 2022; Park et al., 2023; Roth et al., 2021) categorized challenges based on the degree of harm, recognizing that some challenges might result in minimal to no harm, perhaps inducing slight discomfort or embarrassment but remaining largely benign. Conversely, some challenges are overtly harmful, potentially leading to physical injuries, significant distress, or even fatal outcomes. Another common typology found in five studies (Astorri et al., 2023; Bonifazi et al., 2022a; Deslandes et al., 2021; Falgoust et al., 2022; Ward et al., 2021) distinguishes challenges based on potential risk. Here, challenges are categorized into those that are very likely to cause harm, potentially jeopardizing a participant’s safety, and those that are predominantly risk-free. It is worth noting, however, that *harm* and *risk* are sometimes used interchangeably in these studies or are grouped under the overarching term *danger*. Lastly, three studies (Astorri et al., 2023; Burgess et al., 2017; Ortega-Barón et al., 2022) adopted a typology based on the intended outcomes of challenges, such as serving a noble cause or fostering a sense of community or social belonging. Notably, the intended and the actual outcome do not always align, as mentioned by the authors of the studies. Instead, challenges that appear most noble and positive can result in harmful consequences, like the Ice Bucket Challenge, where heart failures have been reported because of cold shock.

To address the complexities in applied classifications, we propose a simplified two-dimensional typology, as presented in Table 3. This typology consolidates risk and harm into a unified *danger* factor and categorizes SMCs based on their level of danger and underlying *intent*, rather than the actual outcome. The framework spans positive, charitable challenges; neutral, hedonically-focused entertainment activities; and negative challenges that are crafted to pose significant risks. Challenges with a positive intent aim to promote a beneficial cause or cultivate personal growth and community strength.² Neutral challenges are typically initiated for entertainment without a deeper purpose. They are neither harmful nor particularly beneficial.³ The third category, challenges with negative intent, are especially concerning as they explicitly or implicitly promote harmful actions without any underlying positive intent.⁴ These challenges can have severe consequences and often gain attention not only due to the negative outcomes associated

² An example would be the *52Weeks Challenge* which encourages responsible financial habits. In contrast, the *Ice Bucket Challenge*, despite its noble goal of raising Amyotrophic Lateral Sclerosis (ALS) awareness, carries potential risks, highlighting that even challenges with positive intent can tread the line of danger.

³ Dance Challenges are classic examples of neutral challenges where participants engage in leisure activity without the intention of causing or mitigating harm. However, it is essential to remain vigilant, as some challenges, like the *Kiki Challenge*, can inadvertently place participants or others in dangerous situations.

⁴ For example, the *Skull Breaker Challenge* and the *Blue Whale Challenge* have clear risks attached and lack any redeeming qualities.

Table 3

Two-dimensional typology of SMCs.

Underlying intent	Level of danger	
	Low danger Relatively low in risk and/or harm.	High danger Relatively high in risk and/or harm.
Positive Aiming to serve a good cause, strengthen a community, or aid in personal growth.	<u><i>52Weeks Challenge</i></u> A savings challenge designed to help individuals gradually increase their savings over a year.	<u><i>Ice Bucket Challenge</i></u> Dousing oneself with ice-cold water to promote ALS research, which, while noble, poses potential cold shock risks. <u><i>Kiki Challenge</i></u> Dancing to Drake’s song ‘In My Feelings’ outside a moving car, leading to safety concerns.
Neutral A hedonic, pleasure-seeking activity that provides entertainment/pass time by fostering a community around a shared interest. It does not intend to affect the well-being of participants or their community.	<u><i>Dance Challenge</i></u> Replicating choreographed moves to a popular song.	<u><i>Skull Breaker Challenge</i></u> Two participants sweeping the legs from under a third, causing dangerous falls. <u><i>Blue Whale Challenge</i></u> Allegedly consisting of tasks assigned to participants over 50 days, culminating in self-harm or suicide.
Negative Posing risks to participants, involving tasks or activities that could result in physical injuries or other types of harm, lacking any positive intent to justify their execution.	<u><i>Banana & Sprite Challenge</i></u> Eating bananas and quickly drinking Sprite, leading to stomach discomfort, and vomiting. <u><i>Egg Crack Challenge</i></u> Cracking raw eggs on heads of unsuspecting victims, mostly toddlers.	

with them, but also because platform dynamics favor their dissemination (Bonifazi et al., 2022a; Kobilke & Markiewitz, 2021). This simple typology in Table 3 aims to enhance the utility for a broader range of research interests and to streamline the evaluation and categorization of emerging SMCs.

While the two-dimensional typology offers a very clear and practical approach to categorizing SMCs, which should suffice for most empirical research designs, it inherently simplifies the phenomenon. Such simplification might not be appropriate in more applied contexts, such as those faced by policymakers, where a fine-grained typology is required for crafting fair regulations and guidelines. Although some challenges may present a low risk, they might result in significant harm if mishandled. Conversely, high-risk challenges may not always lead to severe harm. This distinction is crucial in regulatory decision-making to avoid regulations based on false positives. In situations where distinguishing between these types is vital, we propose a more nuanced, three-dimensional typology. As shown in Fig. 1, this framework maps levels of *harm*, *risk*, and underlying *intent* along three axes. By placing the challenges from Table 3 into this three-dimensional space, we illustrate our approach. Generally, as we move further toward the upper, right, and farther back corners of the cube—representing higher levels of harm, risk, and negative intent, respectively—the need for regulatory intervention increases.

3.2. Classification of studied SMCs (positive, negative, and neutral)

Next, we delve into the types of SMCs that have attracted the most attention within the research field (RQ2). It is evident that the dynamics and outcomes associated with SMC participation will differ significantly based on the theoretical understanding and classification of SMCs.

Most importantly, the conclusions that researchers arrive at while studying these challenges, are shaped by the conceptual lenses they employ. To fully evaluate the implications of youth participation in SMCs, it is therefore imperative to comprehend the range of SMCs that

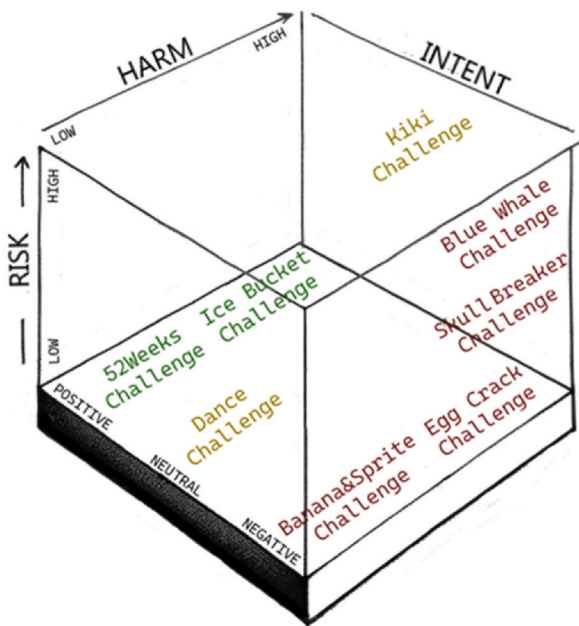


Fig. 1. Three-dimensional typology of SMCs.
 Note: Descriptions of the challenges are provided in Table 3.

have driven scientific inquiry in this research field (for a similar, narrative overview, see Astorri et al., 2023; Kriegel et al., 2021).

In our manual content analysis, we identified 48 unique challenges explored by researchers over the past decade (Table 4). It is important to note that the frequency of discussion for these challenges varies, with some challenges being the subject of multiple studies. For example, while there are 32 unique challenges categorized as negative in Table 4, these have collectively been discussed or analyzed in 106 instances across the literature reviewed (see Fig. 2). This highlights a predominant research focus on negative challenges. To this date, neutral challenges have nearly exclusively been addressed by Bonifazi et al. (2022a, 2022b).

Challenges with a positive intent have been mentioned sixteen times in the articles under study. Among the positive challenges mentioned, charitable ones have received significant attention, with ten mentions. For instance, the *Ice Bucket Challenge* stands as a prominent representation of this category and was examined in eight papers (e.g., Burgess et al., 2017; Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021; Ortega-Barón et al., 2022; Park et al., 2023; Saboia et al., 2020). Another classic example is the WHO-initiated *#Safehands Challenge* during the COVID-19 pandemic (Sangra, 2021). Challenges promoting personal growth and positive habits, though fewer in number (only four mentions), have also been discussed by scholars, such as the *#Active365 Challenge* (Taylor, 2021), *30Day Writing Challenge* (Layden, 2021), and the *Plank Challenge* (Bonifazi et al., 2022a). These challenges can overlap with community-based initiatives (two mentions), as exemplified by the *#13in2013 Challenge*, which encouraged a Facebook community to complete at least 13 races in 2013 (Hales et al., 2016), or the *Trashtag Challenge*, which encourages participants to clean up litter in parks (Ortega-Barón et al., 2022). However, empirical studies have predominantly focused on negative challenges, with 63 challenges mentioned as potentially harmful and 43 as potentially lethal. The *Blue Whale Challenge* was the most studied, featured in twenty-two articles (e.g., Khasawneh, 2019; Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021; Malhotra & Jindal, 2021; Roth et al., 2021), followed by the *Momo Challenge* (covered in seven papers, e.g., Inwood & Zappavigna, 2021; Kobilke & Markiewitz, 2021; Moore, 2023). Other notable negative challenges examined include the *Cinnamon Challenge*, the *Tide Pod Challenge*, and the *Fire Challenge* (e.g., Khasawneh, Madathil, Zinzow,

Table 4
 Unique challenges covered in the articles.

NO.	CHALLENGE	UNDERLYING INTENT	EXPLANATION
1	Anthill Challenge	Negative	Participants disturb an anthill and record the ensuing swarm of ants, leading to bites and disruption of the ecosystem.
2	Banana and Sprite Challenge	Negative	Participants eat bananas and quickly drink a can of Sprite, which allegedly leads to a chemical reaction in the stomach causing nausea.
3	Benadryl Challenge	Negative	Participants consume high doses of the over-the-counter medicine Benadryl, aiming to experience hallucinations.
4	Bike Stunt Challenge	Negative	Participants perform risky stunts on bikes and post videos, which can result in accidents and injuries.
5	Bird Box Challenge	Negative	Inspired by the movie "Bird Box," participants blindfold themselves and attempt to perform everyday activities, which can lead to injury due to the lack of sight.
6	Blackout/Fainting Challenge	Negative	Also known as the "Choking Game", participants intentionally choke themselves to experience a brief high.
7	Blue Whale Challenge	Negative	An alleged online game that assigns players a series of tasks over 50 days, culminating in self-harm or suicide.
8	#Bugsbunny	Negative	Participants lie on their stomachs, lifting their legs to imitate rabbit ears, moving them to a rhythm, often revealing inappropriate body parts.
9	Charcoal Challenge	Negative	Participants eat activated charcoal products, often with the belief that it detoxifies the body.
10	Cheese Challenge	Negative	Participants throw a slice of cheese onto their baby or pet.
11	Chili/Pepper Spray Challenge	Negative	Participants consume extremely spicy chili peppers/pepper spray and record their reactions.
12	Cinnamon Challenge	Negative	Participants swallow a spoonful of ground cinnamon in under a minute without drinking any fluids, leading to potential respiratory issues.
13	Coca-Cola/Mentos Challenge	Negative	Participants either drink Coca-Cola and then quickly consume Mentos candies, or they drop Mentos into a bottle of Coca-Cola, both of which create a chemical reaction that causes a rapid eruption of foam.
14	Condom Challenge	Negative	Participants fill a condom with water and then drop it onto someone's head. In a different variation of the challenge, an unfilled condom is snorted through the nostrils.
15	Deodorant Challenge	Negative	Participants spray deodorant on their skin for an extended period, which can cause frostbite-like burns.
16	Duct Tape/Super Glue Challenge	Negative	Participants are wrapped in duct tape and then attempt to escape, sometimes suffering heavy falls.

(continued on next page)

Table 4 (continued)

NO.	CHALLENGE	UNDERLYING INTENT	EXPLANATION
17	Eraser Challenge	Negative	Participants rub an eraser against their skin while reciting a phrase or completing a task, often resulting in burns or abrasions.
18	Fight Challenge	Negative	Participants engage in organized fights and share videos, promoting violence and potential injuries.
19	Fire Challenge	Negative	Participants set themselves on fire and record the aftermath, leading to severe burns and injuries.
20	#Fireworks	Negative	Participants set off fireworks, often in unsafe ways that endanger themselves and others.
21	Gallon Challenge	Negative	Participants attempt to drink a gallon of milk, usually within a specific time frame, often resulting in nausea and vomiting.
22	Hot Water Challenge	Negative	Participants pour boiling water on themselves or others.
23	Kiki Challenge	Negative	Participants exit moving vehicles and dance alongside to the song "In My Feelings" by Drake, leading to traffic hazards.
24	(Kylie Jenner) Lip Challenge	Negative	Participants suction their lips into a small glass to temporarily swell them, attempting to mimic the fuller lip look popularized by Kylie Jenner.
25	Momo Challenge	Negative	An alleged online challenge where participants receive instructions from an entity named "Momo" to perform a series of dangerous tasks.
26	Neknomination/ Drinks Challenge	Negative	A drinking game where participants film themselves consuming large amounts of alcohol quickly and nominate others to outdo them.
27	Tide Pod Challenge	Negative	Participants ingest liquid laundry detergent pods and post their reactions, which is toxic and dangerous.
28	Salt and Ice Challenge	Negative	Participants place salt on their skin and then ice on top of it, which significantly lowers the temperature and can cause frostbite-like injuries.
29	Silhouette Challenge	Negative	Participants pose naked against red lights. The digital filter can be reversed, revealing more than intended.
30	#Strippatok	Negative	Participants post videos related to the lives and performances of strippers, often containing explicit content.
31	#Sugarbaby	Negative	Posting videos that delve into the world of "sugar babies", young individuals who have sex with older counterparts for financial benefits.
32	Updown Challenge	Negative	Participants rhythmically move intimate body parts to a song, which can be suggestive.
33	#Boredinthehouse	Neutral	Participants film subjects, often pets, in various parts of their home, accompanied by the song "Bored in the House".

Table 4 (continued)

NO.	CHALLENGE	UNDERLYING INTENT	EXPLANATION
34	Bussit Challenge	Neutral	Participants switch outfits to the song "Buss It" by Erica Banks, often showcasing a transformation from casual to glamorous. Some may include twerking.
35	Copinesdance Challenge	Neutral	Participants perform dance sequences to the song "Fly" by Aya Nakamura.
36	Emoji Challenge	Neutral	Participants mimic various emoji expressions.
37	#Itookanap	Neutral	Participants capture subjects, typically pets, sleeping, set to the tune of "I Took a Nap" by gunnarolla.
38	Mannequin Challenge	Neutral	Participants remain frozen in action like mannequins while a moving camera films them, often with the song "Black Beatles" by Rae Sremmurd playing in the background.
39	30-Day Writing Challenge	Positive	Participants take part in a motivational exercise that encourages them to write daily for a month.
40	#13in2013 Challenge	Positive	Participants aim to finish 13 races in the year 2013, thereby increasing their fitness.
41	#Active365 Challenge	Positive	A challenge promoting daily physical activity and well-being throughout the year.
42	#Colpiditesta	Positive	Participants mimic heading a soccer ball.
43	#Safehands Challenge	Positive	Promotes proper handwashing techniques to prevent the spread of diseases.
44	Fittest Force Challenge	Positive	Participants try to improve their nutrition and physical activity over twelve weeks.
45	Ice Bucket Challenge	Positive	Participants pour a bucket of iced water over themselves to raise awareness for amyotrophic lateral sclerosis (ALS) and encourage donations.
46	Plank Challenge	Positive	Participants perform dance moves that incorporate plank exercises, promoting fitness and rhythm.
47	Smear For Smear	Positive	A campaign to raise awareness about the importance of cervical cancer screenings, with participants smearing lipstick and sharing selfies.
48	Trashtag Challenge	Positive	Participants clean up littered areas, posting before and after photos on social media.

Note: The cumulative instances of discussion for these challenges across the literature are indicated in Fig. 2.

Rosopa, et al., 2021; Nelson & Schultz, 2019; Park et al., 2023; Roth et al., 2021; Saboia et al., 2020).

Remarkably, neutral challenges, which likely make up a significant portion of challenges on social media, have rarely been the focus of empirical studies. Challenges that can be characterized as neutral have been mentioned sixteen times in the articles. Examples include the *Emoji Challenge*, where participants mimic emojis, and the *BoredInTheHouse Challenge*, capturing seemingly bored animals around the house (Bonifazi et al., 2022a). Another example is the *MakeUp Challenge*, in which participants (mainly young females) are encouraged to show off their makeup skills (Roth et al., 2021). Apparently, the study of SMCs and their impact on youth is heavily biased towards understanding the

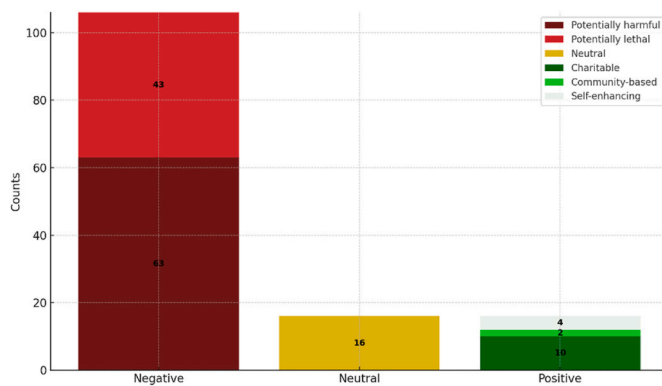


Fig. 2. Distribution of research focus on SMCs, showing the cumulative instances of discussion for each category of challenge (positive, neutral, negative, as measured by intent) across the studies reviewed.

negative aspects, thereby sidelining the positive and neutral challenges. While research's emphasis on negative challenges mirrors societal concerns, understanding the full range of challenges is essential for a comprehensive understanding of the phenomenon. The notable underrepresentation of neutral challenges reveals a research gap, potentially overlooking the realities faced by adolescents and young adults. Addressing this gap could lead to more effective digital literacy programs, interventions, and informed policy decisions.

3.3. Theoretical frameworks explaining youth participation in SMCs

The participation of youth in SMCs has been examined through the lens of various theoretical paradigms. Some of these theories focus on the motivational underpinnings that drive youth participation and risk-taking behavior, while others focus on the influence of social and platform dynamics in spreading SMCs. In RQ3, we wondered what implications these theoretical decisions might have for the conclusions drawn about the desirability of youth participation in SMCs. What insights do we have about the reasons why teenagers and young adults participate in SMCs, and how has this knowledge shaped the assessment of SMC participation?

First, let us concisely examine the motives behind participating in SMCs according to existing research: The majority of participants are attracted to challenges that are enjoyable and entertaining, easy to carry out in terms of required skills and necessary materials (Falgoust et al., 2022; Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021), and ideally result in a positive response from their peers (Bonifazi et al., 2022a; Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021; Roth et al., 2021). However, there is a crucial need to understand the motivations of children, adolescents, and young adults who engage in negative challenges, to counteract these motivations with support or alternative options when indicated. The reviewed articles highlight four motives that can encourage risky behaviors, such as participating in negative challenges: first, the need for belonging (Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021; Roth et al., 2021); second, the desire for popularity and recognition (Burgess et al., 2017); third, the fear of missing out (FoMo) on exciting experiences others might be having (Falgoust et al., 2022); and fourth, the urge to defy social expectations (Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021). To comprehend these motivational factors, the *Integrated Behavior Model* is frequently applied (e.g., Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021; Roth et al., 2021), positing that attitudes, personal agency, social norms, and environmental constraints collectively shape an individual's motivation to participate. Another prevalent motivational framework used in the reviewed articles is the *Uses and Gratifications Theory*, which suggests that youth, like all media users, interact with media, including SMCs, to satisfy their needs, such as escapism or the desire to share or seek

information (Falgoust et al., 2022). Interestingly, the *Social-cognitive Learning Theory* (Bandura, 2001), which states that individuals adapt their behavior by observing and imitating the behavior of others (often perceived as similar to themselves), is underrepresented in our sample (see Park et al., 2023, for a recent exception). In the case of SMCs, this theory offers a valuable approach to explaining participation, as taking part in a specific challenge essentially involves imitating behavior (Burgess et al., 2017).

Second, the decision to partake in SMCs is not just a reflection of individual motivations but also of the influence of social and platform dynamics. Network-based models and simulations reveal distinct characteristics between harmless and dangerous challenges (Bonifazi et al., 2022a; Khasawneh et al., 2022). The networks of harmless challenges are found to be larger with a steady growth pattern, indicating a broader diversity of creators and a more moderated interaction among participants. Conversely, dangerous challenges exhibit higher network density with more abrupt growth, indicating a tighter, more engaged community, albeit with fewer distinct creators (Bonifazi et al., 2022a). Furthermore, dangerous challenges tend to attract higher average numbers of likes, comments, shares, and views (Bonifazi et al., 2022a; Kobilke & Markiewitz, 2021). Dangerous challenges can be interpreted through the lens of the *Behavioral Contagion Theory*, which equates the spread of specific online behaviors, as seen in SMCs, to the dynamics of infectious disease transmission. For instance, research from Abraham et al. (2022) indicates that factors such as when a person receives a challenge (early or late in the challenge's lifecycle) can impact their decision to participate (Burgess et al., 2017). Similarly, the size and interconnectedness of an individual's social network play a role (Shroff et al., 2021): the more people participating within one's social circle, the more likely an individual is to also participate, highlighting the influence of descriptive social norms (Khasawneh, Madathil, Zinzow, Rosopa, et al., 2021).

How have these theoretical paradigms influenced our assessment of whether it is beneficial for young people to participate in SMCs? On one hand, analyses of motivational factors have shed light on the youth's need and search for belonging, peer recognition, thrill-seeking, and a desire to challenge societal norms. The application of frameworks such as the *Integrated Behavior Model* and the *Uses and Gratifications Theory* has enabled a nuanced exploration of these motivational drivers, showing that these drivers are not inherently negative. Yet, the discourse often still categorizes most SMCs as inherently harmful and participation as undesirable. There is a need for research that examines the reasons for involvement in neutral and positive challenges, which can aid in the development of prevention strategies and programs that resonate with the younger demographic.

This approach acknowledges that while some challenges pose significant risks, others can be constructive and safe. However, these conclusions have, in part, been hindered by studies that take a closer look at the dissemination of SMCs. Examining the impact of social and platform dynamics on SMC dissemination through the *Behavioral Contagion Theory* highlights the different spreading patterns of harmless versus dangerous challenges, drawing attention to how dangerous challenges have an inherent advantage in their spread. Integrating both perspectives—understanding individual motivations and how the broader social/platform dynamics interact with them—is crucial for balanced, informed, and effective interventions that do not overlook the realities faced by children and adolescents. Therefore, we believe that indiscriminate and widespread regulation of all types of SMCs is not a viable solution; instead, targeted approaches and open discussions in schools and families are necessary (see for related discussions: Astorri et al., 2023; Ortega-Barón et al., 2022).

4. Discussion

This scoping review addresses the fragmented understanding of social media challenges (SMCs) by offering a unified definition reflecting

their diverse forms, underlying intents, and possible outcomes. It assesses various theoretical perspectives and identifies factors influencing youth participation. Using manual content analysis, we evaluated 66 studies to establish a consistent SMC framework and identify key drivers of participation as proposed by the most applied theories in this field. Our findings have led to a new definition and typology, reflective of current research and developments, aiming to enhance the future study and understanding of SMCs, especially considering their evolving nature during events like the COVID-19 pandemic.

4.1. Definition of SMCs

Our review highlights the necessity for a unified definition and acknowledgment of the diverse range of SMCs to facilitate a mutual understanding and systematic study within the field. The synthesized discussion of definitions in this literature review yields two primary insights. First, any efforts to define SMCs should recognize the foundational criteria outlined in this review. SMCs must be characterized by 1) their user-generated content, 2) the intention for replication, and 3) their viral nature, facilitated by digital platform dynamics and unique identifiers, which increase accessibility to related videos. These criteria are consistent across most definitions and form the essence of our understanding of SMCs. However, while these core criteria are necessary, they may not be sufficient to capture the wide array of activities that adolescents engage in. To develop applied typologies of SMCs, we propose extending the conceptualization of SMCs to include 4) the underlying intent of the challenge, and 5) their level of danger. Consequently, we offer a comprehensive definition of SMCs as follows:

Social media challenges (SMCs) are activities that are initiated and popularized on social media platforms. Participants document themselves performing a specific act and share it online with the aim of inspiring others to replicate the activity. The spread of these challenges is commonly facilitated by unique identifiers (e.g., hashtags, captions, or sound effects), assisting both users and algorithms in categorizing and discovering related content. As a result, such challenges can spread quickly, drawing extensive participation in a limited timeframe. While some challenges have a distinct purpose, others may carry inherent risks. This sets them apart from other online trends that merely reflect behavioral patterns or preferences (e.g., wearing a particular type of clothing, sharing a meme, or following a diet) and is what makes SMCs uniquely engaging and, at times, controversial.

4.2. Typologies of SMCs

Building on this definition, our review introduces two typologies to categorize SMCs. The two-dimensional framework in Table 3 and the three-dimensional framework in Fig. 1 organize SMCs by their intent and danger levels, providing an overview that encompasses the full spectrum of SMCs.

The two-dimensional framework sorts SMCs into categories based on their intent (ranging from positive to negative) and associated danger (from minimal to very dangerous). This typology is grounded in the premise that not all SMCs are created equal—while some are crafted with altruistic goals or hedonic entertainment in mind, others are created to cause harm. This simple typology helps dissect the divergent motivations for SMC participation and their implications for individual and community safety, which should suffice in most empirical research applications.

The three-dimensional framework further refines this analysis by mapping SMCs against harm, risk, and intent. This approach enables stakeholders, including policymakers and content moderators, to dissect SMCs with greater precision. For instance, a challenge intended to raise awareness for a good cause (positive intent) might, in rare cases, carry unintended lethal consequences (high harm) if not properly managed (low risk). An example of this is the Ice Bucket Challenge, which aimed to promote ALS awareness and fundraising but resulted in some

participants experiencing cold shock and an increased risk of heart failure, particularly in those with pre-existing health conditions. Similarly, the Kiki Challenge, although created for entertainment purposes (neutral intent), led to high-risk situations. Participants often exited moving vehicles to dance alongside them, which introduced significant safety hazards (high risk). While the challenge was not intended to cause harm, the nature of the actions involved led to potentially lethal consequences (high harm).

By applying these typologies to the 66 studies under review, we highlight gaps in current research, particularly the underrepresentation of studies on neutral or positive challenges. This oversight suggests a potential bias in scholarly and media focus, which predominantly centers on the negative aspects of SMCs. Addressing this imbalance is crucial for the theoretical advancement of the field, for developing balanced approaches to digital safety and youth engagement online, both in the context of prevention and regulation.

4.3. Theoretical frameworks to explain youth participation in SMCs

However, the discussion on SMCs extends beyond mere definition and categorization; this review also addresses the psychological and social underpinnings of why and how young individuals engage with SMCs. By examining the most applied theoretical frameworks within this research field, we gain insights into the motivations driving youth towards these online activities, as well as the broader social and platform dynamics influencing their spread. All reviewed theories—the Integrated Behavior Model, the Uses and Gratifications Theory, the Social-cognitive Learning Theory, and the Behavioral Contagion Theory—offer partial explanations, yet we posit that an integrated perspective would help both empirical research and practitioners to better understand the complex interplay between individual motivations and systemic influences, providing evidence-based strategies for addressing the phenomenon of SMCs among youth. For this purpose, we propose four broad premises that conceptualize SMC participation as a behavior influenced by a combination of rational decision-making, individual needs and gratifications, observational learning, and emotional contagion:

First, we posit that youth participation in SMCs is initially a deliberate decision (*Premise 1*). This decision is influenced by adolescents' attitudes towards the challenge, their perceptions of peer participation and approval, and their belief in their own ability to succeed. Building on this, the Uses and Gratifications Theory adds depth to this rational decision-making process by highlighting that decisions to participate in SMCs are also driven by the desire to satisfy intrinsic needs, which are particularly salient during adolescent development, such as social needs—integration and interaction within a community—and the simple desire for hedonic entertainment (*Premise 2*). However, individual decisions and needs represent only one side of the coin; the environment also significantly impacts youth behavior. The Social-cognitive Learning Theory suggests that youth learn through observing and imitating others. The actions of peers and influencers, the rewards and recognitions they receive, and the observed consequences of their behaviors all serve as models from which youth learn and decide whether to engage in similar SMCs (*Premise 3*). In this context, participation is also driven by irrational mechanisms, such as emotional contagion (*Premise 4*), suggesting that behaviors can spread through social networks without conscious, rational decision-making. This spread is fueled by the challenges' visibility and perceived popularity, compounded by algorithms that amplify trending content, as proposed by the Behavioral Contagion Theory. These algorithms often prioritize content that is engaging or evokes strong emotional reactions, further facilitating the rapid dissemination and adoption of sensationalist SMCs across networks of young users.

4.4. Study limitations

We face several limitations that affect the generalizability of our

results. Firstly, we focused on studies that provided insights into the impacts and effects of participating in SMCs on young individuals, as they are deemed most susceptible to imitating potentially dangerous tasks associated with some SMCs. Thus, not only is the impact of SMCs on adults underrepresented in this review, but also SMCs that are particularly relevant to adults—possibly differing from those more relevant to a younger generation—are overlooked. Secondly, in terms of conceptualization, the distinction between the intent underlying an SMC and its actual outcome cannot always be clearly delineated in empirical reality.

5. Conclusion and implications

This review lays the groundwork for future research and practical interventions by introducing two new typologies and a unified definition for SMCs, shifting the focus from solely negative SMCs to a broader range. We aim to transition from case-specific descriptions to a systematic overview that is applicable to new SMCs, thereby facilitating discussions on newly emerging phenomena and enabling effective interventions such as early detection and differentiated regulation based on the specific intent, harm, and risk associated with each challenge (e. g., implementing trigger warnings, scaling back recommendations, deleting videos). Highlighting positive SMCs can improve our understanding of youth needs without demonizing all SMCs, aligning practical prevention programs more closely with real-world scenarios and enhancing young people's self-efficacy. Finally, this review establishes a foundation for future empirical studies on the effects of neutral and positive SMCs.

CRedit authorship contribution statement

Lara Kobilke: Writing – review & editing, Writing – original draft, Visualization, Supervision, Software, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Antonia Markiewitz:** Writing – review & editing, Project administration, Data curation, Conceptualization.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this manuscript, the authors used ChatGPT, a chatbot developed by OpenAI based on a large language model, to proofread the final manuscript, specifically to enhance the language style and readability. Afterwards, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Declaration of competing interest and funding

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: The authors declare that they are in communication with the Media Authority of North Rhine-Westphalia (Landesanstalt für Medien NRW) in Germany to evaluate potential intervention measures against dangerous challenges. The authors also declare that the funding for the coder was provided by the Media Authority of North Rhine-Westphalia. However, the Media Authority of North Rhine-Westphalia has no influence on the findings of the present literature review or their interpretation.

Data availability

Data will be made available on request.

References

- Abraham, J., Roth, R., Zinzow, H., Madathil, K. C., & Wisniewski, P. (2022). Applying behavioral contagion theory to examining young adults' participation in viral social media challenges. *ACM Transactions on Social Computing*, 5(1–4), 1–34. <https://doi.org/10.1145/3538383>
- Amarikwa, M. (2023). Social media platforms' reckoning: The harmful impact of TikTok's algorithm on people of color. *SSRN Electronic Journal*, 29. <https://doi.org/10.2139/ssrn.4349202>
- Astorri, E., Clerici, G., Gallo, G., Raina, P., & Pellai, A. (2023). Online extreme challenges putting children at risk: What we know to date. *MINERVA PEDIATRICALS*, 75(1), 98–109. <https://doi.org/10.23736/S2724-5276.22.06892-6>
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Bhattacharya, S., & Kumar, S. (2020). Deconstructing the Blue Whale challenge: A discourse analysis. *The Learning Curve*, 9, 20–28.
- Bindhani, B. (2017). Assessment of knowledge, attitude, awareness and impact of Blue Whale challenge: A psychosocial study from Odisha. *IOSR Journal of Humanities and Social Science*, 22, 22–26. <https://doi.org/10.9790/0837-2212072226>
- Bonifazi, G., Cecchini, S., Corradini, E., Giuliani, L., Ursino, D., & Virgili, L. (2022a). Extracting time patterns from the lifespans of TikTok challenges to characterize non-dangerous and dangerous ones. *Social Network Analysis and Mining*, 12(1). <https://doi.org/10.1007/s13278-022-00893-w>
- Bonifazi, G., Cecchini, S., Corradini, E., Giuliani, L., Ursino, D., & Virgili, L. (2022b). Investigating community evolutions in TikTok dangerous and non-dangerous challenges. *Journal of Information Science*. <https://doi.org/10.1177/01655515221116519>. Advance online publication.
- Burgess, A., Miller, V., & Moore, S. (2017). Prestige, performance and social pressure in viral challenge memes: Nominations, the ice-bucket challenge and SmearForSmear as imitative encounters. *Sociology*, 52(5), 1035–1051. <https://doi.org/10.1177/0038038516680312>
- Cash, S. J., & Schwab-Reese, L. (2020). When adolescent offline risks behaviors go online. In M. A. Moreno, & A. J. Hoopes (Eds.), *Technology and adolescent health* (pp. 57–78). Academic Press. <https://doi.org/10.1016/B978-0-12-817319-0.00003-7>
- Cervi, L., & Divon, T. (2023). Playful activism: Memetic performances of Palestinian resistance in TikTok #challenges. *Social Media + Society*, 9(1), Article 20563051231157607. <https://doi.org/10.1177/20563051231157607>
- Deslandes, S. F., & Coutinho, T. (2022). Prevention of 'dangerous games' on the internet: The experience of the dimicuida institute line of action in digital environments. *SAUDE E SOCIEDADE*, 31(4). <https://doi.org/10.1590/S0104-1290202210845en>
- Deslandes, S. F., Coutinho, T., Ferreira, T., & Flach, R. M. (2021). *Online challenges among children and adolescents: Self-inflicted harm and social media strategies* (Vol. 16). SALUD COLECTIVA. <https://doi.org/10.18294/sc.2020.3264>
- DeTuro, B. (2021). *The virality of horror trends on social media*. MAPC, The University of Tampa. <https://utampa.dspace.direct.org/handle/20.500.11868/2096>
- Falgoust, G., Winterlind, E., Moon, P., Parker, A., Zinzow, H., & Madathil, K. C. (2022). Applying the uses and gratifications theory to identify motivational factors behind young adult's participation in viral social media challenges on TikTok. *Human Factors in Healthcare*, 2, Article 100014. <https://doi.org/10.1016/j.hfh.2022.100014>
- Findik, O. T. P., & Ceri, V. (2019). Online challenge related self-harm in children and adolescents: Two case reports. *ANADOLU PSIKIYATRI DERGISI-ANATOLIAN JOURNAL OF PSYCHIATRY*, 20(5), 556–558. <https://doi.org/10.5455/apd.39071>
- Gómez-Guadix, M., Mateos, E., Wachs, S., & Blanco, M. (2022). Self-harm on the internet among adolescents: Prevalence and association with depression, anxiety, family cohesion, and social resources. *Psicothema*, 34(2), 233–239. <https://doi.org/10.7334/psicothema2021.328>
- Glasper, E. A. (2023). Is social media fuelling deaths among children? *Comprehensive Child and Adolescent Nursing*, 46(1), 1–4. <https://doi.org/10.1080/24694193.2023.2172291>
- Grandinetti, J., & Bruinsma, J. (2023). The affective algorithms of conspiracy TikTok. *Journal of Broadcasting & Electronic Media*, 67(3), 274–293. <https://doi.org/10.1080/08838151.2022.2140806>
- Halder, D. (2018). The #BlueWhale challenge to the Indian judiciary: A critical analysis of the response of the Indian higher judiciary to risky online contents with special reference to the BlueWhale suicide game. In T. Sourdin, & A. Zariski (Eds.), *The responsive judge: International perspectives* (pp. 259–276). Singapore: Springer. https://doi.org/10.1007/978-981-13-1023-2_10
- Hales, S. B., Grant, B., Barr-Anderson, D. J., & Turner-McGrievy, G. M. (2016). Examining the impact of an online social media challenge on participant physical activity and body weight in the United States. *Sport in Society*, 19(10), 1690–1702. <https://doi.org/10.1080/17430437.2016.1179734>
- Hirani, M., & Singh, A. (2018). 'Blue Whale or bully assault'? Psychological correlates Of Blue Whale challenge' as a tool for cyberbullying in India. *IAHRW International Journal of Social Sciences Review*, 6(4).
- Inwood, O., & Zappavigna, M. (2021). Ambient affiliation, misinformation and moral panic: Negotiating social bonds in a YouTube internet hoax. *Discourse & Communication*, 15(3), 281–307. <https://doi.org/10.1177/1750481321989838>
- Iowa State University Library. (2023). *Database Comparisons: Google Scholar, Scopus, Web of Science*. <https://instr.iastate.libguides.com/c.php?g=901522&p=6492159>
- Kathab, M. (2019). Synching and performing: Body (Re)-Presentation in the short video app TikTok. *WiderScreen*, 21, 1–2. <http://widerscreen.fi/numerot/2019-1-2/synching-andperforming-body-re-presentation-in-the-short-video-apptiktok/>
- Khasawneh, A. (2019). *Systems engineering Approaches to Minimize the viral Spread of social media challenges [dissertation]*. South Carolina: Clemson University.
- Khasawneh, A., Madathil, C. K., Dixon, E., Wisniewski, P., Zinzow, H., & Roth, R. (2019). An investigation on the portrayal of Blue Whale challenge on YouTube and twitter.

- Proceedings of the Human Factors and Ergonomics Society - Annual Meeting*, 63(1), 887–888. <https://doi.org/10.1177/1071181319631179>
- Khasawneh, A., Madathil, K. C., Taaffe, K. M., Zinzow, H., Ponathil, A., Madathil, S. C., Nambiar, S., Nanda, G., & Rosopa, P. J. (2022). Dynamic simulation of social media challenge participation to examine intervention strategies. *JOURNAL of COMPUTATIONAL SOCIAL SCIENCE*, 5(2), 1637–1662. <https://doi.org/10.1007/s42001-022-00183-7>
- Khasawneh, A., Madathil, K. C., Zinzow, H., Rosopa, P., Natarajan, G., Achuthan, K., & Narasimhan, M. (2021). Factors contributing to adolescents' and young adults' participation in web-based challenges: Survey study. *JMIR Pediatrics and Parenting*, 4(1), Article e24988.
- Khasawneh, A., Madathil, K. C., Zinzow, H., Wisniewski, P., Ponathil, A., Rogers, H., Agnisarman, S., Roth, R., & Narasimhan, M. (2021). An investigation of the portrayal of social media challenges on YouTube and twitter. *ACM Transactions on Social Computing*, 4(1), 1–23. <https://doi.org/10.1145/3444961>
- Khasawneh, A., Narasimha, S., Madathil, K. C., Zinzow, H., & Rosopa, P. (2020). An investigation of the factors predicting participation in social media challenge. *Proceedings of the Human Factors and Ergonomics Society - Annual Meeting*, 64(1), 810–811. <https://doi.org/10.1177/1071181320641188>
- Kobilke, L., & Markiewicz, A. (2021). The Momo challenge: Measuring the extent to which YouTube portrays harmful and helpful depictions of a suicide game. *SN Social Sciences*, 1(4), 1–30. <https://doi.org/10.1007/s43545-021-00065-1>
- Kriegel, E. R., Lazarevic, B., Athanasian, C. E., & Milanaik, R. L. (2021). Tiktok, Tide pods and tiger king: Health implications of trends taking over pediatric populations. *Current Opinion in Pediatrics*, 33(1), 170–177. <https://doi.org/10.1097/MOP.0000000000000989>
- Latha, K., Meena, K. S., Pravitha, M. R., Dasgupta, M., & Chaturvedi, S. K. (2020). Effective use of social media platforms for promotion of mental health awareness. *Journal of Education and Health Promotion*, 9, 124. https://doi.org/10.4103/jehp.jehp_90_20
- Layden, S. (2021). Motivate, accommodate, and emulate: The 30-day writing challenge in an online creative writing classroom. In T. Girardi, & A. G. Scheg (Eds.), *Routledge studies in creative writing. Theories and strategies for teaching creative writing online* (pp. 139–148). Routledge. <https://doi.org/10.4324/9781003019848-12>
- Madro, M., & Juránková, Z. (2023). The phenomenon of online challenges among young people - survey results. https://dusevnezdravienaskolach.sk/engine/wp-content/uploads/2023/03/Podpora_a_rozvoj_dusevneho_zdraviva_v_skolach-Zbornik-Elktronicka-verzia.pdf?page=100
- Malhotra, A., & Jindal, R. (2021). Multimodal deep learning architecture for identifying victims of online death games. In A. Khanna, D. Gupta, Z. Polkowski, S. Bhattacharyya, & O. Castillo (Eds.), *Data analytics and management* (pp. 827–841). Singapore: Springer.
- Miller, A. B., & Prinstein, M. J. (2019). Adolescent suicide as a failure of acute stress-response systems. *Annual Review of Clinical Psychology*, 15(1), 425–450. <https://doi.org/10.1146/annurev-clinpsy-050718-095625>
- Mongeon, P., & Paul-Hus, A. (2016). The journal coverage of Web of science and scopus: A comparative analysis. *Scientometrics*, 106(1), 213–228. <https://doi.org/10.1007/s11192-015-1765-5>
- Moore, S. O. (2023). The Momo challenge and the intersection of contemporary legend and moral panic. *Contemporary Legend*, 1, 1–34. <https://scholarworks.iu.edu/journals/index.php/cl/article/view/35757>
- Myers, C. A., & Hudson, N. (2022). *Content and activity that is harmful to children within scope of the online safety bill. A rapid evidence assessment*. City: University of London Institutional Repository.
- Nebhinani, N., & Kuppili, P. P. (2018). Pathological internet use in children and adolescents: Problem statement and preventive strategies. *Journal of Indian Association for Child and Adolescent Mental Health*, 14(3), 1–8. <https://journals.sagepub.com/doi/pdf/10.1177/0973134220180301>
- Nelson, B. M., & Schultz, P. L. (2019). The Tide Pod challenge: Responding to the threat of viral internet phenomena. *Journal of Case Studies*, 37. <https://link.gale.com/apps/doc/A630169118/AONE?u=anoñda53b6b7&sid=googleScholar&xid=9f28db2c>
- Nikolinakou, A., & King, K. W. (2018). Viral video ads: Emotional triggers and social media virality. *Psychology and Marketing*, 35(10), 715–726. <https://doi.org/10.1002/mar.21129>
- O'Keeffe, G. S. (2016). Social media challenges and concerns for families. *Pediatric Clinics of North America*, 63(5), 841. <https://doi.org/10.1016/j.pcl.2016.06.009>
- Ortega-Barón, J., Machimbarrena, J. M., Montiel, I., & Gonzalez-Cabrera, J. (2022). Viral internet challenges scale in preadolescents: An exploratory study. *Current Psychology*, 42(15), 12530–12540. <https://doi.org/10.1007/s12144-021-02692-6>
- Pandey, R., & Mukherjee, T. (2018). Fuzzy QFD for decision support model in evaluating basic cause of children falling into Blue Whale game. In 2018 IEEE 18th international conference on advanced learning technologies (ICALT).
- Park, J., Lediaeva, I., Lopez, M., Godfrey, A., Madathil, K. C., Zinzow, H., & Wisniewski, P. (2023). How affordances and social norms shape the discussion of harmful social media challenges on reddit. *Human Factors in Healthcare*, 3, Article 100042. <https://doi.org/10.1016/j.hfh.2023.100042>
- Patel, R., Pathak, M., Jain, A., & Lagman, J. (2023). Bringing to light the TikTok benadryl challenge: A case of seizure from benadryl overdose. *Psychiatry Research Case Reports*, 2(1), Article 100087. <https://doi.org/10.1016/j.psycr.2022.100087>
- Peabody, T. (2022). *Effectiveness of the fittest force challenge: A 12-week online theory-based Nutrition and physical activity Intervention for first responders - ProQuest [master thesis]*. Fayetteville, Arkansas: University of Arkansas. <https://www.proquest.com/openview/bf89fdec347c95ad2437613abada0ef51a/1?pq-origsite=gscholar&cbl=18750&diss=y>.
- Peñaranda-Casablanca, B. F. (2021). Micro documentary "prevention on the Web" for school children in the city of el alto (Bolivia)—a proposal for its improvement. In M. M. Galan-Ladero, & R. G. Rivera (Eds.), *Applied social marketing and quality of life: Case studies from an international perspective* (pp. 143–154). Springer International Publishing. https://doi.org/10.1007/978-3-030-83286-5_8
- Polito, V., Valença, G., Sarinho, M. W., Lins, F., & Santos, R. P. d. (2022). On the compliance of platforms with children's privacy and protection requirements - an analysis of TikTok. In N. Carroll, A. Nguyen-Duc, X. Wang, & V. Stray (Eds.), *Software business* (pp. 85–100). Springer International Publishing.
- Pramod, S., & Natrayan, B. (2018). *Content analysis and sentiment analysis of Blue Whale challenge issue reported in news websites*. Advance online publication. <https://doi.org/10.13140/RG.2.2.10711.32164>
- Pruccoli, J., Rosa, M. de, Chiasso, L., Perrone, A., & Parmeggiani, A. (2022). The use of TikTok among children and adolescents with eating disorders: Experience in a third-level public Italian center during the Sars-Cov-2 pandemic. *Italian Journal of Pediatrics*, 48(1), 138. <https://doi.org/10.1186/s13052-022-01308-4>
- Quinn, M. (2018). Internet "challenges" and teenagers: A guide for primary care providers. *Medical Bag*. <https://www.medicabag.com/home/medicine/internet-challenges-and-teenagers-a-guide-for-primary-care-providers/3/>
- Quinn, M. (2018). Harmful internet "challenges" and teens: A guide for primary care providers. *Monthly Prescribing Reference*. <https://www.empr.com/home/features/harmful-internet-challenges-and-teens-a-guide-for-primary-care-providers/4/>
- Roth, R., Abraham, J., Zinzow, H., Wisniewski, P., Khasawneh, A., & Madathil, C. K. (2020). Evaluating news media reports on the 'Blue Whale challenge' for adherence to suicide prevention safe messaging guidelines. *Proceedings of the ACM on Human-Computer Interaction*, 4. <https://doi.org/10.1145/3392830>
- Roth, R., Ajithkumar, P., Natarajan, G., Achuthan, K., Moon, P., Zinzow, H., & Madathil, K. C. (2021). A study of adolescents' and young adults' TikTok challenge participation in south India. *Human Factors in Healthcare*, 1, Article 100005. <https://doi.org/10.1016/j.hfh.2022.100005>
- Saboia, I., Almeida, A. M. P., Sousa, P., & Pernencar, C. (2020). Are you ready for the challenge? Social media health challenges for behaviour change. *Perspectives on Behavior Science*, 43(3), 543–578. <https://doi.org/10.1007/s40614-020-00261-z>
- Sangra, S. (2021). Crowdsourcing, celebrities participation and user-generated content: Exploring effectiveness of social media challenge #safehands in India. *Global Media Journal*, 3(3). [https://amityuniversity.ac/gmj-ae/journals/2021/9%20Seema%20Sangra\(2\).pdf](https://amityuniversity.ac/gmj-ae/journals/2021/9%20Seema%20Sangra(2).pdf)
- Sert, S. (2023). Temporary prolongation of the qt interval in acute ebastine intoxication due to challenge video on TikTok in a girl. *Cardiology in the Young*, 33(7), 1213–1216. <https://doi.org/10.1017/S1047951122003717>
- Shroff, N., Shreyass, G., & Gupta, D. (2021). Viral internet challenges: A study on the motivations behind social media user participation. In T. Senjyu, P. N. Mahalle, T. Perumal, & A. Joshi (Eds.), *Information and communication technology for intelligent systems* (pp. 303–311). Singapore: Springer.
- Siddiqui, S. A. (2017). Cyberbullying and cybervictimization: From online suicide groups to 'Blue Whale' menace. *Indian Pediatrics*, 54, 1056. <https://www.indianpediatrics.net/dec2017/1056.pdf>
- Taylor, L. (2021). Exploring the use of social media in secondary physical education: The #active 365 challenge. *PHENex*, 12(1). <https://ojs.acadiau.ca/index.php/phenex/article/view/4233>
- Tucker, E. (2014). The endangered child: Choking and fainting games in the online underground of youtube. *Childrens Folklore Review*, 36, 19–34.
- Tucker, E. (2020). The Blue Whale suicide challenge. Hypermodern ostension on a global scale. In A. Peck, & T. J. Blank (Eds.), *Folklore and social media* (pp. 209–225). University Press of Colorado.
- Turan, B., Demirdogen, E. Y., Albaidheem, M., & Dursun, O. B. (2021). Online challenges that emerge as a public health issue for adolescents: Assessment of psychiatric comorbidity and the importance of parenting. *ARCHIVES of CLINICAL PSYCHIATRY*, 48(6), 245–249. <https://doi.org/10.15761/0101-60830000000315>
- Tyler, D. C., Boudreau, S., Potter, K. C., & Redinbaugh, M. (2008). *EBSCO's communication & mass media complete: An appreciable improvement over previous communication studies indexing?* (pp. 57–87) Faculty Publications, UNL Libraries.
- van Huijstee, M., Nieuwenhuizen, W., Sanders, M., Masson, E., & van Boheemen, P. (2022). Harmful behaviour online – an investigation of harmful and immoral behaviour online in The Netherlands. *Rathenau Instituut*, 1–182. https://pure.knaw.nl/ws/portalfiles/portal/680770153/Harmful_Behaviour_Online_Report_Rathenau_Instituut_1_.pdf
- Vasconcelos, F., & Eisenstein, E. (2022). Hazardous gaming: Challenges in the social media involving children and adolescents. *Current Pediatrics Reports*, 10(4), 235–240. <https://doi.org/10.1007/s40124-022-00277-w>
- Ward, S. (2019). *Challenge accepted: Exploring Predictors of risky online Behaviour in emerging adults [undergraduate thesis]*. Ontario, Canada: Huron University College, Western University. https://ir.lib.uwo.ca/psych_uht/38/
- Ward, S., Dumas, T. M., Srivastava, A., Davis, J. P., & Ellis, W. (2021). Uploading risk: Examining the social profile of young adults most susceptible to engagement in risky social media challenges. *Cyberpsychology, Behavior, and Social Networking*. <https://doi.org/10.1089/cyber.2020.0846>. Advance online publication.
- Yan, A. C. (2019). Current trends in social media-associated skin harm among children and adolescents. *Dermatologic Clinics*, 37(2). <https://doi.org/10.1016/j.det.2018.12.006>, 169+.
- Young, T. K., & Oza, V. S. (2021). Digital dermatoses: Skin disorders engendered by social media in tweens and teens. *Current Opinion in Pediatrics*, 33(4), 373–379. <https://doi.org/10.1097/MOP.0000000000001037>