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Unpacking the first decade (2014-2024) of research on phubbing and technoference in intimate relationships: A systematic review of evidence with methodological critique

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ABSTRACT

Co-present phone use is often associated with disruptions in couple interactions, a phenomenon commonly described as phubbing or technoference. This systematic review consolidates the evidence base and critically evaluates the conceptual, measurement, and methodological foundations of this research to inform future directions. The prospective protocol was preregistered on the Open Science Framework, and the completed review is reported using the PRISMA 2020 framework. We searched PubMed, ScienceDirect, Web of Science, and Google Scholar through April 2024 for quantitative or mixed-method peer-reviewed articles focusing on co-present phone use within intimate relationships. Study-level reporting completeness was descriptively profiled using the AXIS tool criteria. Synthesized findings were combined using a structured thematic synthesis paired with a rigorous methodological critique. We synthesized 55 unique studies comprising 29,925 participants. The evidence base demonstrates a consistent negative statistical association between partner phone use and relationship satisfaction, with regression-based models frequently highlighting the relevance of psychological variables such as conflict and partner responsiveness. Methodological and conceptual limitations across the primary literature hamper our global understanding of the phenomenon. Specifically, the evidence base relies heavily on static, cross-sectional designs that cannot capture real-time couple dynamics. Furthermore, interchangeable terminologies feed into the 'jingle-jangle fallacy,' while a lack of conceptual clarity and measurement mismatches reinforce psychometric challenges, perpetuating pathologizing narratives and technology-related moral panics. Selective post-cut-off developments (2025–2026) are briefly discussed non-systematically for context. Future research must prioritize conceptual clarity and real-time interactional study designs.

1. Introduction

Smartphones have become constantly present in daily interactions between relational partners (Foster Campbell, 2022). Relationship processes are intertwined with technology and cannot be fully understood without acknowledging how digital devices shape everyday relational practices (Foster Campbell, 2022, p. 2; Ling, 2012; Miller-Ott et al., 2012). Phone use in a partner's co-presence may be interpreted as a form of withdrawal, potentially signalling reduced engagement in the interaction (Vanden Abeele, 2020). A growing body of research in the last decade addressed this type of mobile phone use under the label 'phubbing' or 'technoference', demonstrating its negative link with relational aspects, such as intimacy, trust, or satisfaction (e.g., Knausenberger et al., 2022; Pesch et al., 2024). However, the field itself has been challenged due to a missing theoretical core (Buttner et al., 2022; Frackowiak, Ochs, et al., 2024), as existing studies are conceptually fragmented, methodologically heterogeneous, and a rigorous synthesis of those study elements and the evidence is lacking. The present systematic review therefore (1) consolidates the evidence on co-present phone use in relationships until April 2024, and (2) critically evaluates the conceptual approach, the measurement tools, and research methodologies applied in this field.

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1.1. Co-present phone use in intimate relationships: phubbing and technoference

Intimate relationships[1] provide a context where smartphone use during interactions becomes unavoidable (Avgustis & Oloff, 2023; Foster Campbell, 2022), given that romantic partners spend a substantial amount of time together, and they are constantly exposed to each other's behaviours. Early statistics show that almost half of the population aged 18-29 reported their partner being distracted by their mobile phone whilst spending time together (Lenhart & Duggan, 2014), whereas over 70% participants report that smartphones at least sometimes interfere with their partner interactions (McDaniel and Coyne, 2016a).

Unlike other dyads, intimate partners often cohabit and spend extensive time together, making co-present phone use a recurring feature of daily interactions (Denecker et al., 2024). Such phone use becomes interwoven with verbal and non-verbal cues, is continuously perceived and appraised by both partners (Hilpert et al., 2019, 2022). The influence of phone use on those interactions has received ample attention from researchers because the dyadic interactions between partners lie at the heart of partner's interdependence (Duck, 1994). This embeddedness positions phone use as part of a relational script that shapes enduring patterns of connection or disconnection (Vanden Abeele, 2020).

This phenomenon of ignoring a co-present partner in favour of a mobile phone was coined as 'phubbing' in 2013 by the Macquarie Dictionary (Steinmetz, 2013), accompanied by a social campaign "Stop Phubbing" in 2013 (Haigh, 2015) to raise awareness about the consequences of paying attention to one's phone in the presence of others, decorated with *faux*-statistics[2] (Steinmetz, 2013). In parallel, the term 'technoference' was first used in 2014 to describe technological interferences in family and couple interactions (McDaniel and Coyne, 2016a). Although the terms, if true to their definitions, are designated to capture somewhat distinct constructs differentiated by agency, device scope, and relational context (dyadic vs. group), researchers have argued that studies interchange both terms to describe *any* phone-related interference in social interactions (Frackowiak, Ochs, et al., 2024). Both terms designate an innate *harm mechanism* in their definitions (snubbing, interference), yet the context for which they had been originally defined may differ substantially. For instance, phubbing may indicate an active attempt to exclude a partner from the interaction, whereas technoference may refer to any family situation during which any technological device (e.g., TV, computer) interrupts quality time (McDaniel and Coyne, 2016a). Nonetheless, despite referring to overlapping, yet slightly distinct phenomena, the terms have been predominantly applied in the context of interactional phone use (Frackowiak et al., 2025).

Conceptual clarification, often overlooked (Bringmann et al., 2022), is crucial for the systematic application of concepts to study real-life phenomena. The interchangeable application of terminology (Frackowiak, Ochs, et al., 2024) may indicate a lack of integrative theoretical framework or conceptual foundation due to its novelty (Buttner et al., 2022). Without shared definitions, links between theory and empirical testing remain tenuous, limiting comparability, reproducibility, and replicability (Oberauer & Lewandowsky, 2019). Additionally, it has been argued that the terms themselves are negatively charged, implying a direct harm mechanism, and potentially reinforcing negativity bias in psychological science (Frackowiak, Ochs, et al., 2024; Rozin & Royzman, 2001). This imposes the interpretation and conclusion of the behaviour, rather than allow empirical evidence to determine whether the behaviour is harmful, benign, or context-dependent (Aagaard, 2025; Frackowiak & Ochs, 2026). A critical clarification of terminology is therefore essential for advancing the field and not perpetuating further moral panic around phone presence (Rao & Lingam, 2021).

1.2. Previous reviews

Seven reviews have examined phubbing or co-present mobile phone use, but they each serve different purposes and therefore leave important questions open. Narrative and scoping reviews (e.g., Al-Saggaf and O'Donnell, 2019; Capilla Garrido et al., 2021; Nazir & Bulut, 2019; Thabassum, 2020; Utami et al., 2020) provide useful descriptive overviews, yet they do not follow a systematic protocol, include pre-registered procedures, or evaluate methodological quality. Two meta-analyses (Ni et al., 2025; Nuñez & Radtke, 2024) offer valuable pooled effect sizes and identify relevant antecedents and consequences of phubbing, but meta-analytic aggregation necessarily prioritizes statistical convergence over conceptual and methodological nuance. Across these seven reviews, the field gains little insight into *how* studies are designed, which conceptual and operational choices shape the evidence base, and where methodological inconsistencies limit cumulative progress.

A systematic review focused specifically on co-present phone use in intimate relationships is therefore warranted. Romantic partnerships are characterized by high interdependence and mutual influence across daily interactions (Bradbury & Karney, 2014), making them a relational context in which co-present phone use may carry meanings and implications that differ from parent–child, peer, stranger, or workplace dyads (Foster Campbell, 2022; Frackowiak et al., 2025; Ochs et al., 2025; Vanden Abeele et al., 2024). Even when studies examine common relational constructs, such as responsiveness or relationship satisfaction, their significance is not directly comparable to other dyads. These contextual differences, combined with the field's use of overlapping terms (e.g., phubbing, technoference, co-present phone use), make a focused synthesis essential for conceptual and terminological precision (Davidson et al., 2022).

A systematic review dedicated to intimate relationships will allow us to examine not only the findings but also *how* these constructs and terminologies are defined, operationalized, and measured in this specific population, which existing reviews have not addressed. Over the past decade, research on co-present phone use has expanded rapidly and in a highly fragmented manner, with multiple overlapping terms and measures emerging in parallel (Anvari et al., 2025). This review will clarify how co-present mobile phone use is conceptualized and operationalized across the existing literature, with particular attention to the inconsistent use of terms such as phubbing and technoference, which limits cumulative knowledge in the field. Recent qualitative and mixed-method studies have questioned the robustness of existing findings and what can be inferred from them (e.g., Foster Campbell, 2022; Frackowiak et al., 2025; Swit et al., 2026), making a PRISMA-guided systematic review of partner phubbing both timely and necessary.

1.3. The current review

The present systematic review pursues two objectives: 1) to synthesize empirical findings on partner phubbing in intimate relationships, and 2) to critically evaluate the conceptual and methodological foundations of this research to inform future directions. The prospective protocol for this review was prepared and preregistered in accordance

[1] An intimate relationship requires interdependence, uniqueness, enduring influence, and potential for sexual passion. Within this domain, terms *close*, *romantic*, and *intimate* can be differentiated (Bradbury & Karney, 2014), but they are also used interchangeably across studies. We adopt this flexible usage to reflect the varied terminology employed in the literature included in this review (see terms used to import literature in Methods).

[2] One example is the claim that *'87% of teens would rather communicate via text than face-to-face'*. However, Steinmetz (2013) noted that the statistics used in the campaign could not be linked to any empirical data supporting the claims.

with the PRISMA-P 2015 guidelines. For the report of this completed systematic review, we apply the PRISMA 2020 reporting framework to ensure a transparent accounting of our results, database updates, and protocol implementation (Page et al., 2021a,b,c). While we primarily use the term 'phubbing' from here onwards, reflecting its dominance in the literature, our search and selection strategy incorporates related terminology to ensure comprehensive coverage.

2. Methods

2.1. Protocol pre-registration

The systematic review protocol was pre-registered on Open Science Framework (OSF) in March 2022. Literature searches were conducted in March-April 2022 and April 2024 to include newly published studies. The pre-registration followed criteria and guidance for systematic review registration (Pieper & Rombey, 2022; Shamseer et al., 2015; Straus & Moher, 2010) and can be found on OSF.[3] It specifies the protocol, study aims, and an Author responsibility and contribution statement. No amendments to the information presented at protocol registration were made. See Table 1 for a complete reproducibility checklist of our procedure.

Table 1
Reproducibility checklist.

Component	Details
Protocol preregistration	OSF preregistration (March 2022), including aims, protocol, and author responsibilities
Databases searched	PubMed, ScienceDirect, Web of Science, Google Scholar
Search terms & Boolean operators	"phubbing" OR "partner phubbing" OR "technoference" OR "co-present phone use" OR "problematic phone use" OR "phone snubbing" OR "technology interruptions" OR "phone interference" AND "romantic relationships" OR "partner" OR "intimate relationships" OR "close relationships" OR "couples"
Search time frames	First search: March-April 2022; Second search: April 2024
Language & publication filters	English; peer-reviewed journal articles only; no date restrictions
Inclusion criteria	Quantitative or mixed-method studies; focus on couples or individuals in intimate relationships
Exclusion criteria	Conference papers; non-peer-reviewed work; studies not addressing co-present phone use in intimate relationships
Screening procedures	Title/type screening; abstract screening; full-text eligibility assessment; independent subsample screening by second author
Flowchart of item selection process, as per PRISMA 2020 standards	Provided in Fig. 1
PRISMA 2020 framework for reporting systematic reviews	Provided in Table 3
PRISMA 2020 abstract checklist	Appendix 3
Appraisal and risk-of-bias	AXIS tool (20 criteria), with cross-validation on a subsample, supplementary materials
Data extraction	Structured extraction of study characteristics, conceptualization/operationalization, correlates, and analytic details; iterative consensus among authors
Synthesis approach	Narrative synthesis organized by results (correlates and hypothesis testing), and analysis of methodological approach (conceptualization, operationalization, study design)

2.2. Literature intake and item selection process

Following the PRISMA-P guidelines (Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols, Shamseer et al., 2015), the review process was structured into four phases: identification, screening, eligibility, and inclusion (see Fig. 1). We searched at two time points (March-April 2022 and April 2024) in the following academic databases: PubMed, ScienceDirect, Web of Science, and Google Scholar. The initial literature review was conducted in 2022, with search results imported from Google Scholar on March 28, 2022, and from PubMed, Web of Science, and ScienceDirect on April 6, 2022; the subsequent literature update was completed on April 1, 2024. In line with reporting transparency, no unsupported retrospective precision is assumed, and no search reruns were performed merely to recreate missing historical metrics. To search the databases, we applied the following algorithm that defined (i) the theme and (ii) the target population: ["phubbing" OR "partner phubbing" OR "technoference" OR "co-present phone use" OR "problematic phone use" OR "phone snubbing" OR "technology interruptions" OR "phone interference"] AND ["romantic relationships" OR "partner" OR "intimate relationships" OR "close relationships" OR "couples"]. ScienceDirect limited Boolean operators to eight, resulting in a substantially larger number of hits compared to the other databases.

We considered articles to be eligible for inclusion if they (1) were quantitative or mixed-method (to accommodate statistical analyses and correlates); (2) published in English; (3) focused on couples or individuals in intimate relationships. We enforced no restriction on publication year and excluded conference papers and not peer-reviewed articles.

At the identification stage, the literature search yielded a combined gross total of 2791 records across both search cycles, comprising 2506 hits from the initial 2022 database search and 285 hits from the 2024 search update, as per Fig. 1. During the title and abstract screening stage, engagement with titles, publication types, and topical relevance resulted in the exclusion of 2532 records that failed to meet basic eligibility boundaries. At the eligibility stage of the literature search, the remaining 136 full-text articles were sought and successfully retrieved for comprehensive evaluation to decide whether the records matched the specific research questions central to this systematic literature review. This involved, for instance, identifying the study methodology. If a title or an abstract clearly used vocabulary implying a design involving a statistical analysis (e.g., 'mediates', 'moderates', 'actor and partner effect'; Yam, 2023; Zhang et al., 2023), it was qualified for inclusion. On the other hand, abstract screening also helped us identify which publication ought to be excluded, where the title itself was not sufficient to do so. For instance, one of the publications that was filtered out included 'technologies' and 'relationship satisfaction' in the title, but our screening of the abstract revealed that the study concentrated on the use of technologies in maintaining social relationships via communication via video calls and instant messaging (Goodman-Deane et al., 2016), which does not correspond to our research question, as no 'co-present' technology use is investigated.

2.3. Second author assessment for inclusion (procedures from April 2022 and April 2024)

In April 2022, a second author independently assessed a subsample of abstracts and full texts (N = 62) to validate the inclusion and exclusion criteria. Any disagreements were resolved through discussion between the authors to reach the consensus, ensuring a shared interpretation of the screening criteria. Based on the items originally imported to the library, 27 items were assessed as eligible, whilst 3 records, obtained via references and publication alerts, were added afterwards. As a result, 30 articles were included in the systematic

[3] OSF: https://osf.io/sd34u/?view_only=865ef3bd45c64428a1e576c722253408.

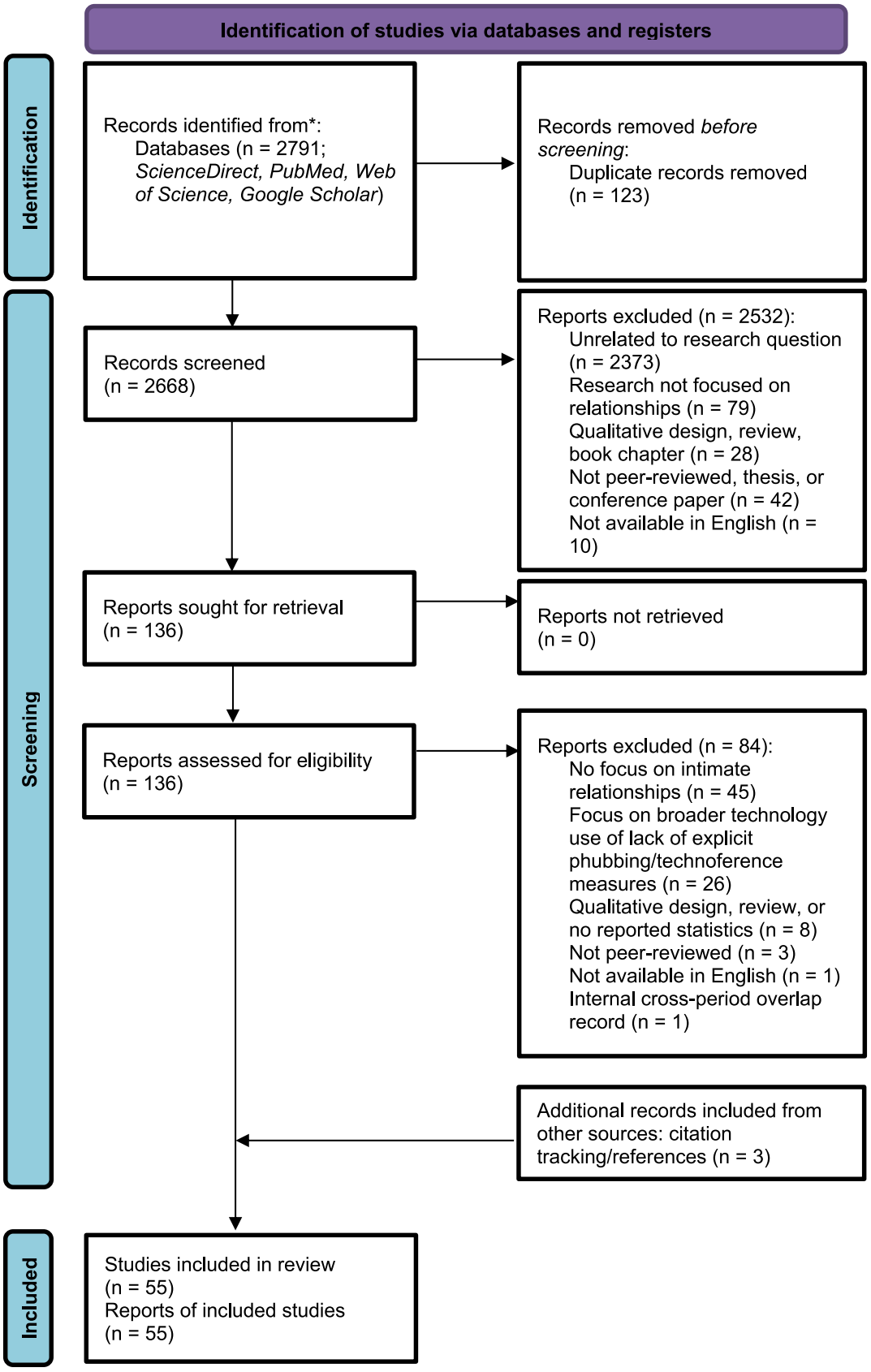


Fig. 1. Flowchart of item selection process, as per PRISMA 2020 standards. The flowchart reconciles and merges records from both literature intake procedures: March-April 2022 and April 2024.

literature review. The same procedure was repeated in April 2024 to capture recent publications (see Fig. 1). Upon the search, the filter was applied to concentrate on the research items that were published from 2022 until March 2024. The following databases were used: PubMed, Web of Science, and Google Scholar. Finally, 25 reports were added to the pool of the original manuscripts imported in 2022, resulting in a total of 55 publications considered in this review.

2.4. Descriptive appraisal with AXIS

Following recommendations by Khan et al. (2003) and Siddaway et al. (2019), we assessed the 55 included studies using the Appraisal Tool for Cross-Sectional Studies (hereafter AXIS, Downes et al., 2016). AXIS was implemented as the protocol-specified reporting profile and descriptive appraisal framework.[4] The inventory consists of 20 formal criteria evaluating item-level reporting completeness across study sections. We utilized these criteria descriptively to track whether primary studies reported results for all pre-specified objectives and analyses. Because AXIS was specifically designed for cross-sectional studies, its application alongside other designs within this review (experimental, longitudinal, or intensive longitudinal) is exploratory and limited. No additive global quality scores or classifications were computed, as the tool functions strictly as an item-level indicator of reporting features.

Each study was rated on 20 AXIS criteria with binary coding (Yes/No). Note that certain criteria were reverse-coded (see Appendix 1 for details). For cross-validation, each co-author independently rated a subsample of studies: five articles during the 2022 intake and an additional four during the 2024 intake, hence, half of the included articles received a double rating. Any disagreements were resolved through discussion with the first author, reflecting a collaborative effort to reach a shared interpretation of the AXIS criteria. The final ratings reported in the manuscript correspond to the consensus reached across all authors, following agreement on each double-rated publication.[5]

2.5. Data extraction

Following the appraisal assessment, the first Author systematically extracted the following elements from each manuscript: (1) Authors of the publication, year, outlet, and country; (2) target population and sample characteristics (including sample size, age, and gender ratio, as per availability of the information provided in each item); (3) study design; (4) conceptualization and operationalization of the studied phenomenon; (5) correlates of the studied phenomenon (as per the reported conceptualization and operationalization); and (6) the characteristics of the main analysis, including the role of partner phubbing, the outcome variable, and the main results of each study. Data extraction was performed by the first author in consultation with co-authors, with multiple iterations ensuring consensus on extracted variables.

2.6. Data synthesis

To determine eligibility for synthesis, primary studies were grouped based on common relational outcomes, demographic characteristics, and co-present phone use variables. No statistical data conversions were performed during data preparation, as all extracted prevalence data were evaluated using existing mean scores and description of directionality and significance of the results. We planned to present individual study results and quality characteristics visually using structured summary matrices (Appendix 2; see Table 2 for abbreviated study characteristics). A structured thematic synthesis paired with methodological critique was selected to combine the evidence base; this rigorous approach allowed us to systematically evaluate the conceptual, operational, and design-related caveats across the literature. Finally, we systematically explored study heterogeneity by grouping findings according to publication year, country of origin, target population, and specific study design elements.

2.7. Reporting standards and transparency with PRISMA 2020

This completed systematic review is reported in accordance with the PRISMA 2020 statement guidelines (Page et al., 2021a,b,c; Page et al., 2021). To ensure full reporting completeness and transparency, we relied on the criteria outlined in the PRISMA 2020 reporting framework explanation and elaboration framework (Page et al., 2021c). A detailed item-by-item overview of where each reporting component is located within this manuscript is provided in the PRISMA 2020 Checklist (Table 3).

3. Results

The results section is split in four subsections: (1) Study Appraisal and Risk-of-Bias; (2) Key Study Characteristics; (3) Factors Correlating with Co-Present Phone Use; and (4) Hypothesis Testing and Main Results.

3.1. Descriptive appraisal with AXIS

We present an item-level summary of the protocol-specified descriptive appraisal. The individual criterion-level frequencies across the 55 included literature items are detailed below, while the absolute item-level AXIS matrix is retained in Appendix 1. Almost all studies (n = 49) clearly defined study objectives with the design matching the hypotheses.[6] However, only eight studies justified their sample size based on, for instance, power analyses. Several publications attempted to justify the number of participants based on previous suggestions related to the selected statistical model (e.g., Frackowiak et al., 2022). The population of interest was clearly defined in most of the included papers ($n = 46$), however, slightly less publications ($n = 44$) were consistent on what defined their sampling frame, that is, inclusion criteria. Following that, even fewer publications ($n = 40$) described participant selection methods designed to reflect the target population. Only nine articles explicitly addressed non-responders.

Regarding risk factor measurement (e.g., phubbing), most studies ($n = 50$) measured it appropriately to the aims of the study, although fewer ($n = 43$) used a validated or trialled measuring tool.[7] For the analyses, it was clear in all the studies ($n = 55$) what was used to determine statistical significance (e.g., p-values, confidence intervals), and basic data was adequately described in most of them ($n = 45$). The results were mostly internally consistent ($n = 52$). However, as an indicator of potential selective reporting bias, 6 studies failed to present results for all the analyses described in their respective method sections, whereas the majority (n = 49) provided comprehensive reporting. However, full procedural reproducibility (data collection through analysis) was reported in only 17 studies. Discussions were aligned with results ($n = 53$) and limitations were usually discussed ($n = 49$). None of the Authors reported a conflict of interest; 43 studies reported that they received an ethical approval or informed consent from participants.

[4] AXIS is used here as the protocol-specified reporting profile from our 2022 preregistration; although originally developed for cross-sectional studies and applied exploratorily to other designs, we unpack its scope and limitations in greater detail in the Discussion.

[5] The list of double-rated articles with anonymized scores of the first and the second rater are available upon request from the first author.

[6] See our Discussion, section 'Study Design and Implications'.

[7] See our Discussion, and the section 'Descriptive Appraisal with AXIS'.

Table 2
Abbreviated key characteristics of the included 55 studies.

No.	Author(s), year	Design	Term	Measurement	Role	Principal outcome	Principal analysis
1	Ajooba and Ambarwati (2023)	Cross-sectional	Phubbing	GSP	—	—	Correlation
2	Aljasir (2022)	Cross-sectional	Phubbing	PPS	Mediator	Relationship satisfaction	Mediation
3	Amichai-Hamburger and Etgar (2016)	Cross-sectional	Smartphone multitasking	MPIL	Predictor	Intimacy	Linear regression
4	Arshad and Imran (2022)	Cross-sectional	Phubbing	PPS	Predictor	Relationship satisfaction	Linear regression
5	Beukeboom and Pollmann (2021)	Cross-sectional	Phubbing	PPS	Predictor	Relationship satisfaction	Mediation (Moderated)
6	Booth et al. (2021)	Longitudinal	Technoference	TILES	Predictor	Relationship outcomes	APIM (Mediation)
7	Bröning and Wartberg (2022)	Cross-sectional	Phubbing	PPS	Outcome	Phubbing (by partner)	Linear regression (Moderated)
8	Buttner et al. (2022)	Cross-sectional	Phubbing	PPS*	Outcome	Phubbing (own and partner's)	Multilevel modelling
9	Çakir and Köseliören (2022)	Cross-sectional	Technoference	TDIS	Predictor	Relationship satisfaction; marital conflict	Linear regression
10	Carnelley et al. (2023)	Daily diary; longitudinal	Phubbing	PPS*	Predictor	Relationship satisfaction	APIM (Mediation; Moderated)
11	Chmielik & Blachnio (2021)	Cross-sectional	Phubbing	PS	Predictor	Relationship satisfaction	Mediation
12	Chen et al. (2021)	Longitudinal	Phubbing	PPS	Predictor/ outcome	Phubbing (by partner); relationship satisfaction	APIM (Mediation)
13	Cizmeci (2017)	Cross-sectional	Phubbing	PPS	Predictor	Relationship satisfaction	Linear regression
14	David and Roberts (2021)	Experimental	Phubbing	PPS; manipulation	Predictor	Relationship satisfaction; well-being	ANOVA/Mediation (Moderated)
15	Frackowiak et al. (2022)	Daily diary	Phubbing	Self-devised	Predictor	Relationship satisfaction	Multilevel modelling (Moderated)
16	Frackowiak, Hilpert, and Russell (2024)	Daily diary	Phubbing	Self-devised	Predictor	Emotions	Multilevel modelling (Moderated)
17	Gomes et al. (2021)	Cross-sectional; quasi-experimental	Phubbing	PS	Predictor	Relationship satisfaction; intimacy	Linear regression
18	Hall et al. (2014)	Cross-sectional	Mobile relational interference	Self-devised	Outcome	Mobile relational interference	Linear regression
19	Halpern and Katz (2017)	Longitudinal	Phubbing	Self-devised	Mediator	Relationship satisfaction	Mediation (Moderated)
20	Hertlein (2021)	Cross-sectional	Technology in Relationships	TIRA	Predictor	Couple satisfaction	Linear regression (Moderated)
21	Heyman and Human (2024)	Experimental; daily diary	Phone presence	Manipulation; self-devised	Predictor	Relationship satisfaction	ANOVA
22	Hipp and Carlson (2021)	Cross-sectional	Technoference	TILES	Predictor	Relationship satisfaction	APIM (Mediation)
23	Jo and Lee (2022)	Daily diary	Mobile work	mWork	Predictor	Psychological withdrawal behaviour	Mediation
24	Kelly and Miller-Ott (2022)	Cross-sectional	Mobile phone integration	Self-devised	Predictor	Relationship satisfaction	Linear regression
25	Kelly et al. (2022)	Cross-sectional	Co-present mobile phone use	Self-devised	—	—	—
26	Khodabakhsh and Ong (2021)	Cross-sectional	Phubbing	PPS	Predictor	Relationship satisfaction	Linear regression (Moderated)
27	Kılıçarslan and Parmaksız (2023)	Cross-sectional	Phubbing	PS	Predictor	Relationship satisfaction	Mediation
28	Lapierre and Zhao (2024)	Cross-sectional	Technoference	TILES*	Mediator	Life satisfaction	Mediation
29	McDaniel & Coyne (a) (2016)	Cross-sectional	Technoference	TILES; TDIS	Predictor	Depression; life satisfaction, RS	Mediation
30	McDaniel & Coyne (b) (2016)	Cross-sectional	Technoference	TICS	Predictor	Coparenting quality	Linear regression
31	McDaniel and Drouin (2019)	Daily diary	Technoference/ partner phubbing	TDIS	Predictor	Relationship satisfaction; Conflict, Positive Interactions, Negative mood	Multilevel modelling (Moderated)
32	McDaniel et al. (2018)	Cross-sectional	Technoference	TILES*	Mediator	Coparenting quality; relationship satisfaction	Linear regression (Moderated)
33	McDaniel et al. (2021)	Daily diary	Technoference	Self-devised	Predictor	Relationship satisfaction	Multilevel modelling
34	Mosley and Parker (2023)	Cross-sectional	Phubbing	PPS	Moderator	Relationship satisfaction	APIM (Moderated)
35	Mushquash et al. (2022)	Cross-sectional	Technoference	TDIS, TILES, PPUMU	Predictor	Intimacy	Mediation
36	Nag and Rose (2023)	Cross-sectional	Phubbing	GSP	Predictor	Self-esteem	Linear regression
37	Roaché et al. (2020)	Experimental	Technoference	Manipulation	Predictor	Conversation satisfaction; perceived resolvability; conversation effectiveness	Multilevel modelling
38	Roberts and David (2016)	Cross-sectional	Phubbing	PPS	Predictor	Depression	Mediation (Moderated)
39	Roberts & David (a) (2022)	Cross-sectional	Phubbing	PPS	Outcome	Phubbing (by partner)	Mediation
40	Roberts & David (b) (2022)	Cross-sectional	Phubbing	PPS	Predictor	Relationship satisfaction	Mediation (Moderated)
41	Roberts and David (2023)	Cross-sectional; experimental	Phubbing	PPS	Predictor	Relationship satisfaction	Mediation
42	Schokkenbroek et al. (2022)	Cross-sectional	Phubbing	PPS*	Predictor	Electronic partner surveillance	Mediation
43	Shao et al. (2022)	Cross-sectional	Technoference	TILES*	Predictor	Child smartphone dependence	Mediation

(*continued on next page*)

Table 2 (*continued*)

No.	Author(s), year	Design	Term	Measurement	Role	Principal outcome	Principal analysis
44	Thomas et al. (2022)	Daily diary	Phubbing	PPS*	Predictor	Relationship satisfaction, anger	Multilevel modelling
45	Togar et al. (2023)	Cross-sectional	Phubbing	Self-devised	Predictor	Relationship satisfaction	APIM (mediation)
46	Wade-Bohleber et al. (2024)	Longitudinal	Technoference	TILES	Outcome	Technoference	Multilevel modelling
47	Wang and Zhao (2022)	Cross-sectional	Phubbing	PPS	Predictor	Relationship satisfaction	Mediation
48	Wang et al. (2017)	Cross-sectional	Phubbing	PPS	Predictor	Depression	Mediation
49	Wang et al. (2021)	Cross-sectional	Phubbing	PPS	Predictor	Relationship satisfaction	Linear regression (Moderated)
50	Xie et al. (2023)	Cross-sectional	Phubbing	PPS	Predictor	Parent-child relationship quality	APIM
51	Yam (2023)	Cross-sectional	Phubbing	PPS	Predictor	Life satisfaction	Mediation
52	Zhan et al. (2022)	Cross-sectional	Phubbing	PPS*	Outcome	Phubbing (own)	Mediation
53	Zhang et al. (2023)	Cross-sectional	Phubbing	SAS	Mediator	Marital satisfaction	APIM (mediation)
54	Zonash et al. (2020)	Cross-sectional	Phubbing	PPS	Predictor	Wellbeing	Linear regression
55	Zoppolat et al. (2022)	Daily diary	Technoference	Self-devised	Mediator	Relationship satisfaction	Mediation

Note. The column 'Role' indicates how the variable phubbing, technoference, or their proxy is positioned within the statistical analyses reported in each manuscript. PPS = Partner Phubbing Scale, GSP = Generic Scale of Phubbing, MPIL = Mobile Phone Interference in Life Scale, TILES = Technoference in Life Examples Scale, TDIS = Technology Device Interference Scale, PS = Phubbing Scale, TIRA = Technology in Relationship Assessment, TICS = Technology Interference in Coparenting Scale, PPUMU = Perception of Partner's Unhealthy Media Use Measure, SAS = Smartphone Addiction Scale. APIM = Actor-Partner Interdependence Model. *Indicates where the existing instruments were adapted to study goals, e.g., rephrased for first or third person, shortened, or modified.

3.2. Study characteristics

As a summary of the synthesis input, the characteristics and appraisal of the 55 included literature items contributing to the synthesis are outlined below. The purpose of this section is to situate the manuscripts' results based on study characteristics such as time, outlet, country, design, conceptualization, and operationalization (see Table 2 for abbreviated characteristics, see Appendix 2 for a full extraction table).

3.2.1. Publication year and outlets

The first included paper appeared in 2014 (Hall et al., 2014). The publication rate accelerated in the 2020s: 2022 saw the most publications ($n = 18$), followed by 2021 ($n = 11$) and 2023 ($n = 10$). Articles were dispersed across outlets; the most frequent academic outlets were *Computers in Human Behavior* ($n = 13$) and *Journal of Social and Personal Relationships* ($n = 5$); six journals published two papers each; the remainder were singletons.

3.2.2. Country

Studies were conducted primarily in the United States ($n = 16$) and China ($n = 8$); Canada and Turkey each contributed three. Two each came from Pakistan, Netherlands, Switzerland, and the United Kingdom. Three papers did not specify the country (Frackowiak et al., 2022, 2024a; Yam, 2023). Twenty studies were single-country samples.

3.2.3. Target population and sample

Overall, the target populations were individuals in relationships or, in case of dyadic designs, couples. Publications were not consistent in defining specific criteria, although they mostly had to be adults,[8] and in a relationship. Some studies specified that the participants had to be in the relationship for at least 3 months (e.g., Heyman & Human, 2024), at least 6 months (e.g., Hertlein, 2021), or in monogamous relationships (Hipp & Carlson, 2021), however, there was no systematic rule, as inclusion criteria varied from study to study (see appendix for complete extracted information). In four publications, couples or individuals in relationships constituted only a percentage of the total sample (Buttner et al., 2022; David & Roberts, 2021, Hall et al., 2014; Kelly et al., 2022).

Based on 55 publications (including multi-study papers), a total of 29925 participants were recruited (17637 women, 58.9%). Two studies recruited female participants exclusively (McDaniel & Coyne, 2016a, 2016b). Non-heterosexual participants and couples were recruited in six publications, though they constituted a low percentage of the total sample (Amichai-Hamburger & Etgar, 2016; Beukeboom & Pollmann, 2021; Gomes et al., 2021; Hertlein, 2021; Hipp & Carlson, 2021; McDaniel et al., 2018). The grand mean age was 32.52 years old.[9]

3.2.4. Study design

Most of the studies were cross-sectional ($n = 40$), i.e., involved measures taken at one point in time. Eight studies applied intensive longitudinal design in the form of a daily diaries, whereas four studies applied a traditional longitudinal design with at least two waves of measurement. Finally, three publications reported applying an experimental design. In four multi-study papers, designs varied across component studies (e.g., Carnelley et al., 2023; Heyman & Human, 2024).

The experimental designs involved manipulations of mobile phone use during interactions. Heyman and Human (2024) randomly assigned participants to a "phone presence" or "phone absence" condition. Roaché et al. (2020) compared "technology on" and "technology in hands" conditions to a control, distinguishing types of phone presence. David and Roberts (2021) ran two experiments: in Study 1, participants recalled an event where their partner did (vs. did not) use their phone in their presence before completing questionnaires; in Study 2, participants viewed a video showing phone use during an interaction (vs. no phone use).

3.2.5. Conceptualization of Co-present phone use

Among the studies we reviewed, "(partner) phubbing" was the most frequently used term to conceptualize co-present mobile phone use in couples, appearing in 34 publications, followed by "technoference" in 14. The remaining publications opted for terms such as "mobile work" (Jo & Lee, 2022), "'mobile relational interference" (Hall et al., 2014), or "smartphone multitasking" (Amichai-Hamburger & Etgar, 2016).

3.2.6. Operationalization of Co-present phone use

Co-present phone use has been subject to various operationalizations and measurement types. For the correlational studies that have applied cross-sectional, longitudinal, or daily diary design ($n = 52$), a specific measure or an existing instrument was administered for the participants to fill out, whereas in the remaining, experimental publications ($n = 3$),

[8] The only exception is Shao et al. (2022), who recruited parents and their children, though the study predominantly concentrated on the former.

[9] The score was computed based on scores from 44 studies. Eight studies reported frequencies for each age group category. Three studies did not report the average age of participants.

Table 3
PRISMA 2020 Checklist for completed systematic reviews.

TITLE			
Title	1	Identify the report as a systematic review.	Title
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Appendix 3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Section 1, 1.2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Section 1, 1.3
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Section 2.2
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Section 2.2
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Section 2.2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Section 2.2, 2.3
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Section 2.5
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Section 2.5
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Section 2.4, 2.5
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Section 2.4
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Section 3.4
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Section 2.6
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Section 2.6, Supplementary materials
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Section 2.6, Table 2, Supplementary materials
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Section 2.6
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Section 2.6, 3.2, 3.3
	13f	Describe any sensitivity[a] analyses conducted to assess robustness of the synthesized results.	Not applicable
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Not assessed
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Not assessed
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Fig. 1, Section 2.2., 2.3
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Section 2.2
Study characteristics	17	Cite each included study and present its characteristics.	Section 3.2, Table 2, supplementary materials
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Supplementary materials
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 2, Supplementary materials
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Section 3.1, 3.2
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Section 3.3; Tables 2 and 3 Supplementary materials
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Section 3.4
	20d	Present results of all sensitivity[a] analyses conducted to assess the robustness of the synthesized results.	Not applicable
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not assessed
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Not assessed
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Section 3.4, 4.4
	23b	Discuss any limitations of the evidence included in the review.	Section 4.1, 4.2, 4.3
	23c	Discuss any limitations of the review processes used.	Section 4.6
	23d	Discuss implications of the results for practice, policy, and future research.	Section 4.4

(*continued on next page*)

Table 3 (*continued*)

OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Section 2.1
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Section 2.1
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Section 2.1
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Section "Funding information"
Competing interests	26	Declare any competing interests of review authors.	Section "Declaration of competing interests"
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Section 2.1, Tables 1 and 2

Note. Table adapted from Page et al., (2021a,b). Completion guidelines acquired from Page et al. (2021c).
[a] No quantitative sensitivity analysis was conducted.

the presence and mode of phone use was manipulated. Where a measure was applied, we extracted the information on the prevalence based on the mean score ($n = 50$). The score was moderate (oscillating around mid-scale) in 37 studies, and low (below mid-scale) in 13 studies.

3.2.6.1. Validated measures. The most widely used instrument was the Partner Phubbing Scale (Pphubbing; Roberts & David, 2016), applied in 24 studies. The Technoference in Life Examples Scale (TILES; McDaniel & Coyne, 2016a) was the second most frequent (n = 8), often used in conjunction with the Technology Device Interference Scale (TDIS; n = 4). Together, these scales assess perceived partner phone use and its interference with couple interactions. Additional validated instruments were applied in ten further studies[10].

3.2.6.2. Other measures. Eight studies used self-devised measures. Hall et al. (2014) introduced a nine-item "mobile relational interference" scale to capture perceptions of own phone use during partner interactions. Several studies employed single- or two-item measures, for example Heyman and Human (2024; Part 2), Frackowiak et al. (2022, 2024a), and Halpern and Katz (2017) assessed phone visibility, intensity, or perceived interruptions, while McDaniel et al. (2021) and Zoppolat et al. (2022, Study 1) included items on both self- and partner-use. Togar et al. (2023) used two items on persistent phone use around the partner.

Two additional publications focused on the nature, rather than frequency, of phone use in interactions. Kelly and Miller-Ott (2022) examined how often participants involved their partner in phone use and perceived reciprocal involvement. Kelly et al. (2022) collected responses about a recent co-present phone use experience, which were later coded for analysis.

In sum, with respect to the research design, we observed limited geographical heterogeneity, and little consideration for relationship types beyond heteronormative, monogamous relationships. An overwhelming majority of studies used a cross-sectional survey design. Studies most often did use validated measurement instruments.

3.3. Factors correlating with Co-present phone use

In this section we summarise the statistical associations (i.e., correlations) with co-present phone use reported in the included manuscripts. Those correlations are clustered into (1) demographic factors; (2) relational factors; (3) individual wellbeing and traits; and (4) general technology use. Table 4 includes a synthesis of the example correlates, to aid readability and comprehension of the overall correlation trends. Please refer to the table in Appendix 2 for a complete list of correlating factors.

3.3.1. Demographic factors

We found three demographic factors correlating with co-present phone use in the reviewed publications: *age, gender, and education*. In relation to *age*, eight studies reported negative association with co-present phone use (Beukeboom & Pollmann, 2021; Bröning & Wartberg, 2022; Chmielik and Błachnio, 2021; Halpern & Katz, 2017; Khodabakhsh & Ong, 2021; Lapierre & Zhao, 2024; Schokkenbroek et al., 2022; Çakir & Köseliören, 2022), implying that the older the individual, the less phubbing or being phubbed by the partner they report. However, Cizmeci (2017) found no age-related differences. As for *gender*, the results are mixed. Several studies report higher self-reported phubbing in women and higher perceived partner phubbing among women (Buttner et al., 2022; Cizmeci, 2017; Çakir & Köseliören, 2022); others report no differences (Bröning & Wartberg, 2022). In relation to *education*, two studies link more education to higher perceived partner phubbing (Arshad & Imran, 2022; Cizmeci, 2017) but the evidence is sparse.[11]

3.3.2. Relational factors

We identified four groups of relational factors correlated with co-present phone use in the included studies: 1) Relationship satisfaction, 2) Intimacy and closeness, 3) Communication and conflict, and 4) Other constructs. In relation to *relationship satisfaction*, thirty studies reported a negative association between co-present mobile phone use and relationship satisfaction[12] (Arshad & Imran, 2022; Beukeboom & Pollmann, 2021; Booth et al., 2021; Carnelley et al., 2023; Chen et al., 2021; Chmielik and Błachnio, 2021; Frackowiak et al., 2022; Halpern & Katz, 2017; Hipp & Carlson, 2021; Jo & Lee, 2022; Khodabakhsh & Ong, 2021; Kılıçarslan & Parmaksız, 2023; Lapierre & Zhao, 2024; McDaniel & Coyne, 2016a, 2016b; McDaniel & Drouin, 2019; McDaniel et al., 2018, 2021; Mosley & Parker, 2023; Roberts & David, 2022b, 2023; Togar et al., 2023; Wang et al., 2017, 2021; Wang & Zhao, 2022;

[10] *Phubbing Scale* (PS; Karadağ et al., 2015, $n = 3$). *Generic Scale of Phubbing* (GSP; Chotpitayasunondh & Douglas, 2018, $n = 2$). The following instruments were only used once: *Technology in Coparenting Scale* (TICS; McDaniel & Coyne, 2016b; adapted from McDaniel & Coyne, 2016a), *Technology in Intimate Relationships Assessment* (TIRA; Hertlein, 2021; adapted from Campbell & Murray, 2015), *Mobile Phone Interference in Life* (MPIL; Amichai-Hamburger & Etgar, 2016; adapted from David et al., 2015), *Smartphone Addiction Scale* (SAS; Zhang et al., 2023), and *Mobile Work* (mWork; Jo & Lee, 2022; adapted from Ferguson et al., 2016).

[11] It is not clarified how Arshad and Imran (2022) operationalized 'Education'.

[12] Note that we use the term "relationship satisfaction" hereafter as an overall umbrella term, and we do not distinguish between other terminologies applied, e.g., "marital satisfaction", "relationship quality", "couple satisfaction", "relationship assessment". The details on the specific terminology applied to each individual studied outcome can be found in the appendix with Key characteristics of included items.

Table 4
Summary of correlates of Co-present mobile phone use across included studies.

Category	Factor	Direction of Association	Notes	Example Studies
Demographic	Age	Negative	-	Beukeboom and Pollmann (2021); Cizmeci (2017); Halpern and Katz (2017); Schokkenbroek et al. (2022); Lapierre and Zhao (2024)
	Gender	Mixed[a]	Little evidence (2 studies); mostly higher phubbing in women; some null.	Buttner et al. (2022); Bröning and Wartberg (2022)
	Education	Positive	Little evidence (2 studies).	Arshad and Imran (2022); Cizmeci (2017)
Relational	Relationship/Marital satisfaction/quality	Mixed	The most common correlate; 30 negative; 2 positive (shared use)	McDaniel and Coyne (2016a); Bröning and Wartberg (2022)
	Intimacy/closeness	Negative	-	Amichai-Hamburger & Etgar (2016); Beukeboom and Pollmann (2021); Gomes et al. (2021); Halpern and Katz (2017); Mushquash et al. (2022); Nag and Rose (2023)
	Sexual satisfaction	Negative	Little evidence (2 studies)	Booth et al. (2021); Hipp and Carlson (2021)
	Jealousy	Positive	Little evidence (3 studies)	Arshad and Imran (2022); Beukeboom and Pollmann (2021); David and Roberts (2021)
	Conflict	Positive	Includes overall and media-related conflict; Relationship difficulties	Halpern and Katz (2017); McDaniel and Drouin (2019); McDaniel et al. (2018); Mosley and Parker (2023); Togar et al. (2023); Wang and Zhao (2022)
	Communication quality/ marital interaction	Negative	Includes negative constructs, e.g., negative moral judgment, expectancy violation, and perceived inappropriateness.	Beukeboom and Pollmann (2021); Booth et al. (2021); Frackowiak et al. (2022) Gomes et al. (2021); Kılıçarslan and Parmaksız (2023); McDaniel and Drouin (2019); Mushquash et al. (2022); Roberts and David (2023); Wang and Zhao (2022)
	Relationship length	Mixed	3 negative; 2 positive	Chmielik & Blachnio (2021); Mosley and Parker (2023); Lapierre and Zhao (2024); Roberts and David (2022a); Xie et al. (2023)
Wellbeing & Traits	Wellbeing (life satisfaction)	Negative	Little evidence (3 studies)	Lapierre and Zhao (2024); McDaniel and Coyne (2016a); Zonash et al. (2020)
	Depression/anxiety	Negative	Little evidence (3 studies)	McDaniel et al. (2018); Schokkenbroek et al. (2022); Wang et al. (2017)
	Loneliness/exclusion	Positive	Little evidence (3 studies)	Beukeboom and Pollmann (2021); Frackowiak et al. (2024a,b); Zhan et al. (2022)
	Attachment anxiety	Mixed	3 positive, 1 negative	Bröning and Wartberg (2022); Carnelley et al. (2023); Roberts and David (2022a); Mosley and Parker (2023)
	Attachment avoidance	Mixed	Little evidence; 2 positive, 1 negative	Bröning and Wartberg (2022); Carnelley et al. (2023); Mosley and Parker (2023)
	Self-control	Negative	Little evidence (1 study)	Zhang et al. (2023)
	Self-esteem	Negative	Little evidence (2 studies)	Chmielik & Blachnio (2021); Nag and Rose (2023)
	(Negative) affect, mood, and emotions	Positive	Within-person effects; little evidence (3 studies)	Frackowiak, Hilpert, and Russell (2024); McDaniel and Drouin (2019); Zonash et al. (2020)
Technology Use	Phubbing behaviors (e.g., own and reported by partner)	Positive	Includes individual or shared multitasking; combined technoference; enacted phubbing; overall interference	Bröning and Wartberg (2022); Hipp and Carlson (2021); Lapierre and Zhao (2024); McDaniel and Coyne (2016a); McDaniel and Coyne (2016b); McDaniel and Drouin (2019); McDaniel et al. (2018); Mushquash et al. (2022); Zoppolat et al. (2022); Xie et al. (2023)
	Problematic smartphone use/smartphone addiction	Positive	-	Chmielik & Blachnio (2021); Lapierre and Zhao (2024); McDaniel et al. (2018); Wade-Bohleber et al. (2024)
	Screen time/phone use/ media use/smartphone use habits	Positive	-	Buttner et al. (2022); Lapierre and Zhao (2024); McDaniel et al. (2018); McDaniel et al. (2021) Zoppolat et al. (2022); Wade-Bohleber et al. (2024)
	Other digital behaviours	Positive	Includes pornography use, gaming, texting; little evidence (2 studies)	Booth et al. (2021); Halpern and Katz (2017)

[a] Note that in this table we are not referring to the hypothesis testing and analysis which included 'gender' as a moderator or another type of third variable.

Yam, 2023; Zhan et al., 2022; Zhang et al., 2023; Zoppolat et al., 2022; Çakir & Köseliören, 2022). Two publications reported positive associations emphasizing shared/integrated phone use (Bröning & Wartberg, 2022; Hertlein, 2021).[13]

In relation to *intimacy and closeness*, commonly negative associations were found with intimacy (Amichai-Hamburger & Etgar, 2016; Beukeboom & Pollmann, 2021; Gomes et al., 2021; Halpern & Katz, 2017; Mushquash et al., 2022; Nag & Rose, 2023), passion (Nag & Rose, 2023; Roberts & David, 2022a), sexual satisfaction (Booth et al., 2021; Hipp & Carlson, 2021), and commitment (Nag & Rose, 2023). Positive associations were found with deromantization (Roberts & David, 2022a) and jealousy (Arshad & Imran, 2022; Beukeboom & Pollmann, 2021; David & Roberts, 2021).

In relation to *communication and conflict*, the reviewed evidence links technoference and phubbing to greater smartphone-related and leisure-time conflict (Beukeboom & Pollmann, 2021; Halpern & Katz, 2017; McDaniel & Coyne, 2016a; McDaniel & Drouin, 2019; McDaniel et al., 2018, 2021; Togar et al., 2023; Wang & Zhao, 2022; Çakir & Köseliören, 2022) and lesser conflict resolution (Zonash et al., 2020), perceived partner responsiveness (Beukeboom & Pollmann, 2021; Booth et al., 2021; Frackowiak et al., 2022, 2024a; Schokkenbroek et al., 2022), and communication quality (Booth et al., 2021; McDaniel & Drouin, 2019; McDaniel et al., 2021; Mushquash et al., 2022; Wang & Zhao, 2022).

In relation to *other constructs*, the results were mixed between co-present phone use and *relationship length*: positive (Chmielik and Błachnio, 2021; Mosley & Parker, 2023), negative (Lapierre & Zhao, 2024; Roberts & David, 2016; Xie et al., 2023), and no association (Cizmeci, 2017). In relation to co-parenting quality, findings show negative associations (McDaniel & Coyne, 2016b; McDaniel et al., 2018; Shao et al., 2022). Finally, findings showed negative associations with

[13] Hertlein's instrument combined positive and negative technology-related behaviours without distinguishing subscales in the analysis, potentially biasing the score and explaining the positive coefficient.

expectancy violations (Roberts & David, 2023), perceived behavioural intentionality (Roberts & David, 2022b), overall negative behavioural evaluations (Frackowiak et al., 2022; Mushquash et al., 2022), and electronic surveillance of the partner's online activities (Schokkenbroek et al., 2022).

3.3.3. Individual wellbeing and trait-like characteristics

Four aspects of well-being were extracted into clusters: (1) individual wellbeing, (2) attachment, (3) trait-like characteristics, and (4) emotions and feelings. First, partner phubbing has been predominantly associated with lower emotional, social, and psychological *wellbeing* (Zonash et al., 2020), lower life satisfaction (Lapierre & Zhao, 2024; McDaniel & Coyne, 2016a), stronger depressive symptoms (McDaniel & Coyne, 2016a, 2016b; McDaniel & Drouin, 2019; McDaniel et al., 2018; Wang et al., 2017) and anxiety (Schokkenbroek et al., 2022).

As for *attachment*, the association with co-present phone use was mixed. Six studies suggest that attachment dimensions influence perceptions of a partner's smartphone use. Attachment anxiety correlates positively with perceived partner phubbing (Bröning & Wartberg, 2022; Mosley & Parker, 2023; Roberts & David, 2022a), with some studies also linking phubbing to attachment avoidance across genders (Mosley & Parker, 2023) or exclusively to attachment anxiety in women (Bröning & Wartberg, 2022). Similarly, technoference shows positive associations with attachment anxiety, including among non-heterosexual partners (McDaniel & Drouin, 2019; McDaniel et al., 2018). In contrast, perceived phubbing correlates negatively with attachment anxiety, while enacted phubbing shows a weak negative association with attachment avoidance (Carnelley et al., 2023).

In relation to *trait-like characteristics*, some studies showed a negative association between co-present phone use and self-control (Zhang et al., 2023), self-esteem (Chmielik and Błachnio, 2021; Nag & Rose, 2023), agreeableness (McDaniel et al., 2018), communication skills (effective listening and empathy; Kılıçarslan & Parmaksız, 2023), and resilience (Jo & Lee, 2022), whereas other showed a positive association with agreeableness (McDaniel et al., 2018) and no association with empathy (Zhan et al., 2022).

Finally, studies have linked co-present mobile phone use to various emotional experiences. Perceived partner phubbing correlates moderately with upset, anger, sadness, and loneliness, though only at a within-person level (Frackowiak et al., 2024a,b). Similarly, daily technoference is associated with higher negative mood (McDaniel & Drouin, 2019). Partner phubbing has also been linked to feelings of exclusion (Beukeboom & Pollmann, 2021), while own phubbing shows a weak correlation with loneliness (Zhan et al., 2022).

3.3.4. General technology use

Co-present phone use behaviours are interlinked between partners, with phubbing, technoference, and smartphone habits often mirroring each other ($n = 23$). Own phubbing is consistently positively associated with partner phubbing, reinforcing phone-related distraction within couples (Bröning & Wartberg, 2022; Hipp & Carlson, 2021; Mosley & Parker, 2023; Mushquash et al., 2022; Togar et al., 2023; Xie et al., 2023; Zhang et al., 2023). Dyadic studies further show that perceived partner phubbing aligns with one's own enacted phubbing, underscoring reciprocal behavioural tendencies (Carnelley et al., 2023; Chen et al., 2021).

Beyond this reciprocity, both self- and partner phubbing are tied to broader patterns of technology engagement, including overall phone use time, co-present phone use, and smartphone habits (Buttner et al., 2022; see Discussion). These associations extend to problematic forms of media use: phubbing relates to phone obsession (Chmielik and Błachnio, 2021), while technoference is linked to problematic smartphone use in both partners (Lapierre & Zhao, 2024). Greater technoference is also associated with higher daily screen time, smartphone addiction, and technology immersion (McDaniel et al., 2018; Wade-Bohleber et al., 2024), as well as more specific behaviours such as pornography use and internet gaming disorder (Booth et al., 2021).

3.4. Hypothesis Testing and Main Results

In this section, we provide a synthesis of main findings, i.e., hypothesis testing. In our synthesis, we refrain from using causal language, given that deducing causal relationships from observational data has been subject to controversies in psychological science, notably a *taboo* against claiming such relationships from non-experimental data (e.g., Grosz et al., 2020; Rohrer, 2018). Although addressing this subject is beyond the scope of the present systematic literature review, we acknowledge it as a pertinent issue in psychology. Given that most of the included evidence pool ($n = 40$) relies on cross-sectional or observational designs, the synthesized findings detailed below represent statistical associations. Throughout this synthesis, terms such as 'predictor,' 'predicted,' 'indirect effect,' or 'mediation pathway' are used strictly to identify the specific statistical models, parameters, and regression analyses reported by the primary authors in the original studies.

Across the included studies, almost all analyses were grounded in linear modelling frameworks, reflecting the underlying assumption that changes in a predictor (e.g., extent of partner phubbing) correspond to changes in an outcome (e.g., relationship satisfaction). Continuous outcomes were typically examined using regression-based effect estimates (unstandardized or standardized coefficients), with mediation models ($n = 20$) and linear regressions ($n = 15$) being the most common approaches. Dyadic and hierarchical outcomes were analysed using Actor–Partner Interdependence Models ($n = 8$) and multilevel modelling ($n = 8$), which report actor/partner paths or fixed effects. Fourteen publications tested moderated pathways. Three blocks of findings are presented: relational outcomes, personal outcomes, and antecedents.

Twenty studies ($n = 20$) examined the *direct* link between phubbing and relationship satisfaction. The majority found that higher co-present phone use predicts lower satisfaction (Arshad & Imran, 2022; Beukeboom & Pollmann, 2021; Booth et al., 2021; Çakir & Köseliören, 2022; Carnelley et al., 2023; Chmielik and Błachnio, 2021 [14]; David & Roberts, 2021; Gomes et al., 2021; Hall et al., 2014; Hipp & Carlson, 2021; Khodabakhsh & Ong, 2021; Kılıçarslan & Parmaksız, 2023; Lapierre & Zhao, 2024; McDaniel & Drouin, 2019; McDaniel et al., 2021; Roberts & David, 2022b; Thomas et al., 2022; Togar et al., 2023; Wang et al., 2017; Wang & Zhao, 2022; Yam, 2023). Some effects were conditional: weak within-person effects only (McDaniel & Drouin, 2019), partner-only effects (Togar et al., 2023), or stronger among women (Khodabakhsh & Ong, 2021). A few studies reported positive predictions, typically when phone use was shared or integrated into interaction (Aljasir, 2022; Cizmeci, 2017; Hertlein, 2021 [15]; Kelly & Miller-Ott, 2022), though findings were inconsistent, and some results were null (McDaniel et al., 2021).

Nine studies reported *indirect* effects. Mediation models included conflict, responsiveness, expectancy violation, and perceived similarity as pathways linking phubbing to lower satisfaction (Booth et al., 2021; Frackowiak et al., 2022; Halpern & Katz, 2017; Heyman & Human, 2024; McDaniel & Coyne, 2016a; McDaniel et al., 2018; Roberts & David, 2016, 2023; Wang & Zhao, 2022; Zoppolat et al., 2022). For example, only participants who perceived their partners as less responsive during phone use (Booth et al., 2021; Frackowiak et al., 2022) and those who viewed it as a violation of expectations (Roberts & David, 2023) reported lower satisfaction. This is further supported by the daily diary studies which report findings predominantly on the

[14] In the first part of the analyses, though, the Author proposed relationship satisfaction as a (significant) predictor of each of the outcome's subscales: phone obsession and communication disturbance.

[15] As mentioned before, the measure used in this publication does not distinguish between positive and negative types of relational technology use in this publication.

within-person level (e.g., Frackowiak et al., 2022; McDaniel & Drouin, 2019), pointing out the day-to-day fluctuations.

Based on *moderation* analysis, the results indicate that the effects of partner phubbing vary across individuals. For example, perceived phubbing accounted for reduced relationship satisfaction more strongly in those with lower self-esteem (Wang et al., 2021). Evidence for gender differences is mixed and remains inconclusive (Booth et al., 2021; Khodabakhsh & Ong, 2021; Togar et al., 2023). Overall, findings suggest that the relational threat of co-present phone use depends less on the behaviour itself than on how it is appraised and moderated by personal characteristics (Vanden Abeele, 2020).

Four studies reported that higher phubbing corresponded to lower levels of *intimacy* (Amichai-Hamburger & Etgar, 2016; Beukeboom & Pollmann, 2021; Gomes et al., 2021; Mushquash et al., 2022). Notably, in Beukeboom and Pollmann (2021), intimacy mediated the link between partner phubbing and relationship satisfaction, whereas in Mushquash et al. (2022), the impact of general relational technoference on intimacy was mediated by perceptions of partner's unhealthy media use and communication satisfaction.

Eight studies found that phubbing in relationships relates to reduced wellbeing (life satisfaction, depression). Most effects were indirect: satisfaction mediated the link between phubbing and both depression and life satisfaction (McDaniel & Coyne, 2016; Wang et al., 2017; Yam, 2023). Serial pathways included conflict accounting for lower satisfaction, which corresponded to subsequent depression (Roberts & David, 2016). Some studies, however, found no significant effects (Lapierre & Zhao, 2024). Other work identified moderators: effects were stronger among individuals high in attachment anxiety or romantic jealousy (David & Roberts, 2021).

Daily diary studies showed that on days with higher partner phubbing, individuals reported more frustration, anger, sadness, and loneliness (Frackowiak et al., 2024a,b; McDaniel & Drouin, 2019; Thomas et al., 2022). We advise caution when interpreting those results, as the effect sizes were very small in all three studies, and the mean scores of negative mood and emotions were low, below the midscale.

Contrary to the prevalence of studies that hypothesized phubbing as a *cause* (predictor) of the relational and personal outcomes, some studies concentrated on antecedents of co-present phone use in relationships. Among these, four studies argued that individual pre-defined characteristics, such as *attachment*, may define the extent to which one perceives their partner's tendency to use technology in their presence, or even own phone use. Attachment anxiety consistently predicted higher perception of partner phubbing (Bröning & Wartberg, 2022; McDaniel et al., 2018; Roberts & David, 2022a). Mosley and Parker (2023) reported that the anxious and avoidant attachment accounted for more variance in couple satisfaction in those participants who perceive more phubbing by partner (partner effects only).

Earlier, we demonstrated that most publications explored the impact of partner phubbing on relational quality. Three publications proposed a reverse prediction of partner phubbing based on lower relational quality (Bröning & Wartberg, 2022; Chen et al., 2021; Zhan et al., 2022). In Chen et al. (2021) couple relationship quality predicted lower relational phubbing in the second study wave, whereas Zhan et al. (2022) reported that relationship quality corresponded to lower own phubbing behaviour, partially through loneliness. The findings of Bröning and Wartberg (2022) were not significant. In a similar tone, Roberts and David (2022a) found that deromantization and romantic passion mediate the link between relationship length and spouse phubbing.

Two studies examined the effects of *social norms*. Positive attitudes toward phubbing predicted more frequent phubbing and being phubbed by partner (Buttner et al., 2022). Hall et al. (2014), on the other hand, compared public dyadic vs private conversation contexts. In public settings like restaurants, similar adherence to norms by partners corresponded to lower mobile phone interference in relationships. In private talks, partner similarity also lessened interference.

Other intrapersonal and interpersonal factors were linked to co-present phone use to a lesser extent. Positive predictions were found for dyadic transmission (one partner's phubbing predicting more phubbing in the other; Chen et al., 2021), frequent texting (Halpern & Katz, 2017), problematic smartphone use (Lapierre & Zhao, 2024), lower self-control (Zhang et al., 2023), and higher parental depression in family contexts (Wade-Bohleber et al., 2024).

4. Discussion

The present review synthesized evidence about key findings and manuscripts' quality from 55 studies on partner phubbing and technoference in intimate relationships. Our goal was twofold: (1) to summarise empirical findings on how co-present phone use relates to relational outcomes and wellbeing, and (2) to critically evaluate the conceptual and methodological foundations of this research. We identified that while most studies demonstrate high compliance with formal reporting criteria, much of the literature focuses on associations between phubbing, relational outcomes, and wellbeing, whilst often assuming directionality through analyses performed. Additionally, prior literature uses overlapping conceptualization of the phubbing construct and applies limited measures of the construct. The extant body of evidence is mostly very relevant in that it shows consensus on several issues. Nonetheless, our review also identified some shortcomings. We review the implications of these shortcomings next and identify possible solutions for future research directions.

4.1. Conceptualizing the phenomenon: consequences of terminological redundancy

Co-present mobile phone use has been conceptualized in various ways, reflecting a lack of terminological consensus. The included publications tend to use the terminology interchangeably, especially in introductions, before presenting study objectives. Our closer examination of the literature reveals three distinct approaches to terminology use:

(1) ***No terminological distinction:*** integrating *all the findings together* without differentiating between 'phubbing' and 'technoference' (e.g., Beukeboom & Pollmann, 2021; Chmielik and Błachnio, 2021; Frackowiak et al., 2022, 2024a; Gomes et al., 2021; Khodabakhsh & Ong, 2021; Kılıçarslan & Parmaksız, 2023; McDaniel & Coyne, 2016b; McDaniel et al., 2021; Mosley & Parker, 2023; Mushquash et al., 2022; Roaché et al., 2020; Roberts & David, 2022a, 2023; Shao et al., 2022; Togar et al., 2023; Wang et al., 2017; Wang et al., 2021; Wang & Zhao, 2022; Yam, 2023).[16]

(2) ***Phubbing-only:*** focusing exclusively on 'phubbing' and not acknowledging 'technoference' or evidence labelled as such (e.g., Aljasir, 2022; Chen et al., 2021; Halpern & Katz, 2017; Roberts & David, 2022b; Schokkenbroek et al., 2022; Zhang et al., 2023).

(3) ***Technoference-only:*** the reverse pattern, conceptualizing the phenomenon solely as 'technoference' without referencing evidence using 'phubbing' or other terms (e.g., Bohleber et al., 2024; Booth et al., 2021; Hipp & Carlson, 2021; Wade-; Çakir & Köseliören, 2022).

Redundant terminologies signal a lack of integrative framework and contribute to inconsistencies in how psychological constructs are defined and used (Hagger & Chatzisarantis, 2009; Skinner, 1996). Hagger (2014) describes this as the "déjà-variable" problem: different labels referring to essentially the same construct. When variables are not distinguished empirically (Hagger, 2009), researchers risk drawing

[16] Roberts and David (2016) and McDaniel and Coyne (2016) are not considered in this group, given that they were the first publications to use the terms 'phubbing' and 'technoference', respectively.

inconsistent conclusions and creating erroneous beliefs about real-life phenomena, ultimately hindering theoretical progress (Skinner, 1996). Research on co-present phone use exemplifies this issue: scholars have critiqued phubbing's unclear conceptual core (Buttner et al., 2022), and the "jangle" fallacy (Block, 1995) further challenges the foundation of existing work (Frackowiak et al., 2025). Although the use of seemingly distinct terms may suggest conceptual independence "largely on their name (or theoretical packaging)" (Hodson, 2021), their empirical integration indicates that researchers are studying the same underlying behaviour.

Only a few publications explicitly acknowledge this discrepancy as a *methodological concern*. For example, Heyman and Human (2024) liken 'phubbing' and 'technoference' to their term 'phone presence'; Lapierre and Zhao (2024) distinguish the constructs but advocate integrating them; and several studies discuss them in a differentiated yet unified manner (Bröning & Wartberg, 2022; Carnelley et al., 2023; David & Roberts, 2021; McDaniel & Drouin, 2019; McDaniel et al., 2018; Mushquash et al., 2022). Zoppolat et al. (2022) explicitly identify phubbing as a form of technoference. Without precise construct definitions and valid measurements, causal inference from observational data becomes impossible (Eronen & Bringmann, 2021), and conceptual ambiguity undermines measurement reliability (Bringmann et al., 2022), reinforcing concerns about the shaky theoretical foundations of psychology (Eronen & Bringmann, 2021).

In addition to terminological inconsistency, both *phubbing* and *technoference* carry inherently negative connotations that presuppose relational harm (Frackowiak, Ochs, et al., 2024). Such labels narrow the range of research questions, steering studies toward adverse outcomes and marginalising neutral or context-dependent effects (Frackowiak & Ochs, 2026). This framing also creates conceptual circularity: constructs defined in terms of harm are subsequently used to detect harm, blurring measurement artefacts with genuine effects (see below for a point on negativity bias). As a result, negatively loaded terminology can undermine construct validity by encouraging overpathologization of everyday behaviours (Billieux et al., 2015; Wolfers & Karsay, 2024) and, as Aagaard (2025) notes, risks tautological reasoning in which asking whether "phubbing is harmful" becomes equivalent to asking whether "bad things are bad."

4.2. Operationalizing Co-present mobile phone use in relationships

The terminological inconsistency extends directly into measurement. Numerous overlapping instruments (Lapierre & Zhao, 2024) attempt to capture co-present phone use, creating confusion in synthesising findings and fragmenting the evidence base (Anvari et al., 2025). Behavioural addiction researchers have described this proliferation of scales as "the wild west of measurement" (Connolly et al., 2021), noting similar problems in problematic phone use research. Such variability complicates replication and data comparability, as methodological inconsistencies pose substantial challenges (Flayelle et al., 2020). Davidson et al. (2022) argue that rapid digital adoption prompted rushed instrument development, producing measures that claim to assess technology-related constructs but overlap with existing ones. This reflects the lack of consensus on construct definition and operationalization, complicated by incomplete or unclear validation procedures, particularly item generation and evaluation indices (Boateng et al., 2018; Clark & Watson, 1995).

A key issue with existing measures is their failure to capture the core aspects of *phubbing* (feeling ignored due to phone use) and *technoference* (interactional interference). The Partner Phubbing Scale (Roberts & David, 2016) assesses behaviours such as glancing at or checking a phone rather than whether partners feel ignored. The Technoference in Life Examples Scale (McDaniel & Coyne, 2016) aggregates heterogeneous scenarios involving multiple devices, making it unclear what the total score represents. The Phubbing Scale's 'communication disturbance' subscale (Karadağ et al., 2015) further complicates interpretation by measuring external perceptions rather than personal experience. Experimental manipulations also simplify the phenomenon: categorising phone presence versus absence (Heyman & Human, 2024; Roaché et al., 2020) or using video-based stimuli (David & Roberts, 2021) risks simplifying the nuanced dynamics of real interactions.

These mismatches between construct definitions and measurement validity raise concerns about face validity (Frackowiak, Ochs, et al., 2024). Early smartphone adoption may have encouraged the assumption that any co-present phone use constituted interference or snubbing (Ling, 2012), but contemporary relational contexts are more complex. Recent work shows that not all objective phone use instances qualify as phubbing because experiences of ostracism are subjective (Buttner et al., 2022). As smartphones have become embedded in daily life, they may be "paradoxically invisible" in dyadic interactions (Ling, 2012), and partners often integrate them seamlessly into shared activities (Foster Campbell, 2022; Frackowiak et al., 2025; Kelly & Miller-Ott, 2022).

Existing instruments also reduce the complexity of partner behaviour during couple interactions. Partners often switch tasks or multitask while engaging with one another (Aagaard, 2025; Frackowiak, Ochs, et al., 2024), and phone use may stem from prior commitments rather than disengagement (Avgustis, 2023, pp. 1–15). In such cases, explanations offered by the phone user can mitigate negative interpretations (Deschamps et al., 2025). Experimental manipulations further simplify these dynamics: recall-based or controlled designs (David & Roberts, 2021; Kelly & Miller-Ott, 2022; Kelly et al., 2022) may overlook relational norms and situational factors that shape how phone use is perceived. More naturalistic designs that incorporate relational context could substantially improve measurement accuracy (Avgustis & Oloff, 2023; Frackowiak, 2020).

The existence of numerous scales exemplifies psychometric problems in the field of co-present phone use research, which could contribute to formation of artificial relationships between psychological constructs (Davidson et al., 2022). Instruments that do not specifically measure 'phubbing' or 'technoference' but instead broadly categorize any co-present phone use under these terms risk generating misleading conclusions. It is relevant to acknowledge that in a widely digitalized contemporary society relying largely on the use of technology, employing (co-present) phone use frequency as a diagnostic of pathology or a psychological problem, is not adequate (Wolfers & Karsay, 2024). The complexity of co-present phone use, shaped by relational, situational, and contextual factors, makes developing a precise and universally applicable measure particularly challenging. Moving forward, a more nuanced approach to measurement that accounts for relational context, situational variability, and subjective experience, will be essential in advancing research on co-present phone use.

4.3. Study Design and Implications

Co-present phone use unfolds dynamically between partners, yet none of the reviewed studies employed designs capable of capturing real-time interpersonal processes. Cross-sectional designs offer efficient data collection but cannot address temporal or interactional dynamics (Dutta et al., 2021), and their dominance limits progress in understanding how phubbing actually unfolds. Even longitudinal studies (Booth et al., 2021; Carnelley et al., 2023; Chen et al., 2021; Halpern & Katz, 2017; Wade-Bohleber et al., 2024) provide limited insight, as phubbing behaviour may shift with changing relational contexts (e.g., cohabitation, parenthood). Daily diary designs, used in eight studies, capture short-term fluctuations but still oversimplify face-to-face interaction and cannot resolve causal ambiguity. Similarly, studies may combine experience sampling with passive sensing to offer fine-grained data by capturing participants' momentary evaluations alongside objective indicators of device use. However, without contextual or experiential information, such approaches cannot establish causal links between technology use and relational outcomes.

The dominance of static designs leaves a gap: we lack evidence about

how phubbing unfolds in real time during couple interactions. Although scholars have theorised about cues such as gaze aversion or gradual disengagement (Vanden Abeele, 2020), these remain largely untested empirically. Consequently, existing studies mostly reveal statistical associations rather than clarifying interpersonal mechanisms. This methodological gap restricts both explanatory depth and the development of interventions.

Relationship researchers have emphasized the importance of multimodal interaction analysis for advancing couple therapy (Boateng et al., 2018; Hilpert et al., 2019, 2022; Turk, 2014). Recent advances in computer vision and machine learning enable the study of both linguistic (what is said) and paralinguistic (how it is said) features (Boateng et al., 2018; Mihoub et al., 2015), offering non-linear insights into the role of mobile phone use in relationship life. Roaché et al. (2020) incorporated video analysis in their experimental study but focused on frequency and intensity of behaviours rather than capturing real-time dynamics. Nonetheless, such naturalistically driven studies hold promise to resolve issues that cannot be solved using self-report questionnaires, i.e., accounting for the interaction context and pre-interaction commitments that may prompt an individual to use their phone in the presence of their partner. Thus, lab-based or naturalistic observation studies might have the potential to close the gap between the complexity of the phenomenon and the data which are currently collected to better understand the complex real-time process between partners.

4.4. Synthesis and overall implications for the field

Taken together, the reviewed literature is characterised by conceptual ambiguity, inconsistent operationalization, and predominantly static study designs. Redundant and overlapping terminologies (e.g., 'phubbing', 'technoference') obscure what phenomenon is actually being studied; mismatched and weakly validated measures make it unclear whether scales capture phone use, perceived disturbance, feeling ignored, or a combination of these; and cross-sectional, recall-based, or oversimplified experimental designs prevent researchers from observing how co-present phone use unfolds between partners. As a result, the field can document associations but struggles to identify mechanisms or distinguish harmful from benign instances of co-present phone use, which ultimately limits theoretical development, comparability across studies, and the design of meaningful interventions.

The predominance of negative associations between co-present phone use and relational outcomes (e.g., relationship quality, intimacy, etc.; Table 4) seems to write into *negativity bias* in psychological science, shaped by methodological shortcomings and conceptual ambiguities. Original works on negativity bias (Rozin & Royzman, 2001; see also Jordan, 1965; Kanouse & Hanson, 1972; Peeters & Czapinski, 1990) propose that negative events are more salient, potent, and influential than positive ones, creating asymmetry, especially when positive and negative elements coexist within the same object. This dynamic fits the case of phone use, which can simultaneously facilitate interpersonal connection and disrupt dyadic interaction, yet is often framed as predominantly negatively valenced ("phubbing", "technoference", "problematic phone use"). In broader media and technology use research, this links to the recurring technological determinism around technology use, i.e., Sisyphean cycle of technology panics (Orben, 2020), where moral panics reincarnate with the arrival of new technologies and media, from novels, radio, to smartphones, or AI.

This is visible in the selective conceptual underpinning in the reviewed literature and topic framing in the introductions, prior to hypothesizing the study objectives. Negative potency becomes evident when positive relational uses of phones, e.g., staying connected, shared leisure, online coordination, are acknowledged only briefly before the narrative shifts back to harm, implying that these benefits are consistently outweighed by the negative impact of phone use (Booth et al., 2021; Bröning & Wartberg, 2022; Gomes et al., 2021; Halpern & Katz, 2017; Mosley & Parker, 2023; Shao et al., 2022). Theoretical framing often reinforces this pattern: several studies draw on the displacement hypothesis (Valkenburg & Peter, 2007), which assumes that time spent using media displaces more *beneficial* activities, thereby embedding a negative expectation from the outset (e.g., Booth et al., 2021; Wang et al., 2021). Co-present phone use is also frequently situated within the behavioural addiction discourse of problematic phone use (e.g., Booth et al., 2021; Gomes et al., 2021; Lapierre & Zhao, 2024). The lack of tools capturing positive behaviours (co-use, sharing, coordination, or integrated technology use) consolidates this asymmetry (Meeus & Stevic, 2025).[17]

Keeping these caveats in mind, the empirical patterns identified in our review require careful, context-sensitive interpretation. Associations between co-present phone use and relational or personal outcomes must be understood in light of the conceptual, operational, and methodological constraints outlined above. A reported link between "partner phubbing" and "relationship satisfaction" may indicate relational strain, but it may equally reflect subjective interpretation, relational norms, or measurement artefacts, especially given evidence that many couples view certain forms of phone use as routine, negotiated, or even relationally neutral (Foster Campbell, 2022; Frackowiak et al., 2025; Kelly & Miller-Ott, 2022). This raises important questions for relationship science and applied practice, i.e., to what extent the findings through 2024 illuminate interpersonal mechanisms that therapists or counsellors can meaningfully target, and to what extent they simply point toward broad directions without clarifying the nature of the behaviour itself.

4.4.1. Recent literature beyond the systematic scope (2025-2026)

To contextualise our findings within ongoing scholarly discussions, this subsection provides a non-systematic, non-exhaustive overview of selected developments published after our formal April 2024 search cut-off. These exploratory post-cut-off papers (e.g., from 2025 to 2026) are excluded entirely from our systematic study counts, AXIS appraisals, and main synthesis results. Recent studies on co-present phone use examined links with relationship satisfaction and commitment (Aslanturk & Arslan, 2025), mental health outcomes (Garcia et al., 2025), and retaliatory behaviour (Hart et al., 2025), including in daily diary designs (Carnelley et al., 2026; Luo & Du, 2026). Methodological expansion remains limited, though Denecker et al. (2024) integrated experience sampling and passive smartphone logging to contextualise dyadic phone use. Their findings highlight discrepancies between partners' self-evaluations and spouses' perceptions of phone-related conflict and show that high screen time does not necessarily correspond to frustration during co-present moments. Complementing this, Frackowiak et al. (2025) found that only 15% of co-present phone use episodes were evaluated as negative; when negative, they were attributed to perceived low partner responsiveness, a sense of mental absence, or disruption to shared couple activities.

Despite these additions, few recent studies directly address the conceptual and methodological issues identified in this review (Denecker et al., 2024; Frackowiak et al., 2025; Luo & Du, 2026; Swit et al., 2026). Much of the new work continues to rely on cross-sectional designs and selectively negative conceptual framing, replicating the negativity bias, which leaves positive and neutral mechanisms largely unexplored (Frackowiak et al., 2025). To advance the field, future studies should adopt exploratory, context-based, and multidimensional approaches that consider the full evaluative range of smartphone use at both individual and dyadic levels. Frameworks such as Pancani et al. (2020), which identify diverse dimensions of smartphone impact (e.g., task completion, negative impact awareness), offer a more holistic foundation. We further encourage naturalistic interaction research (Avgustis & Oloff, 2023) and experiential, qualitative

[17] The positive aspects tend to emerge in qualitative and mixed-method work, where participants describe their experience rather than respond to predetermined scales (e.g., Foster Campbell, 2022; Frackowiak et al., 2025).

perspectives (Foster Campbell, 2022), which can clarify how couples negotiate technology use, protect relational functioning, and co-manage digital media in everyday life.

4.5. Descriptive appraisal with AXIS

In line with our 2022 preregistration, we retained the AXIS tool as the protocol-specified reporting profile. The tool has been used in reviews in psychological sciences (e.g., Menolotto et al., 2020; Pellicane & Ciesla, 2022), notably in synthesising novel media use concepts (e.g., Flayelle et al., 2020). However, AXIS was originally developed for cross-sectional designs, and its use beyond that (e.g., for the experimental, longitudinal, and intensive longitudinal studies included here $n = 15$) is therefore exploratory and limited. Although AXIS does not contain criteria that explicitly exclude other designs, future syntheses would benefit from tools tailored to the methodological features and caveats of these approaches.

Our appraisal indicates that AXIS primarily captures item-level reporting features, for example, clarity of aims, sampling procedures, ethical considerations, and use of validated instruments. It does not assess conceptual coherence, construct validity, or the suitability of a study's design for examining interactional processes implied by constructs such as phubbing or technoference. This distinction is crucial in a field marked by conceptual ambiguity and measurement limitations. As such, AXIS item counts should be interpreted strictly as formal indicators of reporting quality, not as a validated index of overall study certainty.

For example, many studies received positive AXIS ratings for using "validated" phubbing or technoference instruments, yet our conceptual analysis suggests that these measures may not capture the underlying interactional mechanisms. Similarly, studies were credited for applying an "appropriate design," even though none directly examined the moment-to-moment interactional dynamics presupposed by these constructs. Consequently, studies that may fulfil numerous criteria within AXIS may still be limited in ways the tool is not designed to detect. A certainty evaluation tool ought to be supplemented by more critical, field-specific, qualitative appraisal. The Authors of the AXIS tool themselves recommend a "degree of objective assessment" (Downes et al., 2016, pp. 5-6), given the lack of numerical scale for certainty assessment (though the Authors elaborated on shortcomings of this solution, leaving it open for debates).

4.6. Overall limitations

A final limitation concerns the review process itself. Only about half of the included studies were double-rated, which may introduce bias despite efforts to standardize coding procedures. Additionally, as researchers experienced in technology use and relationship science, our interpretations are shaped by a positionality that values conceptual refinement and theoretical expansion. Although this expertise supports critical evaluation of the literature, it may orient us toward identifying conceptual and methodological gaps. We encourage readers to interpret our synthesis with this in mind.

Additionally, our overview of literature published after the April 2024 search cut-off is non-systematic and non-exhaustive. These post-cut-off selections were included solely to provide brief narrative context for ongoing developments, and they do not form part of our formal systematic synthesis or reporting metrics.

4.7. Concluding remarks

Research on phubbing and technoference in relationships has expanded rapidly over the past decade, drawing on diverse designs, constructs, and measurement approaches. Our review of 55 studies demonstrates substantial psychological interest in how co-present phone use relates to relational outcomes such as satisfaction and intimacy, as well as to individual wellbeing. Synthesising these findings, we conclude that partner phubbing is consistently associated with lower relationship satisfaction, though this association is shaped by mediating processes including conflict, responsiveness, and appraisal.

At the same time, our critical evaluation highlights persistent weaknesses in theoretical grounding, conceptual clarity, measurement practices, and design choices. The substantial heterogeneity in how co-present phone use by a partner is defined and operationalized, and *the lack of consensus over what, if anything, the presumed harm mechanism should be (e.g., snubbing, interference, or other derivatives)*, means that a meta-analysis would currently risk amplifying noise rather than producing meaningful estimates. A quantitative synthesis will become appropriate only once the field converges on greater construct homogeneity and more consistent operationalizations.

To advance the science of co-present phone use in couples, we recommend greater conceptual precision, improved measurement practices, and the integration of emerging technological methods to support more rigorous data generation. With increased definitional and operational alignment, future meta-analytic work will be well positioned to provide robust quantitative estimates and deepen our understanding of how technology shapes intimate relationships.

CRediT authorship contribution statement

Michal Frackowiak: Writing – original draft, Visualization, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Pascale Sophie Russell:** Writing – review & editing, Methodology, Formal analysis, Conceptualization. **Mariek Vanden Abeele:** Writing – review & editing, Formal analysis. **Peter Hilpert:** Writing – original draft, Supervision, Formal analysis.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.chbr.2026.101256.

Data availability

No data was used for the research described in the article.

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