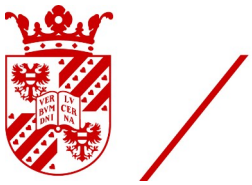

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The Effect of Social Media Use on Psychosis in Adolescents via a Self-Esteem Pathway

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Abstract

Background: The present study is a literature review on the effects of social media use (SMU) on psychosis in adolescents via a self-esteem (SE) pathway.

Methods: The review is split up into two parts. The first research question is "how is social media use associated with self-esteem in adolescents?", with the hypothesis that SMU is negatively correlated with SE. The second research question is "how is social media use associated with psychosis?", with the hypothesis that SMU has an exacerbating effect on psychosis. The data set consists of 102 articles for RQ1 and nine articles for RQ2.

Results: Results for RQ1 showed support for the hypothesis, with a general tendency toward a negative correlation between SMU and SE, though indications were found that the relationship between SMU and SE can differ per type of social media usage. Results for RQ2 did not show support for the hypothesis, with a general tendency toward a negative correlation between SMU and psychotic symptoms.

Conclusion: This study finds that there is a lack of evidence in support of a direct exacerbating effect of SMU on psychosis, but that it is possible that SMU may exacerbate psychosis indirectly, via SE. The findings provide valuable insight into the possible pathways of interaction between SMU and psychosis, offering a new perspective on social media and its relationship to mental health. Limitations include a lack of information on the directionality of the correlations and possible validity issues due to the use of self-reports. Future research is recommended into gender effects, effects per social media usage type and longitudinal studies.

Keywords: social media use, self-esteem, psychosis, adolescents, literature review

The Effect of Social Media Use on Psychosis in Adolescents via a Self-Esteem Pathway

Results from recent polls show that 34% of American adults felt that social media does more harm than good to their mental health, whereas only 20% felt that social media does more good than harm to their mental health. (American Psychiatric Association, 2022). Moreover, 86% were concerned about the impact of social media on children's mental health (Knight Foundation, 2023). This concern is not entirely unfounded, as in a report on specific aspects of mental health in relation to social media in 2023, the U.S. Surgeon General blamed social media for causing low self-esteem in teenagers (Edwards & Jackson, 2023) after conducting their own review of the evidence (U.S. Surgeon General, 2023). Low self-esteem has been linked to a large variety of potential negative effects, but particularly noteworthy is its association with psychotic disorders (Garety et al., 2001).

Given the ever-growing presence of social media in daily life, the presumed debilitating effect of social media use on self-esteem and the link between low-self esteem and psychosis, it is imperative that research on the relationship between these concepts is conducted. Seeing that adolescents are among the most prolific social media users, but also among the most vulnerable groups for changes in self-esteem and onset of psychotic symptoms, this literature review investigates the existing research on the relationship between social media use, self-esteem and psychosis in adolescents and attempts to provide an overview of the current state-of-the-art.

Introduction

Social media use

Over the past years, social media have become a big part of everyday life. So much so that social media platforms have outgrown their original user platform of individual people. Nowadays, many companies have a presence on social networking sites (SNS), and even governments tend to have active SNS accounts. The importance of social media in the

modern life is a fact that has become especially clear in teenagers: a 2024 report by the CDC stated that approximately half of all teenagers use their screens for four hours or more per day, and that more than 90% of teenagers spend at least two hours on screens (Zablotsky et al., 2024). Up to 95% of teenagers between the ages 13-17 use SNS (Edwards & Jackson, 2023). Moreover, despite a minimum age requirement of 13 on most SNS, nearly 40% of children ages 8-12 use social media (U.S. Surgeon General, 2023). While a 2017 meta-analysis estimated the prevalence of internet addiction to be approximately 6% (Ginige, 2017), a 2022 meta-analysis estimated this prevalence to be more than 14% (Meng et al., 2022). The prevalence of social media addiction – often also referred to as problematic social media use (PSMU) (Sun & Zhang, 2021) – was recently estimated to be 24% (Cheng et al., 2021).

The first SNS is generally considered to be Six Degrees (Dhingra & Mudgal, 2019), a website launched in 1997 that allowed users to create a profile and socialize with other users of the platform. Nearly three decades have passed since then, and though SNS have evolved and changed, they all still fall under the same definition of social media: “social media are internet-based channels that allow users to opportunistically interact and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others” (Carr & Hayes, 2015).

The many different ways of using social media can have a variety of positive and negative effects. SNS facilitate communication with friends through messaging and posting photos and videos, as well as accessing information and creating a space for self-expression (U.S. Surgeon General, 2023). People may find others who are having similar life experiences and find a community in this way via social media, or discover new hobbies or existing communities around their hobbies. However, there is an increasing amount of worry

about the effects of social media use (SMU). A recent study showed that 85% of girls have edited a photo to change the way they look before they post it by the time they are 13 (Jenkins, 2021), an important detail in an ongoing debate about potential effects of SMU on self-esteem. Changes in amounts of likes have been linked to shifts in mood (Da Silva Pinho et al., 2024), which is a risk factor for the development of depression (Bowen et al., 2013). Adolescents have been found to be particularly sensitive to likes (Da Silva Pinho et al., 2024). Moreover, several recent studies have found evidence that social media use can have a negative impact on attention span (Alghamdi & Aljabr, 2024; Haliti-Sylaj & Sadiku, 2024; Hilman, 2024; Poles, 2025), with the hypothesis that this debilitating effect on attention is caused by a habituation to receiving constant dopamine hits through short-form content (Coleman, 2024). This attentional "symptom" of SMU has become so well-known that it has received its own title (Roy, 2024): "brain rot," a decrease in attention span, executive functioning and mental well-being associated with constant scrolling on social media (Yousef et al., 2025).

Self-esteem

Self-esteem (SE) can be defined as an individual's subjective evaluation of their worth as a person; it does not reflect a person's objective talents or abilities, or how a person is evaluated by others (Orth & Robins, 2014). Rosenberg's conceptualization of self-esteem states that high self-esteem reflects the feeling that a person is "good enough", and that those with high self-esteem respect themselves for what they are but do not consider themselves superior to others (Rosenberg, 1965).

One important aspect of SE to note is that of body image satisfaction. Multiple studies have found body image satisfaction to be significantly positively correlated with overall SE (Abell & Richards, 1996; Flores Mata & Castellano-Tejedor, 2024; Kékes Szabó, 2015; Tiwari, 2014), with one even stating that "self-esteem is so intrinsically linked to thoughts

about one's body that physical appearance has consistently been found to be the number one predictor of self-esteem at many ages" (Ata et al., 2007). Body image dissatisfaction is known to be predicted by body surveillance and comparison (Fitzsimmons-Craft et al., 2014).

The close links between these concepts highlight the fact that SE is a broad concept that can be measured in many different ways.

Self-esteem and social media use

Despite the public opinion that SMU has a negative effect on mental health and SE, research on the association between SMU and SE is inconclusive: findings range from negative correlations (Mann & Blumberg, 2022; Saiphoo et al., 2019) to positive correlations (Wang et al., 2012; Zhang et al., 2023) to no correlations at all (Huang, 2017; Zainuddin et al., 2022). Pantic (2014) provides an interesting insight into what could explain these varied findings:

> "It is probable, however, that the overall impact of SNS on self-esteem is much more complex. Constant self-evaluation on an everyday basis, competition and comparing one's own achievements with those of other users, incorrectly perceiving physical/emotional/social characteristics of others, feeling [*sic*] of jealousy, and narcissistic behavior—these are all factors that may positively or negatively influence self esteem."

It is also important to note that there is a paucity of information about the direction of the correlation between SMU and SE: while it is possible that SMU affects SE, it is just as possible that SE levels influence SMU intensity.

Psychosis

In recent years, there has been increasing support for the existence of a relationship between SE and psychotic symptoms (Bemrose et al., 2020; Daemen et al., 2022).

Psychosis is a broad term that refers to a variety of symptoms related to a change in the perception of reality (Schrimpf et al., 2018). The DSM-5 states that psychotic disorders are "defined by abnormalities in one or more of the following five domains: delusions, hallucinations, disorganized thinking (speech), grossly disorganized or abnormal motor behavior (including catatonia), and negative symptoms." (American Psychiatric Association, 2013). It is generally understood to be a symptom of many different psychiatric, neurodevelopmental and medical disorders (Arciniegas, 2015).

Since psychosis is not limited to being a symptom of neurodevelopmental disorders, but rather also seen in medical and neurological disorders, it is possible for psychosis to occur at any moment in life. Still, psychosis typically has its first onset in young adulthood (National Institute of Mental Health, n.d.). This onset trend can be seen in the prevalence of psychotic experiences: while the prevalence in adults ranges from 5-7%, there is a prevalence of 17% in children and 8% in adolescents (Staines et al., 2022).

The exact prevalence of psychotic disorders is unknown, but it is estimated to be around 1.5-3.5% (Calabrese & Khalili, 2023). Interestingly, it is a lot more common for people to experience psychotic symptoms.

It is difficult to establish the prevalence of psychotic symptoms in the general population, as the majority of people who have experienced a psychotic symptom in their life have not had to get in contact with mental health services. An estimation is provided, however, by Broome et al. (2005), who report that 25% of people experienced delusions or hallucinations by the age of 26, while only 3.7% met the criteria for a schizophreniform illness.

There exists a triple risk factor in adolescents when it comes to psychosis: adolescence is the most common time of onset for psychosis, but it is also a time when people are vulnerable to SE issues (Robins et al., 2002) and, since a few years, a time when people

show large amounts of SMU. Given the possibility that SMU can affect SE, the link between low SE and psychosis and the triple vulnerability in adolescents, it is essential to study psychosis in relation to SMU and SE in this group.

Psychosis and social media use

Only a small amount of research on the relationship between SMU and psychosis exists at the moment, and the results of the studies that do exist vary. A study on the general population by Paquin et al. (2023) found that participants who reported greater SMU also reported higher levels of psychotic experiences. Yang and Crespi (2025) found similar results in their literature review on samples with psychotic traits or disorders, hypothesizing that delusions may be amplified by SNS. An example of this is given in a case report by Krishna et al. (2013), who describe how uninhibited access to others' SNS profiles may lead people to over-identify with others or misinterpret their posts, possibly exacerbating or "confirming" delusions that they may be experiencing.

In contrast, Berry et al. (2018) found that SMU was lower in people with psychosis, and that SMU did not predict paranoia. At the same time, it was found that people with psychosis used SNS to connect with people online and find peer support, implying that SNS could actually aid people with psychosis by reducing isolation, rather than work against them (Highton-Williamson et al., 2014). Indeed, research has shown that a majority of those with schizophrenia have looked up information about their disorder online, and a large group has been able to communicate with others with mental disorders online. A large majority considered the internet and online communication to be helpful in coping with their disorder (Žaja et al., 2022).

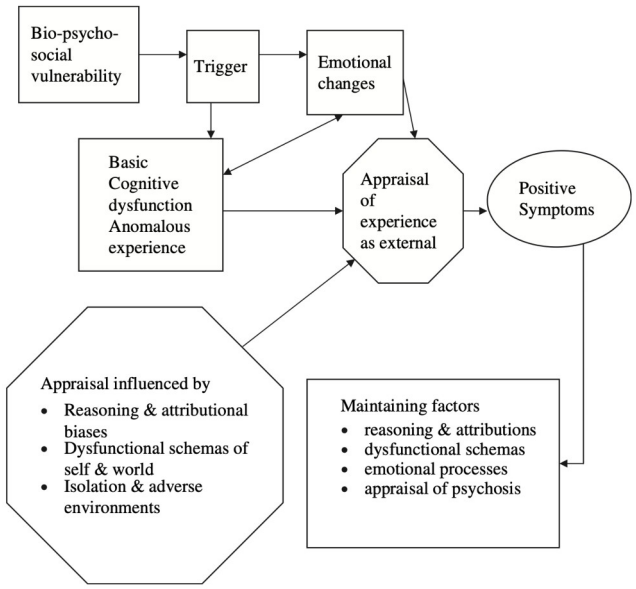
The above studies show that the relationship between SMU and psychosis is still unclear. However, the existing literature leans towards an exacerbating effect of SMU on psychosis.

Self-esteem and psychosis

In their cognitive model of psychosis, Garety et al. (2001) suggest that low self-esteem can increase a person's vulnerability to psychotic disorders and, in turn, lead to the development of psychotic symptoms. A visualization of this model is given in Figure 1. The existing literature on the relationship between SE and psychosis generally supports the idea that SE plays an important role in psychosis.

Figure 1

Visualization of the cognitive model of psychosis by Garety et al. (2001)



Note. From "Cognitive, emotional, and social processes in psychosis: refining cognitive behavioral therapy for persistent positive symptoms" by E. Kuipers, P. Garety, D. Fowler, D. Freeman, G. Dunn, and P. Bebbington, 2006, *Schizophrenia Bulletin, 32*(Suppl. 1), p. S25. Copyright 2006 by Oxford University Press.

Lower levels of momentary SE have been found to be associated with an increased intensity of psychotic experiences (Daemen et al., 2022; Postma et al., 2021), as well as with more intense paranoia and negative affect (Daemen et al., 2022). Moreover, it was found that those with lower SE tended to experience more severe auditory hallucinations, and that their hallucinations contained more intensely negative content (Smith et al., 2006). One study of a

non-clinical population showed that individuals with lower SE scores were more prone to delusions than those with higher SE scores, and that low SE was associated with higher levels of paranoia (Warman et al., 2010). Low SE has been noted as a predictor of hallucinations and persecutory delusions in early psychosis (Romm et al., 2011), and has been associated with future development of psychosis (Krabbendam et al., 2002).

Studies on the effects of SE interventions on psychotic symptoms appear to support the theory that it is specifically low SE that exacerbates psychosis. Building on a study that found SE interventions to lead to a reduction in psychotic symptoms (Hall & Tarrier, 2003), Laithwaite et al. (2007) failed to reproduce that result, but did find SE interventions to lead to a reduction in delusions. Another study found that an improvement in SE was significantly related to a reduction in severity of negative symptoms and persecutory delusions (Jones et al., 2010).

Interestingly, one study found that neither positive nor negative symptoms of psychosis led to a decrease in SE, concluding that SE does not appear to be affected by the presence of a psychotic disorder (Frank & Davidson, 2011).

This finding highlights that, even though a general consensus of the role of SE in psychosis exists, the actual relationship between those two constructs may be more complex than previously thought.

The present study

This review investigates the influence of social media use on psychosis via a self-esteem pathway in adolescents. This is done through a broad approach that splits the topic into two separate research questions, which allows for a general investigation into the effects of social media use on self-esteem in adolescents but also a focused investigation into the relationship between social media use and psychosis.

The first research question is “how is social media use associated with self-esteem in adolescents?” Based on the theoretical frameworks on social media use and self-esteem, as well as the framework around the effect of social media use on self-esteem, the hypothesis is that social media use is negatively correlated with self-esteem, in that higher levels of social media use are related to lower levels of self-esteem.

The second research question is “how is social media use associated with psychosis?” Based on the theoretical frameworks on social media use, self-esteem and psychosis, as well as the framework around the effects of self-esteem on psychosis, the hypothesis is that social media use has an exacerbating effect on psychosis, in that higher levels of social media use are related to low self-esteem, which in turn is related to more intense psychosis.

Methods

Search terms

The used search terms are given in Table 1. The inclusion and exclusion criteria for each research question can be found in Appendix A.

Table 1

Search terms per research question

Research question	Search terms
How is social media use associated with self-esteem in adolescents?	“adolescents” OR “teenagers” OR “youth” OR “young adults” AND “social media use” OR “social networking sites” OR “internet use” AND “self-esteem”
How is social media use associated with psychosis?	(“social media use” OR “social networking sites” OR “internet use”) AND (“psychosis” OR "psychotic disorder*")

During the development of the search terms, it was decided that “schizophrenia” would be left out as a search term, as this study was concerned with psychosis in all persons

rather than solely in individuals with a diagnosis of schizophrenia. Moreover, schizophrenia is a broader disturbance that is not limited to experiences of psychosis, but the aim of this study was to focus specifically on psychosis. It was also decided that "psychotic symptoms" would be left out as a search term. Studies show that psychotic symptoms in the general population are quite common, ranging in lifetime prevalence from anywhere between 5.8% (McGrath et al., 2015) to 41.3% (Okyere et al., 2025). With the lifetime prevalence of a psychotic episode being only around 3% (Perälä et al., 2007), it is generally agreed upon in the literature that it is much more common for individuals to experience a psychotic symptom than it is for them to experience a psychotic episode. Based on this, "psychotic symptoms" was left out in order to limit the amount of potential confounding terms. Finally, although this study is aimed at adolescents, it was decided to eliminate the age requirement from the search terms for RQ2. This was because adding an age term to this search resulted in too few articles to systematically analyse.

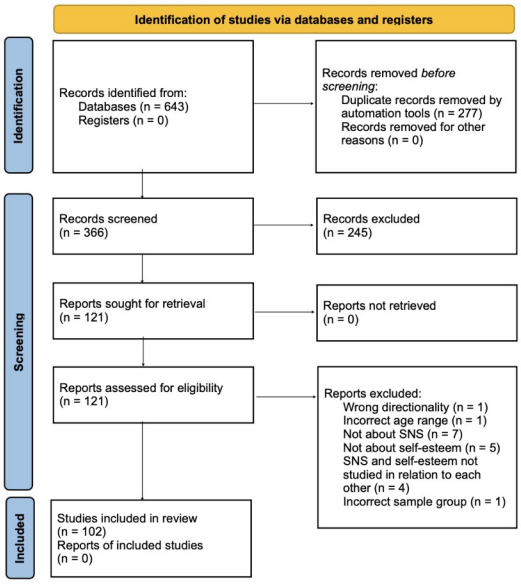
Literature search

The literature search was performed using search engines PubMed, PsyqInfo and SmartCat. The inclusion and exclusion criteria for both research questions are given in Appendix A. It is important to note that the exclusion criterium of case studies was dropped after the first round of screening for RQ2. This decision was made because it was found during the full text screening that several case studies existed that were deemed too relevant to this study to leave out. At the end of the full text screening, one case study was included in the literature analysis. Furthermore, for both research questions scale validation studies were not automatically excluded, but rather judged on an individual basis as to whether they were appropriate to include in this study.

Figure 2 and Figure 3 show the PRISMA flowcharts of the literature search and screening process for RQ1 and RQ2 respectively.

Figure 2

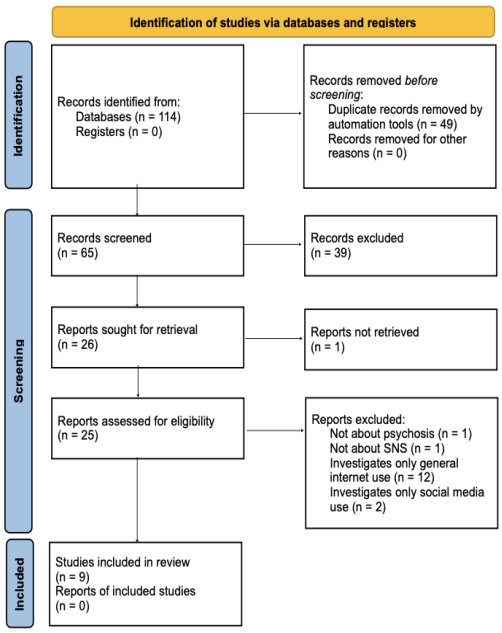
PRISMA flowchart for RQ1



Note. Source: (Page et al., 2021)

Figure 3

PRISMA flowchart for RQ2



Note. Source: (Page et al., 2021)

Results

Research question 1

Appendix B presents a complete summary of all included studies for RQ1.

General findings

For an overview of the characteristics, results and effect sizes of all included studies, please see Appendix B. Out of the studies included in the data analysis (k=102), the majority (k=61) found results indicative of a general negative correlation between SMU and SE. A small fraction (k=13) found results indicative of a general positive correlation between SMU and SE, and another small group (k=8) found no evidence for a correlation between SMU and SE. Finally, a small fraction (k=20) found results indicating differences in correlations between SMU and SE based on SMU type.

None of the (k=15) longitudinal studies found a general positive effect of SMU on SE: results either showed a negative effect or differences in effects depending on the type or form of SMU. Findings on PSMU and SE were overwhelmingly negative correlations; half were significant (k=7) and half were non-significant (k=7), but positive correlations — even non-significant ones — were never found. Only one study reported finding no effect.

A total of 33 studies reported a negative correlation between SMU and SE, of which 14 were non-significant and 19 were significant. A total of eight studies reported a negative effect of SMU on SE, with three of those being non-significant and five of those being significant. A positive correlation between SMU and SE was found in 12 studies, of which seven were non-significant and six were significant. Finally, five studies found no correlation or effect of SMU on SE.

A majority of the studies on PSMU found a significant negative correlation between PSMU and SE; out of 22 studies, 15 found this result. A non-significant negative correlation

between PSMU and SE was reported in five studies, and two studies reported finding no correlation.

Aspects of SMU

Differences in correlations between SMU type and SE were reported by 16 studies. As most studies investigated different aspects of SMU, such as usage type or platform, barely any of them came to the same conclusions. However, two studies specifically noted Fitspiration content on SNS to have a negative effect on SE, and another three reported that positive self-disclosure on SNS was positively correlated with SE scores. Interestingly, while one study reported finding that passive SMU had a non-significant positive effect on SE and active SMU had a non-significant negative effect on SE, another reported passive SMU to be significantly negatively correlated with SE.

Aspects of SE

Four studies used body satisfaction as a measure of self-esteem. All four of these studies reported a negative correlation between SMU and body satisfaction, with two reporting non-significant results and two reporting significant results.

Gender effects

Out of the 58 studies that investigated gender differences, 14 noted not finding any differences between men and women.

Gender differences in SMU were found in 15 studies, with seven studies reporting that women exhibited significantly more SMU than men, and eight studies reporting that women's SMU was higher than that of men, but that the difference was not significant. Of the studies that investigated gender differences in PSMU (k=8), the majority (k=7) found that women scored significantly higher on PSMU than men did. One study found that men were significantly more likely to have PSMU in combination with gaming disorder, but PSMU was not investigated as a variable on its own in this study.

Interestingly, four studies reported finding a negative correlation between SMU and SE in women but not in men. Another three studies indicated that the effects of SMU on SE were stronger in women than they were in men.

Research question 2

Appendix C presents a complete summary of all included studies for RQ2.

General findings

For an overview of the characteristics, results and effect sizes of all included studies, please see Appendix C. Of the (k=9) included studies, none found statistically significant correlations between SMU and general psychotic symptoms. The total amount of participants for these studies was (k=1.458) and most studies were quantitative; half of them were cross-sectional and the other half were longitudinal. Four studies found non-significant correlations between SMU and psychotic symptoms, of which three were negative and one was positive. One study among individuals with a diagnosis of a psychotic disorder reported finding that psychotic symptom severity was significantly higher in those who did not have SNS accounts as compared to those who had some level of SMU. A study investigating the opinions of SNS users with a psychotic disorder reported that a majority stated that SMU did not exacerbate their symptoms in their experience.

Specific symptoms

One study reported finding a significant negative correlation with a small effect size between SMU and negative psychotic symptoms, while another found a non-significant positive correlation between SMU and positive psychotic symptoms. The studies that investigated the relationship between SMU and paranoia (k=2) reported differing results. One study consisted of a group of participants with no mental health problems and a group of participants who had experienced an episode of psychosis or who had received a diagnosis of schizophrenia-spectrum disorder, and reported a non-significant positive correlation between

SMU and paranoia severity. The other study split their participants into two groups — a schizophrenia group and a bipolar disorder group — that were all asked to complete surveys three times a day over the span of a month, and reported that SMU was associated with a subsequent reduction in paranoia severity in the schizophrenia group, but not in the bipolar group. While both studies did include adolescents in their sample, there was no specific focus on adolescents: the sample ages in the first study ranged from 22 to 54, and the sample ages in the second study ranged from 18 to 65.

Two studies reported findings that SMU helped individuals with psychotic disorders socialize with others through the use of online chat rooms. One study found that cyberbullying victimisation was significantly positively correlated with the presence and severity of psychotic experiences. Interestingly, this study found that cyber-victimisation was related to a large variety of mental health issues, such as anxiety, substance use and antisocial behaviour, so it may be the case that these other mental health difficulties play a part in the presence and expression of psychotic symptoms.

Symptom onset

Two studies reported on SMU and psychotic symptom onset among individuals with psychotic disorders. One of these found that 74% of participants noticed changes in their SMU during psychotic symptom emergence, and that 24% of participants were aware that others had noticed changes in the participants' SMU during symptom emergence. The other study that reported on this topic found that a majority of their participants noticed changes in their SMU during symptom emergence; nearly half of them reported exhibiting less SMU, a small minority reported increased SMU.

Discussion

As the presence of social media in everyday life grows, concerns about the influence of SMU on mental health are becoming a point of discussion. SMU can have positive effects,

such as by giving people access to information and allowing them to communicate with others (U.S. Surgeon General, 2023), but it can also have negative effects; one that is often mentioned is that of SMU on SE, with the public opinion appearing to be that SMU would be detrimental to SE (Edwards & Jackson, 2023). Contrary to the public opinion, the existing literature of the effects of SMU on SE is inconclusive.

There is increasing support in the literature for a relationship between SE and psychosis. Low SE in particular is noted as having an exacerbating effect on psychosis and acting as a risk factor for the development of psychosis (Garety et al., 2001). Despite the apparent relationship between SE and psychosis and the growing body of work on the association between SMU and SE, only a small amount of research on the association between SMU and psychosis exists. The research that does exist varies, with some studies reporting that SMU may be beneficial to people with psychosis by providing access to information and opportunities to connect with peers (Highton-Williamson et al., 2014), while others report that SMU may amplify psychotic symptoms (Krishna et al., 2013; Yang & Crespi, 2025).

A triple risk factor is present in adolescents in terms of psychosis: they show large amounts of SMU, are more vulnerable to SE issues (Robins et al., 2002) and are at an age when onset of psychosis is most common. This triple vulnerability, along with the possibility that SMU can affect SE and the link between low SE and psychosis, forms the theoretical framework for the present study.

Research question 1

The first research question was “how is social media use associated with self-esteem in adolescents?”, with the hypothesis that social media use is negatively correlated with self-esteem. The majority of the findings indicated a negative relationship between SMU and SE, though findings of a positive relationship, no relationship and a mixed relationship were also

reported. Investigations into gender differences found that women tended to have higher levels of SMU and PSMU, as well as lower SE scores than men.

While the findings that a large amount of the studies report a negative correlation between SMU and SE and that several studies report a negative effect of SMU on SE are in support of the hypothesis that SMU has a negative effect on SE, the results are not unanimous. Findings of positive correlations, no correlations at all and differences in correlations based on SMU type are all in conflict with the hypothesis.

The findings of a negative relationship between SMU and SE provide some support for the existing sentiment that SMU is detrimental to SE levels (Edwards & Jackson, 2023; Knight Foundation, 2023), though it is important to note that, being cross-sectional results, they provide just as much support for any other explanation for the negative correlation between SMU and SE. Interestingly though, the various reasonings in these studies as to why the relationship may be negative are quite illustrative of the reality of the existing scientific literature, which is that findings on the relationship between SMU and SE are mixed. For example, Hussain et al. (2019) postulate in their study included in this review that a decrease in an individual's openness to experience is the explanatory link between SMU and low SE. They hypothesize that as people become less open to experiences, they spend more time checking their Facebook pages, and that this increase in spending time on SNS may take away from their time engaging in social activities, which could lead to loneliness and low SE. Indeed, loneliness has been linked to a decrease in SE (Geukens et al., 2020). While this study thus supports the hypothesis with the reasoning that increased SMU leads to loneliness and in turn to lower SE, it, with this same reasoning, provides a theory as to why the current literature is mixed: if the SMU is centred around social interaction rather than viewing content, then, even if it increases, users may not experience increased loneliness and thus not experience negative effects on SE. This idea is supported by three studies included in this

review, one of which found social media consumption to be a negative predictor for self-esteem and social media participation to be a positive predictor for self-esteem (Van Eldik et al., 2019), another one of which found that women were more likely to engage in social interaction activities online and had higher SE levels than men (Ma, 2022), and another one of which reported that social interaction on SNS was positively correlated with SE (Santarossa & Woodruff, 2017).

Interesting to note about the findings of a negative correlation between SMU and SE are the studies in this review that detail findings on body image satisfaction as a measure of SE: Rodgers et al. (2020) find body image dissatisfaction to be significantly positively correlated with SMU, while Kaewpradub et al. (2017), Colak et al. (2023) and Pop et al. (2022) all find body image satisfaction to be significantly negatively correlated with SMU. A possible explanation for this is given in a study by Kennedy et al. (2023) that is included in this review, who note that SNS facilitate discourse about users' bodies. This encourages body surveillance and comparison (Pop et al., 2022), which have been noted to predict body image dissatisfaction. This is crucial information in light of the general consensus in the literature that body image satisfaction is closely correlated with SE (Abell & Richards, 1996; Flores Mata & Castellano-Tejedor, 2024; Kékes Szabó, 2015; Tiwari, 2014), as it offers a potential explanation for the negative correlation between SMU and SE that was found in this study.

However, one study in this review reported a remarkable finding that sheds some light on the mixed findings in the literature from a body image satisfaction perspective: Peris et al. (2020) reported that those who rated their own physical attractiveness higher exhibited significantly more SMU. This is especially relevant to the dissonance in the literature in combination with findings from other studies in this review that the correlation between SMU and SE changes over time (Pouwels et al., 2024; Steinsbekk et al., 2020). It is possible that those with higher SE are more likely to start using SNS and to use it more intensively, but

that over time, the negative effects of SMU on body image lead to a decrease in SE. This could explain the variety in the literature, as that variety may reflect the different phases of SMU intensity participants are in at the time of the research, while the eventual negative effects of SMU on SE explain the tendency toward a negative correlation between SMU and SE in this study.

A possible explanation for the variety in the findings in this study is the theory that the effects of SNS experiences on SE mirror those in real life. This theory starts with Sabik et al. (2019), who report significant associations between whether an individual linked their self-worth to the feedback they received on SNS and their SE levels. A slightly more generalized version of this theory would be that the effects of SMU experiences on SE mirror those of real-life experiences if SNS holds an important place in individuals' lives. The relevance of this theory to the findings of this study can be seen in the rather sizeable amount of studies that reported finding differing correlations between SMU and SE based on SMU type.

An example of this is the relationship between social approval and SE. One study in this review found that positive experiences on SNS were significantly positively associated with SE, while the opposite was true for negative experiences on SNS (Marciano & Viswanath, 2023). Two other studies in this review reported that negative feedback had a negative effect on SE (Jong & Drummond, 2016; Muñoz et al., 2024). These findings are paralleled by existing research on SE that reports that experiences of social approval are linked to higher SE (Leary et al., 2003). Other studies included in this review that support this mirror theory are that of Metzler and Scheithauer (2017), which reports that the amount of SNS friends had a positive effect on self-esteem, and that of Zhang et al. (2023), which reports that cyberbullying could lessen and even reverse the positive association between SMU and SE. These findings for SNS mirror the literature for similar interactions in real life:

indeed, SE is positively correlated with one's amount of friends (Lewis, 2009), and bullying victimization is a predictor of low SE (Choi & Park, 2021).

Gender

The general results from the review indicate a disadvantage in women in regards to SMU and SE, but a definitive reason for this gender effect is not found. Interestingly, two studies with opposing results appear to find a similar explanation for the observed gender differences in the type of SMU: Hui et al. (2022) report that boys use SNS more for socialising whereas girls use SNS more for entertainment, while Ma (2022) finds that girls use SNS for socialising more often and have higher levels of SE than boys do. While the consensus on the most common type of SMU per gender differs, both studies imply that social SMU has a less detrimental impact on SE than entertainment SMU does. This is in line with the theory about SE, SMU and body image; when a person is consuming content rather than socialising on SNS, they are more likely to encounter materials that may lead to comparison or body surveillance, which in turn can cause lower body image satisfaction and thus lower SE.

Though only few studies investigated the differences in SNS activities between genders, some remarkable gender differences in SMU were reported. Boys tended to have more SNS friends than girls (Tazghini & Siedlecki, 2013; Wang et al., 2012) and they were more likely to play online games than girls, who were more likely to upload photos and update their statuses (Wang et al., 2012). Moreover, Nardis and Panek (2018) found that girls were more likely to have their SNS account set to private than boys were. These findings are a first indication that it is possible that girls and boys use SNS in entirely different ways, meaning that a negative correlation between SMU and SE in general might not adequately reflect the influence that SMU has on SE.

Research question 2

The second research question was "how is social media use associated with psychosis?", with the hypothesis that social media use has an exacerbating effect on psychosis via a self-esteem pathway.

In contrast to the hypothesis that SMU has an exacerbating effect on psychosis, a majority of the studies in this review reported negative correlations between SMU and psychotic symptoms. Especially considering the apparent relationship between SMU and SE, as well as the close relationship between SE and psychosis, this finding is quite surprising.

There are two studies in this review that, together, offer a potential explanation for the negative correlation between SMU and psychosis. Both of these studies report finding that participants' SMU changed during psychotic symptom emergence; one did not report how SMU changed, only that it did (Birnbaum et al., 2018), but the other reported that almost half of the participants spent less time on SNS during symptom emergence, while 15% of the participants spent more time on SNS during symptom emergence (Birnbaum et al., 2015). These studies both used cross-sectional methods, so it is not possible to say whether the change in SMU or the psychotic symptom emergence came first, meaning the effect of SMU on psychosis cannot be determined based on these studies. However, findings that individuals with psychosis had significantly less SMU than those without psychosis (Berry et al., 2018) and that psychotic symptom severity was significantly higher in those who did not use SNS at all in comparison to those who used SNS (Oluğ et al., 2023) provide a basis for an interpretation. Given the nature of psychotic symptoms and the fact that the presence of psychosis has been linked to difficulties in daily life functioning (Viertiö et al., 2011), it is understandable that those who are experiencing psychotic symptoms may need to spend more time and energy on their daily activities than usual. As cognitive resources are limited, it is

possible that attention that is usually given to SNS is redirected to daily functioning, resulting in a decrease in SMU.

While the negative correlation between SMU and psychosis can be explained as a result of attention redirection, a different possibility is that SMU can actually ameliorate psychotic symptoms. Two studies in this review reported that SMU helped individuals with psychosis socialize (Daley et al., 2005; Oluğ et al., 2023). One study specifically mentioned that this helping effect occurred through the anonymity that social media offered the user, which allowed the user to socialize with a lower risk of rejection than in face-to-face situations (Daley et al., 2005). Given that a decrease in social interaction is a commonly seen negative symptom of psychosis, easily accessible methods of socialization may help mitigate the severity of this symptom. Particularly interesting is that the case study by Daley et al. (2005) describes how a 15-year-old boy was able to make new friends through online contact with peers in similar situations. Though doctors are still preferred over the internet as a source of information (Maguire et al., 2011), many people with psychosis use online forums — which allow communication with other users — to find information about their symptoms (Žaja et al., 2022). This suggests that, as people exhibit more SMU in search of information, they are likely to get in touch with new people who are having similar experiences and thus may socialize more. Moreover, Daley et al. (2005) report that the boy in their case study showed an increase in self-esteem due to engagement in online activities, and that he did not hear any voices when he was logged in. Although there is no evidence in the existing literature that distractions diminish psychotic symptoms (Crawford-Walker et al., 2005), this case study highlights the fact that, for some people, SMU may help reduce their psychotic symptoms.

Although the present study found evidence in support of a negative correlation between SMU and psychotic symptoms, it is likely that the actual relationship between SMU

and psychosis is more complex than that. In her essay, Burns (2024) describes the relationship between SNS and delusions as she has observed it during her work on a treatment program for persons with schizophrenia: a person may find confirmation of their delusions online, but the content of SNS posts may also lead to the creation of new delusions. She notes that it is becoming increasingly difficult to tell the difference between psychosis and reality when it comes to SNS, saying:

> "When we are discussing social media platforms and my patients tell me that "the algorithm is hacked," I cannot help but agree. Yes, it is true: Your phone is listening to you, the camera on your laptop is watching you and the advertisements you see online are predicting what you will buy and the websites you will want to browse."

This example is quite the opposite of the case study by Daley et al. (2005), illustrating that, although this study found no evidence in support of the hypothesis that SMU has an exacerbating effect on psychosis, the role that SMU can potentially play in psychosis cannot be ignored.

Strengths and limitations

A major strength of this study is that it attempts to fill the research gap around the relationship between SMU and psychosis. As far as the author is aware, this is the first study that considers the effects of SMU on SE and psychosis in relation to each other in adolescents, which provides a theoretical basis for future research on this topic. An additional strength of this study is that it has separate research questions around the effects of SMU on SE and psychosis, taking a first step in dissecting the relationship between these three concepts and initiating a discussion on the potential role — or lack thereof — of SE as a moderating variable between SMU and psychosis.

Several limitations exist in the present study. One of the most important limitations is that of directionality. A large majority of the studies included in this review used cross-

sectional methodologies, meaning that these studies do not provide any information on the directions of the effects they found; while the results lean towards negative correlations between SMU and SE, as well as SMU and psychosis, it remains unknown how these correlations function.

Another limitation that is commonly noted in the included studies is that of self-reports. Self-reports have been noted to be vulnerable to response biases such as socially desirable responding, acquiescent responding and extreme responding (Dodorico McDonald, 2008), which may decrease the validity of measurements on constructs such as SE and psychotic symptom severity. Past research has shown self-reports on time spent on computers to be biased towards the population mean, with heavy users underestimating their use and light users overestimating their use (Collopy, 1996), while more modern research found that adolescents overestimate their time spent on SNS (Verbeij et al., 2021; 2022) and that self-reported SMU and actual SMU are not statistically related to each other (Mahalingham et al., 2022). While this limitation is important to keep in mind, it should be noted that the value of self-reports on SMU should not be overlooked: the differences between self-reported time and actual time spent on SNS may be explained by faulty digital trace measures, between-group differences in time spent on SMU can still be acceptable if all participants overestimate their SMU, and effects of SMU tend to be similar regardless of measurement type (Verbeij et al., 2022).

Finally, the lack of a standardized method of measuring SMU is a limitation in this study. A majority of the studies included in this review measured time spent on SNS, which, while still valuable, only provides very primitive information about SMU. Additionally, the studies that investigated time spent on SNS used various different methods; time in hours, frequency and semantic labels were commonly seen measures of SMU. This inconsistency in SMU measurement should be kept in mind as a possible limitation of this study.

Future research

Based on the fact that the few studies in this review that measured SMU around specific platforms found different effects, a strong suggestion for future research is to investigate the unique effects of time spent on specific SNS on SE and psychotic symptoms using qualitative and quantitative methodologies. Moreover, research that goes beyond simply time spent on SNS, but rather into specific SNS activities, is warranted to investigate in which ways SMU might affect SE and psychosis.

Longitudinal studies are needed in order to establish the directionality between SMU, SE and psychosis, and considering the paucity of cross-sectional studies on the relationship between SMU and psychosis, as well as the small amount of studies on the effects of SMU on SE in the last two years, new and updated research on those topics is recommended as well. Finally, studies investigating quantifiable measures of SMU, SE and psychosis all in relation to each other are needed in order to fill the research gap in that area.

Beyond these specific suggestions, broader future research into gender differences on the three main variables is recommended, as well as research that includes different aspects of SE, such as social comparison, body image and suicidal ideation. Lastly, investigations into the differences between regular SMU and PSMU are recommended.

Conclusion

In an attempt to fill the research gap around the relationship between social media use, self-esteem and psychosis, this literature review investigated the relationship between SMU and SE and the relationship between SMU and psychosis in separate parts.

The first research question was “how is social media use associated with self-esteem in adolescents?”, with the hypothesis that social media use would have a negative correlation with self-esteem. The findings of this study support this hypothesis, as a majority of the studies in this review reported a negative correlation between SMU and SE, with some

reporting a negative effect of SMU on SE. However, the fact that about one-fifth of the included studies reported finding different associations between SMU and SE based on SMU type indicates that the relationship between SMU and SE may be more complex.

The second research question was “how is social media use associated with psychosis?”, with the hypothesis that social media use would have an exacerbating effect on psychosis. The findings of this study do not support this hypothesis, as a majority of the studies in this review reported negative correlations between SMU and psychotic symptoms. Two studies reported finding changes in SMU during symptom emergence, leading to the hypothesis that a decrease in SMU at symptom onset may be responsible for the negative association.

When considering these findings in relation to each other, this study suggests that it is possible that SMU has an exacerbating effect on psychosis via SE, but that it is too soon to state this with any kind of certainty. Much remains to be clarified on the relationship between SMU and SE and the relationship between SMU and psychosis, and future research on the relationships between these variables is suggested, preferably with longitudinal methodologies.

7.052 words used

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Appendix A

Inclusion and exclusion criteria

Table A1

Criteria RQ1

Inclusion criteria	Description
Format	Article
Age	10-24 years, middle school, high school, university
Disability	Non-disabled people, physical disabilities, anyone with a primary diagnosis
Gender	Any
Social media	Any app that falls under the definition of social media ("interactive technologies that facilitate the creation, sharing and aggregation of content amongst virtual communities and networks; characterized by online platforms that enable users to create and share content and participate in social networking, user-generated content, user profiles") Instagram, Twitter/X, Threads, Facebook, Bluesky, TikTok
Number of subjects	> 1
Type	Qualitative and quantitative
Nationality	Any
Language	English

Exclusion criteria	Description
Social media not specified	Compulsive Internet Use Scale (CIUS), Generalized Problematic Internet Use Scale (GPIUS), Problematic Internet Use Scale (PIUQ), Internet Addiction Test (IAT), Excessive Internet Use Scale (EIU), Internet Related Problem Scale (IRPS)
Format	Meta-analysis, Chapter, Book, Dissertation
Age	Children (age 0-10), adults (age >24), elementary school, age ranges that start at 18 into adulthood
Disability	None
Gender	None
Social media	Streaming, gaming, Tinder, dating apps
Number of subjects	1
Type	Single subject case studies
Nationality	None
Language	Not English

Table A2

Criteria RQ2

Inclusion criteria	Description
Format	Article
Age	Any
Disability	Non-disabled people, physical disabilities
Gender	Any
Social media	Any app that falls under the definition of social media ("interactive technologies that facilitate the creation, sharing and aggregation of content amongst virtual communities and networks; characterized by online platforms that enable users to create and share content and participate in social networking, user-generated content, user profiles") Instagram, Twitter/X, Threads, Facebook, Bluesky, TikTok
# of subjects	> 1
Type	Qualitative and quantitative
Nationality	Any
Language	English
Exclusion criteria	**Description**
Format	Meta-analysis, Chapter, Book, Dissertation
Age	None
Disability	None

Gender	None
Social media	Streaming, gaming, Tinder, dating apps
Number of subjects	1
Type	Single subject case studies
Nationality	None
Language	Not English

Note. The exclusion criterium of case studies was discarded after the first screening of all found articles.

Appendix B

Table B1

Overview of articles included in RQ1

Study	Country	Outcome	Effect size	Gender differences	Methodology	Sample size	Sample age	Sample sex	Sample diagnosis	Measurement SNS use	Measurement SNS use type	Measurement self-esteem
(Acar et al., 2020)	Turkey	SNS addiction *negatively correlated with self-esteem	M	Yes; F *more SNS addiction, M *higher self-esteem	Quantitative, Cross-sectional	221	M = 15.86, SD = 0.91; 13-17	109F, 112M	None	SMAS	Addiction	RSES
(Ahadzadeh et al., 2014)	Iran	SMU positively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	284	18-38	163F, 121M	None	Own questionnaire	Time spent (hours)	RSES
(Akbari et al., 2022)	Iran	PSMU *negatively correlated with self-esteem	S	Yes; M *more likely to have PSMU with gaming disorder	Quantitative, Cross-sectional	2.390	M = 16.01, SD = 1.38; 13-18	1555F, 835M	None	BSMAS	Addiction	RSES
(Akbari et al., 2023)	Iran	PSMU *negatively correlated with self-esteem	M	No	Quantitative, Cross-sectional	3.375	M = 15.46, SD = 1.63; 13-18	2263F, 1112M	None	BSMAS	Addiction	RSES
(Alsunni & Latif, 2020)	Saudi Arabia	SMU not correlated with self-esteem	None	Not investigated	Quantitative, Cross-sectional	893	M= 23.91, SD = 2.17	456F, 437M	None	Own questionnaire	Time spent (hours + labels)	RSES
(Atroszko et al., 2018)	Poland	Facebook addiction not correlated with self-esteem	None	Yes; F score *higher on Facebook addiction	Quantitative, Cross-sectional	1.157	M = 20.33, SD = 1.68	601F, 546M	None	BFAS	Addiction	Single question
(Baker & White, 2010)	Australia	SMU no effect on self-esteem	None	Not investigated	Quantitative, Longitudinal	160	M = 14.36, SD = 0.74; 13-16	106F, 54M	None	Own questionnaire	Time spent (labels)	RSES
(Bányai et al., 2017)	Hungary	SMU negatively correlated with self-esteem	N/A	Yes; F more SMU than M	Quantitative, Cross-sectional	5.961	M = 16.60, SD = 0.94; 15-22	3030F, 2931M	None	Own questionnaire, BSMAS	Time spent (hours + labels), addiction	RSES
(Barthorpe et al., 2020)	UK	SMU negatively correlated with self-esteem	S	Yes; M higher self-esteem than F, for F time on SNS was negatively associated with self-esteem, for M such a correlation was not found	Quantitative, Cross-sectional	4.032	13-15	2016F, 2016M	None	Time use diary	Time spent (hours)	RSES (modified 5-item)
(Boers et al., 2019)	Canada	SMU *negative effect on self-esteem	N/A	Yes; M higher self-esteem	Quantitative, Longitudinal	3.826	M = 12.7, SD = 0.5	1798F, 2028M	None	Own questionnaire	Time spent (hours)	RSES
(Brailovskaia & Margraf, 2018)	Germany	Effect on self-esteem varied per SNS type	S	Not investigated	Quantitative, Cross-sectional	633	M = 21.8, SD = 5.35; 16-59	419F, 214M	None	Own questionnaire	Time spent (labels)	SISE
(Castillo de Mesa et al., 2020)	Spain	Effect on self-esteem varied per use SNS type	S	Not investigated	Quantitative, Cross-sectional	126	M = 21.6; 21-23	Not given	None	Owm questionnaire	Activities	x
(Chen, 2017)	USA	Self-esteem positively correlated with positive disclosure on SNS	M	Not investigated	Quantitative, Cross-sectional	292	University undergraduates	181F, 111M	None	Own questionnaire	Self-disclosure	Single question
(Clerkin et al., 2013)	USA	SMU reassurance seeking *negative effect on self-esteem	XS	Not investigated	Quantitative, Longitudinal	319	M = 18.66, SD = 1.46; 17-35	232F, 87M	None	Own questionnaire	Facebook reassurance seeking	RSES, SSES
(Colak et al., 2023)	Turkey	SNS addiction *negatively correlated with self-esteem	M	Not investigated	Quantitative, Cross-sectional	204	M = 15.90, SD = 1.2	67F, 137M	None	SMD-9	Addiction	RSES
(Dadiotis et al., 2021)	Greece	SNS addiction *negatively correlated with self-esteem, time spent on SNS and amount of SNS profiles negatively correlated with self-esteem	XS	Yes; F *more likely to be addicted to SNS	Quantitative, Cross-sectional	325	M = 21.6, SD = 5.26	266F, 59M	None	Own questionnaire, BSMAS	Time spent (hours), addiction	RSES
(Dumas et al., 2020)	Canada, USA	Deceptive like-seeking on SNS negative effect on self-esteem	XS	No	Quantitative, Longitudinal	307	M = 21.35, SD = 1.5; 18-25	177F, 124M, 6N	None	Own questionnaire	Time spent (hours), likes, like-seeking and deceptive like-seeking	RSES
(Easton et al., 2018)	UK	SMU "Fitspiration" was noted to have a negative effect on self-esteem	N/A	Yes; participants believe F were more vulnerable to effects of SNS	Qualitative, Cross-sectional	20	M = 20.7; 18-25	14F, 6M	None	Focus groups	Time spent (hours)	Focus groups

Study	Country	Outcome	Effect size	Gender differences	Methodology	Sample size	Sample age	Sample sex	Sample diagnosis	Measurement SNS use	Measurement SNS use type	Measurement self-esteem
(Gentile et al., 2012)	USA	Editing SNS profile positively correlated with self-esteem	L	Not investigated	Quantitative, Cross-sectional	72	18-22	45F, 27M	None	Own questionnaire	Editing Facebook page	RSES
(Gentzler et al., 2023)	USA	SMU negatively correlated with self-esteem	S	Yes; M *higher self-esteem than F, F *more SMU than M	Quantitative, Cross-sectional	237	M = 15.10, SD = 0.49; 14-16	121F, 116M	None	Own questionnaire	Emotion, affectivity	RSES
(Hampton & Shin, 2022)	USA	SMU *negatively correlated with self-esteem in F, positively correlated with self-esteem in M	S	Yes; SMU *negatively correlated with self-esteem for F, M experience a small positive effect	Quantitative, Cross-sectional	3.258	13-17	1704F, 1554M	None	Own questionnaire	Time spent (hours)	SEQ
(Hartas, 2019)	UK	SMU negatively correlated with self-esteem	S	Yes; F *lower self-esteem than M	Quantitative, Cross-sectional	11.576	14	Not given	None	Own questionnaire	Time spent (hours)	RSES
(Hui et al., 2022)	China	SMU *positively correlated with self-esteem	S	Yes; F use SNS *more for entertainment than M	Quantitative, Cross-sectional	3.452	M = 18.21, SD = 2.01	1686F, 1766M	None	SNAIS	Social/entertainment use intensity	RSES
(Hussain et al., 2019)	UK	Facebook use and addiciton negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	69	M = 23.09, SD = 7.54	47F, 22M	None	BFAS	Addiction	RSES
(Jong & Drummond, 2016)	Australia	Type and immediacy of feedback on SNS affect self-esteem in different ways	N/A	N/A	Qualitative, Cross-sectional	28	12-14	28F, 0M	None	Focus group interview	Activities	Focus group interview
(Kaewpradub et al., 2017)	Thailand	SMU negatively correlated with body image satisfaction	XS	Yes; F have *lower body satisfaction than M and have higher SMU	Quantitative, Cross-sectional	620	M = 15.7, SD = 1.9	374F, 246M	None	Own questionnaire	Time spent (hours)	BESAA, RSES
(Kalyani, 2021)	India	SMU positively correlated with self-esteem	N/A	N/A	Quantitative, Cross-sectional	448	Adolescents	448F, 0M	None	Own questionnaire	x	RSES
(Kelly et al., 2018)	UK	SMU negatively correlated with self-esteem	N/A	Yes; F *more SMU and lower self-esteem	Quantitative, Cross-sectional	10.904	M = 14.3, SD = 0.34	5496F, 5408M	None	Own questionnaire	Time spent (hours)	RSES
(Kennedy et al., 2023)	UK	SNS facilitates discourse around body image, which can lead to low self-esteem	N/A	N/A	Qualitative, Cross-sectional	18	15-19	18F, 0M	None	Focus group interview	x	Focus group interview
(Kırcaburun et al., 2018)	Turkey	PSMU *negatively related to self-esteem	S	Yes; F *more PSMU	Quantitative, Cross-sectional	804	M = 16.2, SD = 1.03; 4-21	386F, 418M	None	SMUQ	Addiction	SISE
(Kırcaburun, 2016)	Turkey	SNS addiction *negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	1.130	12-18	659F, 463M	None	SMAS	Time spent (hours)	RSES
(Krämer & Winter, 2008)	Germany	SMU not correlated with self-esteem	None	Not investigated	Quantitative, Cross-sectional	58	M = 22.98, SD = 2.03	29F, 29M	None	Own questionnaire	Profile layout and content	RSES
(Leung et al., 2021)	China	SMU *negatively correlated with self-esteem	M	No	Quantitative, Cross-sectional	347	M = 20.27, SD = 2.02; 18-28	225F, 122M	None	Own questionnaire	Time spent (hours)	RSES
(Liu & Ma, 2018)	China	SNS addiction *negatively correlated with self-esteem	S	No	Quantitative, Cross-sectional	619	16-28	341F, 278M	None	Own questionnaire	Time spent (hours)	RSES
(Livet et al., 2022)	Canada	SMU *negative effect on self-esteem	M	Yes; M *higher self-esteem	Quantitative, Longitudinal	3.801	M = 12.8, SD = 0.4	1870F, 1931M	None	Own questionnaire	Time spent (hours)	RSES
(Ma, 2022)	Hong Kong	SMU positively correlated with self-esteem	XS	Yes; F more social interaction activities and high self-esteem; M less social interaction activities and lower self-esteem	Quantitative, Cross-sectional	193	M = 13.33, SD = 1.58	82F, 111M	None	Own questionnaire	Activities, time spent (hours)	RSES
(Mahon et al., 2022)	Ireland	SMU not correlated with self-esteem	N/A	Not investigated	Quantitative, Cross-sectional	9.493	M = 14.8, SD = 1.66; 12-18	5297F, 4196M	None	Own questionnaire	Time spent (hours)	RSES
(Mann & Blumberg, 2022)	USA	SMU *negatively correlated with self-esteem	M	No	Quantitative, Cross-sectional	152	M = 15.35, SD = 0.16; 11-18	85F, 67M	None	Own questionnaire	Time spent (labels)	SPPA
(Marciano & Viswanath, 2023)	Switzerland	Positive SNS experiences and self-disclosure *positively correlated with self-esteem, negative SNS experiences *negatively correlated with self-esteem	L	Yes; F *lower self-esteem	Quantitative, Cross-sectional	1.429	M = 15.84, SD = 0.83	840F, 589M	None	OSEM, own questionnaire	Social experiences, self-disclosure	RSES
(Markey & Daniels, 2022)	USA	SMU negative effect on self-esteem and positive effect on problematic aspects of self-esteem	S	N/A	Quantitative, Longitudinal	151	M = 12.06, SD = 1.22; 10-15	151F, 0M	None	Own questionnaire	Activities	BES

Study	Country	Outcome	Effect size	Gender differences	Methodology	Sample size	Sample age	Sample sex	Sample diagnosis	Measurement SNS use	Measurement SNS use type	Measurement self-esteem
(Martinez-Pecino & Garcia-Gavilán, 2019)	Spain	PSMU *negatively correlated with self-esteem	XS	No	Quantitative, Cross-sectional	233	M = 5.12, SD = 1.45	109F, 124M	None	Own questionnaire, PIU-PFU Scale (adapted to Instagram)	Amount of likes on posts, integration in daily life	RSES
(Mehdizadeh, 2010)	Canada	Time spent on SNS and frequency of checking SNS *negatively correlated with self-esteem	L	Yes; F show more self-promotion in the Main Photo section, M show more self-promotion in the About Me and Notes sections	Quantitative, Cross-sectional	100	M = 22.21, SD = 1.98; 18-25	50F, 50M	None	Own questionnaire	Time spent (hours), frequency	RSES
(Mengistu et al., 2023)	Ethiopia	PSMU *negatively correlated with self-esteem	N/A	No	Quantitative, Cross-sectional	1.232	15-25+, university undergraduates	482F, 750M	None	BSMAS	Addiction	RSES
(Metzler & Scheithauer, 2015)	Germany	SMU positively correlated with self-esteem	S	Yes; gender differences across several facets	Quantitative, Cross-sectional	143	M = 15.72, SD = 1.13; 14-17	91F, 52M	None	Own questionnaire	Profile layout	BFWJ
(Metzler & Scheithauer, 2017)	Germany	Amount of SNS friends positive effect on self-esteem, positive self-presentation negative effect on self-esteem	S	Yes; F receive *more likes for positive self-presentation on Facebook	Quantitative, Longitudinal	217	M = 16.7, SD = 1.03	148F, 69M	None	Own questionnaire	Number of friends, self-presentation, positive feedback	RSES (modified)
(Muñoz et al., 2024)	Spain	Negative criticism on posts and the importance given to a person's physique on SNS were noted to lead to low self-esteem	N/A	N/A	Qualitative, Cross-sectional	118	M = 19.36, SD = 2.64; 14-25	68F, 47M, 3N	None	Focus groups + interviews	Exhibition of the female body	Focus groups + interviews
(Mustafa et al., 2024)	Pakistan	SMU *negatively correlated with self-esteem and positively correlated with social comparison	S	Yes; M *more SMU than F	Quantitative, Cross-sectional	249	14-25	153F, 96M	None	SCS, SMUS	Time spent (labels)	RSES
(Nardis & Panek, 2018)	USA	Self-esteem *negatively correlated with likelihood of having public profile settings	S	Yes; F more likely to have private settings	Quantitative, Cross-sectional	457	M= 18.79, SD = .81	347F, 110M	None	Own questionnaire	Privacy settings	RSES
(Neira & Barber, 2013)	Australia	Having SNS profile and SNS usage frequency negatively correlated with self-esteem, SNS investment *negatively correlated with self-esteem	XS	Yes; F more likely to have SNS than M, activities differ	Quantitative, Cross-sectional	1.819	M = 14.6, SD = 1.05; 13-17	1000F, 819M	None	Own questionnaire	Frequency, addiction	Own questionnaire
(Niraula & Bohora, 2023)	Nepal	Low self-esteem was noted as a disadvantage of SMU	N/A	Not investigated	Qualitative, Cross-sectional	20	University undergraduates	Not given	None	Interview	x	Interview
(Niu et al., 2018)	China	SMU and negative social comparison *negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	764	M = 14.23, SD = 1.75; 12-18	358F, 406M	None	FIS, own questionnaire	Emotional connection and integration into daily life, frequency of actions, time spent (hours), number of friends	RSES
(Noor & Zeb, 2021)	Pakistan	SMU *negatively correlated with self-esteem	M	Yes; F *more SMU than M	Quantitative, Cross-sectional	150	14-25	75F, 75M	None	SONTES	Time spent (labels)	RSES
(Oppong et al., 2022)	Ghana	PSMU negatively correlated with self-esteem	XS	Not investigated	Quantitative, Cross-sectional	651	M = 20.48, SD = 1.98	261F, 390M	None	BSMAS	Addiction	SISE
(Pantic et al., 2017)	Serbia	SMU not correlated with self-esteem	None	No	Quantitative, Cross-sectional	244	M = 21.98, SD = 2.57	157F, 87M	None	Own questionnaire	Time spent (hours), number of Facebook friends, number of selfies	RSES
(Peris et al., 2020)	Spain	SMU negatively correlated with body satisfaction esteem, *positively correlated with physical attractiveness esteem	S	Yes; F more SMU	Quantitative, Cross-sectional	447	M = 14.90, SD = 0.81; 13-16	251F, 196M	None	ERA-RSI	Addiction	BSS
(Plackett et al., 2023)	UK	SMU negative effect on self-esteem	S	No	Quantitative, Longitudinal	3.228	10-15	1659F, 1569M	None	Own questionnaire	Time spent (hours)	Own questionnaire
(Pop et al., 2022)	Romania	SMU *negatively correlated with self-esteem and body esteem	S	Yes; F *lower self-esteem	Quantitative, Cross-sectional	427	M = 21.62, SD = 2.37; 18-30	352F, 75M	None	Own questionnaire	Time spent (hours), reason for using, feedback	RSES, BESAA
(Pouwels et al., 2024)	The Netherlands	Effects of SMU on self-esteem can change over time, but for the majory the effects of SMU on self-esteem are negative	N/A	No	Quantitative, Longitudinal	297	M = 14.1, SD = 0.7; 13-16	175F, 122M	None	Own questionnaire	Time spent (hours)	RSES (modified 1-item)

Study	Country	Outcome	Effect size	Gender differences	Methodology	Sample size	Sample age	Sample sex	Sample diagnosis	Measurement SNS use	Measurement SNS use type	Measurement self-esteem
(Primi et al., 2021)	Italy	SNS addiction *negatively correlated with self-esteem	S	No	Quantitative, Cross-sectional	1.134	M = 20.7, SD = 3.5; 14-33	567F, 567M	None	BFAS	Addiction	RSES
(Roberts et al., 2022)	USA	Self-esteem *improved after SNS detox period	M	N/A	Quantitative, Longitudinal	65	M = 14.25, SD = 2.40; 10-19	65F, 0M	None	Abstinence	None	RSES
(Rodgers et al., 2020)	Australia	SMU *negatively correlated with self-esteem and body satisfaction	M	Yes; different pathways	Quantitative, Cross-sectional	681	M = 12.76, SD = 0.74	334F, 347M	None	Own questionnaire	Frequency, time spent (labels)	SISE
(Sabik et al., 2019)	USA	SMU *positively correlated with self-worth dependent on SNS	M	N/A	Quantitative, Cross-sectional	160	M = 20.5, SD = 2.67	160F, 0M	None	Own questionnaire, SMUG	Frequency, reasons for using social media	SWDSM
(Sampasa-Kanyinga et al., 2023)	Canada	SMU *negatively correlated with self-esteem	S	Yes; F *lower self-esteem	Quantitative, Cross-sectional	6.944	M = 15.2, SD = 1.8	3437F, 3507M	None	Own questionnaire	Time spent (hours)	RSES (modified 1-item)
(Samra et al., 2022)	Australia	PSMU negatively correlated with self-esteem	S	Yes; F *higher PSMU scores than M	Quantitative, Cross-sectional	144	M = 20.15, SD = 3.94	65F, 79M	None	BSMAS, own questionnaire	Addiction, frequency of SMU	RSES
(Santarossa & Woodruff, 2017)	Canada	SMU negatively correlated with self-esteem, effect differs per activity	S	Yes; M less SMU and higher self-esteem	Quantitative, Cross-sectional	147	18-27	81F, 66M	None	Own questionnaire	Time spent (hours), number of followers/following, activities, editing photographs	BESAA, RSES, SSES
(Shafi et al., 2021a)	USA	SMU not correlated with self-esteem	None	Not investigated	Quantitative, Cross-sectional	60	M = 15.05, SD = 1.18; 13-17	38F, 22M	Major Depressive Disorder	BSMAS	Addiction	RSES
(Shafi et al., 2021b)	USA	PSMU not correlated with self-esteem	None	Yes; in MDD patients, F had *higher risk of SNS addiction than M and MDD was a predictor for PSMU	Quantitative, Cross-sectional	60	M = 15.05, SD = 1.18; 13-17	38F, 22M	Major Depressive Disorder	BSMAS	Addiction	RSES
(Shao & Ni, 2021)	China	SMU *negatively correlated with self-esteem	S	Yes; F use SNS *more than M, F use SNS mainly for support-seeking, M use SNS mainly as a habit	Quantitative, Cross-sectional	2.241	M = 18.25, SD = 3.5	1201F, 1040M	None	Own questionnaire	Time spent (labels)	RSES
(Shi, Luo, Liu & Yang, 2018)	China	SMU *positively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	208	M = 20.29, SD = 1.86	112F, 96M	None	Own questionnaire, SNS-FUS	Frequency, affect, type	RSES
(Shi, Luo, Yang, et al., 2018)	China	SMU positively correlated with self-esteem	XS	Not investigated	Quantitative, Cross-sectional	464	M = 20.34, SD = 1.86	225F, 183M	None	SNS-FUS	Time spent (labels)	RSES
(Sireli et al., 2023)	Turkey	SMU *negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	239	M = 20.62, SD = 1.92	197F, 42M	None	SMD-9	Addiction	RSES
(Stapleton et al., 2017)	Australia	SMU negatively correlated with self-esteem	XS	Not investigated	Quantitative, Cross-sectional	237	M = 23.12, SD = 2.17	144F, 93M	None	FIS (modified to Instagram)	Emotional connection and integration into daily life	RSES
(Steinfield et al., 2008)	USA	SMU positive effect on self-esteem	N/A	Not investigated	Quantitative, Longitudinal	92	M = 20.1, SD = 1.36	68F, 24M	None	Own questionnaire	Time spent (hours), number of friends	RSES
(Steinsbekk et al., 2020)	Norway	Effect of SMU on self-esteem changes over time; positive at age 10, negative at age 12, *negative at age 14	S	Yes; effect of SMU on self-esteem in F but not in M	Quantitative, Longitudinal	725	Ages 10, 12 and 14	377F, 348M	None	Interview	Characteristics of use	SDQ-I
(Tazghini & Siedlecki, 2013)	USA	SMU *negatively correlated with self-esteem	S	Yes; M *more Facebook friends	Mixed, Cross-sectional	201	M = 20.91; 17-29	123F, 77M	None	FIS, FUS	Emotional connection and integration into daily life, frequency of actions	RSES
(Thorisdottir et al., 2019)	Iceland	SMU *negatively correlated with self-esteem	S	Yes; time spent on SNS had a stronger effect on emotional distress among F	Quantitative, Cross-sectional	10.563	14-16	5313F, 5250M	None	Own questionnaire	Time spent (hours)	RSES
(Tiggemann & Slater, 2013)	Australia	SMU *negatively correlated with body esteem	M	N/A	Quantitative, Cross-sectional	189	M = 11.5, SD = 0.5; 10-12	189F, 0M	None	Own questionnaire	Time spent (hours)	BESC
(Tiggemann & Zaccardo, 2015)	Australia	Self-esteem was *lower after seeing fitspiration pictures as compared to travel pictures on SNS	M	N/A	Quantitative, Cross-sectional	130	M = 19.9, SD = 2.80; 17-30	130F, 0M	None	Own questionnaire	Time spent (hours), importance of photo quality	SSES
(Twenge & Farley, 2020)	UK	SMU *negatively correlated with self-esteem	S	Yes; girls more SMU and experience *more severe effects	Quantitative, Cross-sectional	11.427	M = 13.77, SD = 1.45; 13-15	5714F, 5713M	None	Own questionnaire	Time spent (hours)	RSES (modified 5-item)

Study	Country	Outcome	Effect size	Gender differences	Methodology	Sample size	Sample age	Sample sex	Sample diagnosis	Measurement SNS use	Measurement SNS use type	Measurement self-esteem
(Valdés et al., 2024)	Spain	SMU negatively correlated with self-esteem	N/A	Yes; M higher self-esteem than F	Quantitative, Cross-sectional	309	M = 15, SD = 0.58; 13-17	158F, 148M, 3N	None	Own questionnaire	General information	RSES
(Valkenburg et al., 2021)	The Netherlands	SMU *negative effect on self-esteem, but since some people experience positive effects, person-specific model is suggested	N/A	Not investigated	Quantitative, Longitudinal	387	M = 14.11, SD = 0.69; 13-15	209F, 178M	None	Own questionnaire	Time spent (hours)	RSES
(Van Eldik et al., 2019)	The Netherlands	SMU positively correlated with self-esteem, SNS consumption negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	324	M = 10.7, SD = 0.88; 9-13	159F, 160M	None	Own questionnaire	Time spent (labels)	RSES (modified 6-item)
(Vandoninck et al., 2011)	Belgium	SMU not correlated with self-esteem	None	Yes; F *more SMU, M less interested in adding people they personally know as friends on SNS than F	Quantitative, Cross-sectional	815	M = 16.6, SD = 1.24; 14-19	407F, 408M	None	Own questionnaire	Frequency of use and type	Own questionnaire
(Verbeij et al., 2022)	The Netherlands	Self-reported SMU *negatively correlated with self-esteem, objective SMU negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	159	Adolescents	Not given	None	Own questionnaire	Time spent (hours)	x
(Vogel et al., 2015)	USA	Social comparison positively correlated with SMU, during SMU those with high social comparison had lower self-esteem	S	Not investigated	Quantitative, Cross-sectional	120	M = 18.93, SD = 3.94	92F, 28M	None	Own questionnaire	Facebook activity	SSES
(Vuković et al., 2017)	Croatia	SMU negatively correlated with self-esteem	S	N/A	Quantitative, Cross-sectional	211	M = 16.14, SD = 0.47	211F, 0M	None	Own questionnaire	Time spent (hours)	SDQ
(Wang et al., 2012)	China	SMU positively correlated with self-esteem	S	Yes; M reported more SNS friends and were more likely to play online games than F, who were more likely to upload self-photos and update their status	Quantitative, Cross-sectional	265	M = 20.15, SD = 0.9; 18-24	Not given	None	Own questionnaire	Time spent (labels)	RSES
(Wang et al., 2017)	China	Passive SMU *negatively correlated with self-esteem	S	Yes; F *higher passive SMU	Quantitative, Cross-sectional	696	M = 19.43, SD = 1.65; 17-24	564F, 132M	None	Own questionnaire	Frequency (labels)	RSES
(Wang et al., 2018)	China	SNS addiction negatively correlated with self-esteem	XS	Not investigated	Quantitative, Cross-sectional	365	M = 15.96, SD = 0.69; 14-18	190F, 175M	None	FIQ	Addiction	RSES
(Wang et al., 2020)	China	PSMU *negatively correlated with self-esteem	S	Yes; F more SMU and lower self-esteem	Quantitative, Cross-sectional	688	M = 13.44, SD = 0.99; 11-16	386F, 302M	None	FIQ	Addiction	RSES (modified 5-item)
(Wartberg & Kammerl, 2020)	Germany	PSMU *negatively correlated with self-esteem	S	Yes; F *more likely to exhibit PSMU	Quantitative, Cross-sectional	633	M = 15.79	299F, 334M	None	SMD-9	Addiction	SPS-J-II
(Wilson et al., 2010)	Australia	Time spent on SNS positively correlated with self-esteem, SNS addiction negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	201	M = 19.07, SD = 1.86; 17-24	153F, 46M	None	Own questionnaire	Time spent (hours), addiction	CSEI
(Woods & Scott, 2016)	Scotland	Overall SMU and nighttime SMU *negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	467	11-17	Not given	None	Own questionnaire, SMUIS	Emotional connection and integration into daily life and social routines, time spent (hours), frequency, nighttime use, number of different SNS sites	RSES
(Xu & Zheng, 2022)	China	PSMU *negatively correlated with self-esteem	S	No	Quantitative, Cross-sectional	835	M = 19.44, SD = 1.28; 18-25	542F, 293M	None	SMUQ	Addiction	RSES
(Yan et al., 2017)	China	SMU negatively correlated with self-esteem	S	Not investigated	Quantitative, Cross-sectional	2.625	M = 15.1, SD = 1.7; 13-18	1234F, 1391M	None	Own questionnaire	Time spent (hours)	RSES
(Yang & Brown, 2015)	USA	Effects of SMU on self-esteem vary; feedback *positive effect on self-esteem, self-reflection negative effect on self-esteem	S	Not investigated	Quantitative, Longitudinal	218	M = 18.07, SD = 0.33	140F, 78M	None	Own questionnaire	Self-presentation	RSES (modified 5-item)
(Yang et al., 2017)	USA	Positive self-presentation on SNS positively correlated with self-esteem	S	No	Quantitative, Cross-sectional	219	M = 18.29, SD = 0.75; 18-23	162F, 57M	None	Own questionnaire, SMSPS	Time spent (hours), self-presentation	RSES (modified 6-item)

Study	Country	Outcome	Effect size	Gender differences	Methodology	Sample size	Sample age	Sample sex	Sample diagnosis	Measurement SNS use	Measurement SNS use type	Measurement self-esteem
(Yang et al., 2023)	South Korea	SMU *positively correlated with self-esteem	M	Not investigated	Quantitative, Cross-sectional	468	M = 15.39, SD = 1.61	224F, 244M	None	Own questionnaire, PSPI, SMSPS	Time spent (hours), positive self-presentation, honest self-presentation	RSES
(Yin et al., 2021)	China	Passive SMU positive effect on self-esteem, active SMU negative effect on self-esteem	S	N/A	Quantitative, Longitudinal	99	M = 18.81, SD = 0.84	99F, 0M	None	Own questionnaire	Amount of interactions, time spent (hours)	RSES
(You & Kwon, 2024)	South Korea	SMU *negatively correlated with self-esteem and *positively correlated with problematic aspects of self-esteem	S	N/A	Quantitative, Cross-sectional	507	M = 21.14, SD = 2.11	507F, 0M	None	Own questionnaire	Time spent (hours), activities	SSES
(Zhang et al., 2023)	China	SMU *positively correlated with self-esteem	M	No	Quantitative, Cross-sectional	1.004	M = 23.78, SD = 4.06; 18-31	483F, 521M	None	SMUS	Time spent (labels)	RSES
(Zhao et al., 2022)	USA	SMU *positively correlated with self-esteem	S	Yes; F more SMU and lower self-esteem	Quantitative, Cross-sectional	192	18-25	145F, 45M, 2N	None	Own questionnaire	Time spent (labels), frequency of engaging in active and passive behaviors on instagram	RSES, MBSRQ

Appendix C

Table C1

Overview of articles included in RQ2

Study	Country	Outcome	Effect size	Gender differences	Methodology	Sample size	Sample age	Sample sex	Sample diagnosis	Measurement SNS use	Measurement SNS use type	Measurement psychosis
(Baldwin et al., 2020)	UK	Cyberbullying *positively correlated with psychotic experiences	S	No	Quantitative, Longitudinal	7708	16-22	4779F, 2929M	None	MPCSR	Cyber-victimisation	SPEQ
(Berry et al., 2018)	UK	Clinical group *less SMU, *lower self-esteem, *higher paranoia than non-clinical group, SMU positively correlated with paranoia and self-esteem, effects differ per use type	S	No	Quantitative, Longitudinal	44	M = 33.7, SD = 9.7; 22-54	12F, 7M	19 psychosis, 25 none	SMUIS	Emotional connection and integration into daily life and social routines	PS
(Birnbaum et al., 2015)	USA	Majority noticed changes in SMU during symptom emergence: almost half have less SMU, minority have more SMU	N/A	Not investigated	Quantitative, Cross-sectional	80	M = 18.3, SD = 2.2; 12-21	41F, 39M	40 psychosis, 40 mood disorder	Own questionnaire	Time spent (hours), frequency	PCP-Q
(Birnbaum et al., 2018)	USA	74% reported SMU changes during symptoms emergence, 24% reported that others noticed changes in their SMU	N/A	Not investigated	Quantitative, Cross-sectional	112	M = 22.5, 15-35	36F, 76M	122 psychotic disorder	Interview, PCP-Q	Time spent (hours), frequency, online activity during symptom emergence	Interview, PCP-Q, TPE
(Daley et al., 2005)	USA	SMU helped decrease loneliness, increase self-esteem and decrease symptoms	N/A	N/A	Qualitative, Cross-sectional	1	15	0F, 1M	1 psychosis	N/A	N/A	N/A
(Oluğ et al., 2023)	Turkey	Majority felt that SMU did not worsen their symptoms and that SNS helps them socialize, severity was *higher in patients who did not use SNS	N/A	Not investigated	Quantitative, Cross-sectional	150	M = 41.45, SD = 11.87; 18-65	50F, 100M	150 bipolar disorder, 82 schizophrenia, 56 psychotic disorder, 12 schizoaffective disorder	Own questionnaire	Opinions on effects of SMU	BPRS, CGIS
(Paquin et al., 2023)	Canada	SMU positively correlated with psychotic experiences	M	Not investigated	Quantitative, Longitudinal	425	18-25	348F, 74M	None	Own questionnaire	Time spent (hours)	CAPE
(Paquin et al., 2024)	USA	Psychotic symptoms negatively correlated with SMU, SMU was associated with a reduction in paranoia	L	Yes; F *more SMU	Quantitative, Longitudinal	409	18-65	245F, 162M, 2N	189 schizophrenia, 220 bipolar disorder	Own questionnaire	Activities	PANSS, own questionnaire
(Rekhi et al., 2019)	Singapore	PANSS negative and depression *negatively correlated with SMU, PANSS positive positively correlated with SMU, CAINS social *negatively correlated with SMU	S	Not investigated	Quantitative, Cross-sectional	265	M = 40.38, SD = 10.26; 21-65	117F, 148M	165 schizophrenia	Own questionnaire	Frequency	PANSS, CAINS