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# Social Media Use and Family Connectedness: A Systematic Review of Quantitative Literature

## Abstract:

Despite the ubiquitous use of social media platforms by people of all ages, there is limited synthesis of evidence on their effect on family connectedness. This systematic review assesses the quantitative evidence around relationship between social media use and family connectedness. We searched articles published between January 2010 and April 2020. Nine out of the fourteen included studies examined the effect of social media on parent-child communication, while the rest explored the effect on broader family relationships. Overall evidence is mixed, highlighting some aspects of social media use that may strengthen family connectedness while others that may negatively impact meaningful interactions within families. This review illustrates the complex nature of this research domain with limited consensus on how to measure family connectedness in context of social media use. We discuss the limitations of the studies and the greater need for high-quality research in the fast-paced world of social media.

**Keywords:** social media, social networking services, SNSs, Facebook, family connectedness, surveys, quantitative

## Introduction

Social networking services (SNSs) or social media platforms, which enable their users to create and share online content or to participate in virtual social networking, have become part of the lives of millions of people around the world for their ubiquitous connectivity (Carr and Hayes, 2015). Despite the digital divide and variation in use in individual countries, social media use has seen worldwide increase in the past decade, with people in emerging and developing countries approaching levels seen in more advanced economies (Pew Research Centre, 2018b). These patterns are visible across all age groups. A 2018 report by the Pew Research Centre found 72% of adults in the United States used social media. Such penetration of social media into human lives has made investigating the associated impact a priority, with mental health, privacy, and family relationships some of the key focus areas of research (Keles et al., 2020; Lee and Yuan, 2020; Matassi et al., 2019).

SNSs are identified as a key enabler for families to connect, communicate, build relationships, and take collective action across generations. The traditional communication mediums including face-to-face contact is being increasingly complemented by remote messaging, posting to specific groups (e.g., family members), and more instantaneous forms of expression directed at others situated within a web of social media contacts, online networks, and so forth (Barrie et al., 2019). With the world gripped by a global pandemic and widespread travel restrictions in place, social media have become an integral part of people's lives, especially as a means to stay connected with their families. SNSs provide an inexpensive and engaging medium for families to stay connected and navigate their relationships in time of COVID-19 pandemic (Prime et al., 2020; Drouin et al., 2020). The use of these technologies therefore can be life-altering, especially for transnational families navigating cross-cultural and long-distance relationships (Kaplan et al., 2015; Abel et al., 2020). Therefore, families admit spending more time to connect and communicate on these platforms (Siibak and Tamme, 2013).

This is in line with the original aim of social media, which was and still is to weave our real-life social networks, especially families, closer (Coren, 2019). However, for the past decade the spread of misinformation, propaganda campaigns and data privacy concerns around use of these platforms has taken the centre stage in research while impact of SNSs appears to have taken a backseat (Allcott et al., 2019; Woolley and Howard, 2018; Pew Research Centre, 2018a). There remains a question without a conclusive answer around the role of these platforms in bringing families close. This is also considerably important as Facebook, which owns four of the most popular social media applications, recently revised their mission statement to "bring the world closer together" (Shead, 2019; Kelly, 2017). Further, the way people are using these platforms has changed with more usage shifted towards private forums and groups for connecting with family and friends (Pew Research

Centre, 2018a; Goode, 2019). With high prevalence of family relationships on Facebook and other relatively new social media platforms like WhatsApp, Instagram, and Snapchat, it is important to investigate role and impact of these interventions on family connectedness (Burke et al., 2013). It is also important to recognise that the centre of the intervention equation is not the technology itself, but the quest for finding how to unravel relationship-enhancing potential of these pervasive social technologies while minimising their negative impact.

While recent syntheses of literature have investigated the state of evidence in relation to use of SNSs and mental health along with reviews of evidence around use of social media applications among long distance families, there remains absence of a holistic insight into state of evidence around social media use and family connectedness (Hessel and Dworkin, 2018; Keles et al., 2020; Fuss et al., 2019; Abel et al., 2020; Dworkin et al., 2019; Dworkin et al., 2018). This review paper presents synthesis of literature that has quantitatively explored the relationship between social media use and family connectedness. The specific aims were to (a) critically examine the ways in which previous research has measured the relationship between use of SNSs to communicate with family members and family connectedness, and (b) identify the research gaps and present suggestions that could advance this research domain. As SNSs continue to evolve and will remain an important facet of people's lives, this review offers a better understanding of evidence on how these platforms possibly impact family connectedness. The findings are fundamental to identify opportunities for meaningful cross-generational interactions, support healthy social and emotional connection between families. This review also offers insights into future directions for social media research around exploring their impact on the social and cultural fabric of the society, especially amid a pandemic.

## Methods

The systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (Liberati et al., 2009). The protocol for this review was registered with the International Prospective Register of Systematic Reviews (PROSPERO; CRD42020171965; [https://www.crd.york.ac.uk/prospero/display\\_record.php?RecordID=171965](https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=171965)).

## Data sources

We searched CINAHL, PsycINFO, Web of Science and Scopus to identify eligible articles published between January 2010 and April 2020. To identify pertinent research articles, we combined subject terms and keywords relating to the social media, with keywords describing the intervention functions, and subject terms and keywords related to family connectedness. This search strategy was applied to all four electronic databases. The search terms are shown in Table 1.

We did not search for unpublished studies and excluded studies that were not published in English. We read the abstracts of all identified studies and excluded those that were clearly not relevant. We reviewed the full text of all remaining studies to determine whether they met the inclusion criteria. We also identified eligible studies by searching the reference and citation lists of retrieved studies.

### Study inclusion criteria

We included articles published in peer-reviewed journals with full text available in English. Studies on people of any age or gender were included. We placed no restriction on location of the studies. Only quantitative studies were included in this review. The exposure was *measurement of social media use*, while the outcome was *family connectedness or family relationship* assessed by the instruments.

### Data extraction

We collated all the papers from the database searches using EndNote (X9) software. After deleting the duplicates, we screened the studies to ensure they met the eligibility criteria. We screened the title and abstract and then the full text of remaining articles. SRK and DMS reviewed all potentially eligible manuscripts, and any disagreements were resolved by joint evaluation of the manuscript and further consultation with AT.

The extracted data from the articles included country, sample size, study design, source and number of participants, age and sex of participants and social media platform studied. SRK and AT conducted the data extraction, and any disagreements were resolved through discussion with DMS.

### Data analysis

We were unable to conduct meta-analysis as study population and outcome measures varied across the studies. Instead, we conducted a narrative systematic synthesis and quality appraisal. We described each study and conducted comparative syntheses. The quality of eligible studies was assessed using the JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies (The Johanna Briggs Institute, 2017) (Moola et al., 2017). All studies were independently rated by SRK and AT. Any disagreements were resolved through discussion with DMS.

## Results

We found 348 articles from the four databases. After removing 94 duplicates, we screened the title and abstracts of 254 studies and reviewed the full text of 44 studies. Of the 44 articles reviewed, 9 met the criteria for inclusion in the final qualitative synthesis. An additional five articles were identified from reference and citation lists. The PRISMA flowchart (Figure 1) provides a more detailed outline of the study selection process. Finally, a total of 14 articles were eligible for the review.

## Study description

Three studies used data from longitudinal studies, one was an experimental study, and the rest of the studies were cross-sectional in design. Seven of the studies used online surveys, one used both online and paper questionnaires, one used telephone interviews, three used questionnaires but did not specify the mode of administration, while one used secondary data collected in interviews for a longitudinal study. Nine of the studies were conducted in the United States and one each in Hong Kong, Ireland, Italy, Philippines, and Saudi Arabia (Table 2).

The studies varied in terms of participant types and relationships examined (Table 3). One study recruited only adolescent children (mean age 15.6 years) living at home (Mullen and Hamilton, 2016). Six studies recruited only young adults (aged between 18 and 29 years) who were college/university students (Ball et al., 2013; Child et al., 2015; Child and Westermann, 2013; Ramsey et al., 2013; Aljehani, 2019; Lopez and Cuarteros, 2020). Two studies recruited parents of adolescents or teenagers while one recruited parents whose children left home or were leaving home (Doty and Dworkin, 2014; Procentese et al., 2019; Tanis et al., 2017). One study recruited adults and one recruited older adults (Wang et al., 2015; Yu et al., 2016). Two studies recruited children as well as their parents. One of these studies recruited young adult children along with their parents, (Kanter et al., 2012) while the other recruited adolescent children and their parents (Padilla-Walker et al., 2012).

The sample size in the studies varied from 120 (Lopez and Cuarteros, 2020) to 1620 (Yu et al., 2016). Facebook was the most common platform investigated (Kanter et al., 2012; Ball et al., 2013; Child et al., 2015; Child and Westermann, 2013; Mullen and Hamilton, 2016; Lopez and Cuarteros, 2020). One study explored the use of Facebook and WhatsApp (Procentese et al., 2019). The rest of the studies explored the use of non-specified SNSs (e.g., Facebook, etc.) in maintaining family connections.

## Quality assessment

Eight out of the fourteen studies recruited less than 300 people. None except one of the studies presented justification for the sample size (Wang et al., 2015). Six of the studies recruited by using convenience sampling methods (Kanter et al., 2012; Ball et al., 2013; Child et al., 2015; Child and Westermann, 2013; Ramsey et al., 2013; Mullen and Hamilton, 2016). Two studies used random sampling techniques to recruit from among college students (Aljehani, 2019; Lopez and Cuarteros, 2020) while one study used snowball sampling to recruit participants (Procentese et al., 2019). One study recruited participants nationally through online and offline campaigning (Doty and Dworkin, 2014) while another study recruited through mTurk or Amazon Mechanical Turk, a crowdsourcing

marketplace for businesses (Tanis et al., 2017). Only two studies recruited their participants through random selection of nationally representative samples (Wang et al., 2015; Yu et al., 2016). One study selected participants through random sampling to begin with but later recruited a number of participants through fliers, referrals, etc because of under-representation from lower socioeconomic status (Padilla-Walker et al., 2012; Padilla-Walker and Coyne, 2011). Two studies did not present any demographic information of the participants (Aljehani, 2019; Lopez and Cuarteros, 2020). Only one study recruited participants whose parents were not on Facebook during recruitment (in 2009-2010) (Kanter et al., 2012). After recruitment, randomly chosen parents were invited to open a Facebook account. Table 3 presents our summary of the quality appraisal.

### Key Evidence Themes

Based on our synthesis of included studies we identified two broad themes of evidence that emerged from the included studies. First theme was around extent to which social media is used among families, second mainly around effect of SNS usage on family connectedness. The second theme has two strong subthemes, first sub-theme focusing on impact of use of SNSs on parent-child relationship and second sub-theme examining effect of use of SNSs on broader family connectedness.

#### Extent of social media use among family members

Most studies measured how much the family members connected with each other using social media. Some studies reported high proportion of young adults and their parents using SNSs for communication. Two studies conducted in the US reported the percentage of young adults that were “friends” with their parents on Facebook: 81.5% (Ball et al., 2013) and 93.6% (Child et al., 2015). On the parents’ side, a study conducted in the US found 80% parents of adolescents using SNSs to communicate with their child in 2010-2011 (Doty and Dworkin, 2014). Another study on both parents and adolescent children in 2012 reported that while 40% of children reported using social media to communicate with their parents, only 35% of mothers and 25% fathers reported social media as a method of communication with their children (Padilla-Walker et al., 2012).

Other studies reported less use of SNSs for family communication. In the US in 2011, less than 50% of the young adults were found to communicate with their parents using social networking sites (Ramsey et al., 2013). Only 37.7% Irish adolescents reported that they were Facebook friends with their parents (Mullen and Hamilton, 2016). A study conducted on adults living in Hong Kong in 2012 found only 17.6% used SNSs for family communication (Wang et al., 2015). A US based study found that the use of SNSs increased when a child left the family home and reached peak within six months of leaving home (Tanis et al., 2017).

Two studies found younger age and being female was associated with higher use of SNSs (Wang et al., 2015; Yu et al., 2016). Two other studies found that females were more likely to “friend” their parents than males (Ball et al., 2013; Mullen and Hamilton, 2016). One study found that while children accepted friend requests from both parents, the type of access given to mothers depended on the quality of the relationship (Child and Westermann, 2013).

### *Effect of social media use on Family connectedness*

Nine of the 14 included studies examined the effect of social media use on family connectedness using a formal instrument to measure the connectedness (Table 3). Most of these studies (n=7) included only one group of participants, either young adults or adolescents (Ball et al., 2013; Child and Westermann, 2013; Mullen and Hamilton, 2016; Ramsey et al., 2013) or their parents (Doty and Dworkin, 2014; Procentese et al., 2019; Tanis et al., 2017). Only two of the nine studies included parent-child dyads to understand the effect (Kanter et al., 2012; Padilla-Walker et al., 2012). The remaining five studies explored effect of social media on family relationships in general. Three of these studies recruited young adults, (Aljehani, 2019; Lopez and Cuarteros, 2020; Child et al., 2015) one recruited adults (Wang et al., 2015) and one recruited older adults (Yu et al., 2016).

### *Effect of social media use on parent-child relationship*

Nine of the included 14 studies explored effect of social media on parent-child connectedness, with primary focus on exploring the privacy invasion concerns of the adult children (see study details in Table 3).

These studies reported mixed results on impact of social media use on parent-child relationships and related privacy concerns. One study found that presence of parents on a social media enhanced a child’s closeness with the parent, especially if the relationship was more conflicted before joining the social media platform (Kanter et al., 2012). This study also found no relationship between social media use and privacy invasion. A second study exploring both child’s and parents’ perception about the effect of social media use on family connection, found that children thought that social media use negatively impacted family connections (Padilla-Walker et al., 2012). Another study found that about a quarter of young adults surveyed, changed their privacy settings after “friending” their parents and reported lower conversation orientation, which indicates lack of SNS based communication between them (Ball et al., 2013). Child and Westermann (2013) found similar patterns in privacy concerns in their study. This study however added that those children who did not change their privacy settings following connecting with the parents, had a more satisfying and trusting relationship with their parents, compared to those who did (Child and Westermann, 2013).



Irish adolescent girls were found to demonstrate stricter privacy practices while at the same time becoming Facebook friends with their parents which indicate a lack of association between the two variables (Mullen and Hamilton, 2016). Ramsey et al. (2013) found that children who used SNSs to communicate with their parents were more likely to experience loneliness and anxious attachment with their parents (Ramsey et al., 2013).

Perceptions about SNSs had an impact on parent-child relationship. Doty and Dworkin (2014) found that parents who had a positive attitude towards technology and those who had older children were more likely to use SNSs to communicate with their children (Doty and Dworkin, 2014). Similar themes were explored in a study on Italian parents of adolescent children which found that parents' positive or negative perceptions about social media use play a significant role in family relationships (Procentese et al., 2019). The study found that a person's positive perception about their family's capabilities to handle regular tasks, stress and challenges is associated with a more positive perception about the impact social media has on the family and relationships. As long as parents do not invade on children's privacy or try to control their usage, they can help adolescents reduce risks of social media usage and in turn strengthen family ties and promote discussions (Procentese et al., 2019). Another study that explored parents' social media use when a child left home, identified that use of social media to contact that child as well as checking their social media account without contact increased after the child left home (Tanis et al., 2017).

### *Effect of SNSs use on family connectedness beyond parent-child relationships*

In studies exploring impact of social media on broader family relationships including siblings, grandparents (Supplementary Table 1), as well as parents, varying patterns were again reported as in those studies exploring only parent-child relationships.

A study on young adults' use of social media found that the participants interacted with their siblings most often using Facebook followed by parents and grandparents. However, those who maintained a high level of privacy online, were more likely to communicate with their siblings and parents offline about their posts (Child et al., 2015). Similarly, a study on young adults in Philippines found that the participants maintained good communication with parents, siblings and even extended family members via Facebook. However, in case of private matters, such as school problems, love life, etc., participants preferred face-to-face communication over social media (Lopez and Cuarteros, 2020). A study on young women living in a conservative society in Saudi Arabia found while women spent significant amount of time on social media (5-7 hours a day), this had a negative impact on family communication (Aljehani, 2019).

A study on adults (aged between 25 and 64 years) living in Hong Kong found that while less than 18% of the participants used social media to communicate with family, those who used it reported a positive association with family well-being (Wang et al., 2015). In older adults (aged >50 years) living in the US, SNS use is positively associated with feelings of connectedness with children. SNS use also predicted increased perceived support from children. However, this association between SNS use and support from children decreases with age. On the other hand, SNS use does not predict connectedness with other family members such as siblings and cousins, which may be due to use of other channels for communication (Yu et al., 2016).

## Discussion

This systematic review examined the current state of evidence on impact of social media use on family connectedness, by identifying and appraising quantitative studies from peer-reviewed journal articles published within a 10-year timeframe. Our review identifies that impact of social media use on family connectedness, based on the limited available evidence available on the topic, is likely to be multifactorial and vary across different settings. Key findings of included studies were classified into three topics of discussion: extent of social media use among families, effect of social media use on parent-child relationship and finally its impact on family connectedness, in general.

Overall, our findings suggest that social media use in families in quantitative literature has generally been examined from a narrow viewpoint, focusing on monitoring by parents or co-viewing or just “friending”. There is limited exploration of how friending a parent might differ with ethnicity or socioeconomic status or those in a transnational context (Burke et al., 2013). Given that use of SNS is likely to remain popular way of families connecting in a post-COVID world, future research should continue to examine how families use these sites to communicate and what the motivations are for family members who use these platforms (Padilla-Walker et al., 2012). While we are aware that social media companies collect enormous amount of data about their users and their relationships, there seems to be scarcity of peer reviewed evidence in public domain on what inferences are made by these companies around their ability to harness family connectedness, a pursuit that most of them cite as their primary vision (Livingstone, 2019; Gledhill, 2020; Burke et al., 2013).

Some aspects of family communication which have been examined include opportunities for transnational family connectedness, parents’ perceptions around their children’s use of social media and adult children’s views on the privacy concerns associated with their parents monitoring their social media use (Child et al., 2015; Wang et al., 2015). For most of these aspects, findings are

mixed, highlighting some aspects of social media use that may strengthen family life while others which may negatively impact meaningful interactions within families (Valkenburg and Peter, 2007). Our review highlights limited evidence around use of social media and its association with family connectedness, irrespective of location of family members, whether co-living or long-distance (Abel et al., 2020). Further, most included studies approached the social media use and family connectedness in a static or individualistic fashion (e.g. single age group, single social media platform), which limits any opportunity to compare the perceptions of SNSs use and family connectedness as a group (Barrie et al., 2019; Dobbs, 2020).

Another key gap in evidence is limited investigation around how different social media platforms are used by families and their impact on family connectedness. A recent study by Masciantonio et al. (2020) that examined the relationships between well-being and active or passive use of various SNSs (Facebook, Instagram, Twitter and TikTok) during the COVID-19 pandemic emphasise that that SNSs must be differentiated to truly understand how they shape human interactions (Masciantonio et al., 2020). Despite the ubiquitous use of a wide range of social media applications including Instagram, WhatsApp and TikTok, some studies made an investigation towards only Facebook use over other social media sites, which also causes a significant bias and limits the generalisability of findings to other social media sites. The *#StatusOfMind* report published by the Royal Society of Public Health in the United Kingdom in 2017 highlights that among youth, the perceived potential to maintain real world relationships vary with the type of platforms (Royal Society of Public Health, 2017). Nouwens et al. (2017) in their qualitative study of adults' social media based communication ecosystems highlight that that the presence of specific contacts within a particular application changes the use of that application and users carefully consider which applications to use with which contacts (Nouwens et al., 2017). This aspect around choice of social media application, warrants further investigation to identify features and affordances that have the potential to positively impact family connectedness.

Our findings also highlight various limitations in the evidence in terms of methods, study design and sampling. First, small sample size and the use of convenience sampling in most studies limited the representativeness of and generalizability to a larger population. Second, all studies included in this review used self-reported measures which may not provide reliable outcomes because of some sources of risk of bias. Family connectedness was measured using different instruments across various studies (Supplementary Table 1) which limits any comparison between findings of different

studies. Causality was unclear due to the cross-sectional study design used in most studies and limited use of similar instruments to draw any measurable comparisons across findings. .

## Conclusion

Research on family connectedness and social media use is vital to ensure harnessing its positive impacts while minimising the negative consequences. We contribute to the existing literature in the way of identifying the evidence gaps and highlighting the importance of the in-depth examination of how the use of social media applications impact families and their connectedness. Further research is needed across different cultures, diverse population groups and multiple platforms to examine the changing nature of family connectedness in a world of rapidly changing SNSs advancements.

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## Disclosure statement

No potential conflict of interest

Table 1: Search terms

Participants	Any; Not restricted
	AND
Exposure	“Social media” OR “Social networking” OR “social networking service” OR Facebook OR Instagram OR Snapchat OR Tumblr OR Twitter OR Tweet OR YouTube OR WhatsApp
	AND
Outcome	“Family connectedness” OR “family context” OR “family relationship” OR “family communication”

Table 2: Summary of included articles

Author Year Country	Study Design	Population	Sample size	Sample characteristics	Social media studied	Outcome	Measure of connectedness
Kanter 2012 USA	2x2 experimental design Pre- and post-surveys Online survey	Young adults (YA) and their parents (P)  Undergrad students	YA: 118  P: 118	YA: aged 18-29 80.5% female  P: aged 37-66 54.2% female	FB	Closeness, privacy	Closeness scale (Buchanan et al., 1991) Adopted Marital Opinion Questionnaire (Huston et al., 1986)
Padilla-Walker 2012 USA	Questionnaire	Adolescents (A) and their parents (P)	453 families	A: aged 13-16  P: -	SNS	Family connection	Warmth/support subscale (five items) of the Parenting Styles and Dimensions Questionnaire-Short Version (PSDQ) (Robinson et al., 2001)
Ball 2013 USA	Online survey	Young adults  College students	189	Aged 18-22 72% female	FB	Privacy	Revised Family Communication Pattern (RFCP) measure (Koerner and Fitzpatrick, 2002)
Child 2013 USA	Online survey	Young adults  Undergrad students	235	Mean age: 20 67.7% female	FB	Parent-child relationship quality, privacy	Eight-item Parent-Child Relationship Quality Measure (Petronio, 1994)
Ramsey 2013 USA	Online survey	Young adults  College students	216	Aged 18-22 79.2% female	SNS	Communication and relationship with parent they are closest to	University of California Los Angeles (UCLA) Loneliness Scale – 20 items (Russell et al., 1980) Experiences in Close Relationships-Revised (ECR-R) – 36 items (Brennan et al., 1998; Fraley et al., 2000) Network of Relationship Inventory (NRI) – 15 items (Furman and Buhrmester, 1985)

Author Year Country	Study Design	Population	Sample size	Sample characteristics	Social media studied	Outcome	Measure of connectedness
Doty 2014 USA	Online survey	Parents of adolescents	649	Mean age: 47.4 86% female	SNS	Connection with children	No measure of connectedness or relationship
Child 2015 USA	Online survey	Young adults  Undergrad students	383	Mean age: 22 70% female	FB	Online communication through FB; Privacy	No measure of connectedness or relationship
Wang 2015 Hong Kong	Telephone survey	Adults	1502	Aged 25-64 54.5% female	Social media	Family well-being	Family well-being calculated based on the composite score of 3Hs (family harmony, happiness and health)
Mullen 2016 Ireland	Online and paper questionnaires	Adolescent children living at home	262	Mean age: 15.55 47% female	FB	Parent-child relationship quality	Eight-item Parent-Child Relationship Quality Measure (Petronio, 1994)
Yu 2016 USA	Interview Secondary data	Older adults	1620	Aged 52-98 51.5% female	SNS	Social well-being	Eleven items from the 20-item R-UCLA Loneliness scale (Russell et al., 1980)
Tanis 2017 USA	Online survey	Parents whose child/ren had moved out or were planning to move out in the next year	758	Mean age: 46.8 64.6% female	SNS	Frequency of use	Single item to measure parent-child relationship
Aljehani 2019 Saudi Arabia	Online Survey	University students	142	Aged – 100% female	Social media	Family connectedness	Eight-item scale to measure effect of social media on family communication and relationship
Procentese 2019 Italy	Questionnaire	Parents of teenage children	227	Aged – 70% female	FB WhatsApp	Family communication	Collective Family Efficacy Scale (Bandura, 2006) Eight-item Family Open Communication Scale

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Author Year Country	Study Design	Population	Sample size	Sample characteristics	Social media studied	Outcome	Measure of connectedness
							Nine-item scale to measure impact of social media on family system
Lopez 2020 Philippines	Questionnaire	University students	120	Aged – 57.5% female	FB	Family communication	Items about quality of interpersonal communication with family members

F: Female; M: Male; IG: Instagram; FB: Facebook; SNS: Social networking site; Social media: more than one platform (IG, Snapchat, YouTube, Twitter, WhatsApp, FB)



Table 3: Quality appraisal of studies

Author Year	Quality appraisal findings
Kanter 2012	Experimental Criteria for inclusion clearly defined Sample size not justified Use of a convenience sample Demographic information clearly stated Exposure measure (FB use) clearly defined; validity not reported Outcome measure (relational quality) clearly defined. Reliability reported
Padilla-Walker 2012	Participants selected from a North-western city in the US Later, participants recruited by referrals, fliers to mirror the demographics of the area Sample size not justified Demographic information clearly stated Longitudinal study, 4 waves, data from wave 4 used in this paper
Ball 2013	Cross-sectional Criteria for inclusion clearly defined Sample size not justified Sample size <300, high risk of bias Use of a convenience sample Demographic information clearly stated Exposure measure (FB use) clearly defined; validity not reported Outcome measure (Family communication pattern) clearly defined
Child 2013	Use of a convenience sample Sample size not justified Sample size <300, high risk of bias Demographic information clearly stated Exposure and outcome measures clearly defined High reliability displayed by outcome measures
Ramsey 2013	Criteria for inclusion clearly defined Sample size not justified Use of a convenience sample Sample size not justified Demographic information clearly stated Exposure and outcome measures clearly defined
Doty 2013	Participants recruited nationwide through online and offline campaign Sample size not justified Demographic information clearly stated Exposure measures clearly defined No measure of the outcome (connectedness or relationship)
Child 2015	Criteria for inclusion clearly defined Use of a convenience sample Sample size not justified Demographic information clearly stated

	Exposure and outcome measures clearly defined
Wang 2015	Recruited by random sampling Response rate reported Sample size was justified Demographic information clearly stated Exposure and outcome measures clearly defined
Mullen 2016	Participants recruited from two schools Use of a convenience sample Sample size not justified Demographic information clearly stated Exposure and outcome measures clearly defined High reliability displayed by outcome measures
Yu 2016	Nationally representative sample Random sampling Demographic information clearly stated Exposure and outcome measures clearly defined High reliability displayed by outcome measures
Tanis 2017	Nationally representative sample recruited through mTurk Sample size not justified Demographic information clearly stated Exposure and outcome measures clearly defined
Aljehani 2019	Random sampling of college students Sample size not justified Demographic information not stated Validity/reliability of measures not stated
Procentese 2019	Snowball sampling Sample size not justified Sample size <300, high risk of bias Demographic information clearly stated No measure of exposure Outcome measure clearly defined
Lopez 2020	Cluster random sampling Sample size not justified Minimal demographic information Exposure and outcome measures clearly defined Validity/reliability of measures not stated

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