ONLINE PERCEIVED SOCIAL SUPPORT AND ITS ASSOCIATION WITH PSYCHOPATHOLOGY IN RURAL AND URBAN YOUTH

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Abstract

Social support is a fundamental aspect of development throughout adolescence. It has been found to buffer against the negative impacts of stress and provide general benefits to one's well-being. Youth today are exposed to a range of opportunities for socialization with peers, both in-person and online, including interacting with others through texting, social media, video games, and other digital means. These online interactions have begun to be investigated as accessible methods through which adolescents can connect with others and maintain healthy relationships. Furthermore, digital social networks may be most critical for youth from isolated communities, including those from rural areas. With this study we investigated the relationship between social media use frequency and perceptions of online social support among high school students. Additionally, we compared differential social media use and online social support between youth from rural and urban communities. Finally, we examined whether online social support was associated with symptoms of depression and anxiety, and whether the strength of this relationship was moderated by community type (rural versus urban). Participants were 275 students from seven local high schools who provided information on their social media use, perceptions of online support, and mental health. Among all youth, social media use was found to have a positive association with perceptions of online social support. Additionally, rural youth were found to report greater social media use and online social support compared to urban youth. However, community type did not influence the association between perceived online social support and depression or anxiety. These findings may indicate that while rural youth appear to engage more with others online and reap greater social benefits from their online interactions, the benefits do not outweigh the underlying mechanisms that perpetuate symptoms of depression and anxiety. These findings provide important insights into how social media and online interactions serve as a means of social support for youth, especially for those from vulnerable populations, such as rural youth. Future research should continue to investigate how social media can be harnessed to mitigate distress in youth who use it frequently, particularly adolescents from isolated communities.

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Introduction

Historically, support from peers and family members has been identified as a major factor in promoting healthy development for youth globally (Guntzviller et al., 2020; Holt-Lunstad, 2021; Taylor, 2011). Feeling supported by one's social network is associated with fewer internalizing symptoms as well as greater overall life satisfaction in myriad populations (Bi et al., 2021; Chu et al., 2010). Similarly, perceived connectedness with peers has been found to mitigate deleterious effects of stressors and traumatic experiences on psychological health in populations who deal with particularly high levels of stress such as first responders (Smirnova et al., 2021) and college students who face unique stressors (Lee & Robbins, 1998). In contrast, poor perceptions of social support can greatly increase one's risk of experiencing mental and emotional problems, including depression (Hefner & Eisenberg, 2009; Rueger et al., 2016).

While social support is important across all stages of development, adolescence is a period marked by exceptional transition and change, making it increasingly important for teens to feel connected to, and accepted by, their peers (Orben et al., 2020; Corsano et al., 2006). Rural youth, particularly those with exposure to early life stressors, may be at heightened risk for social isolation and may face greater barriers which interfere with building a strong social network compared to their urban peers (Gristy, 2012). Fortunately, in modern society, social connectedness may not rely solely on face-to-face interactions.

A vast majority of adolescents report using social media daily to interact and connect with others (American Academy of Child & Adolescent Psychiatry, 2018). This frequent use may indicate that social media is a convenient tool through which young people can obtain social support and build meaningful connections. Additionally, during the COVID-19 pandemic, social media served as a primary means through which individuals were able to maintain relationships

with one another (Masciantonio et al., 2021). Thus, demonstrating the powerful capabilities of social media to increase access to others and subsequently help strengthen perceived social support, even when in-person interactions are limited.

Contrary to the potential positive aspects of social media, there is some evidence to suggest that social media use is associated with increased mental health issues as well as social media addiction, withdrawal, and emotional exhaustion (Bright et al., 2015; Clayton et al., 2015; Dhir et al., 2018). Despite the negative effects associated with technology and social media use, there is a growing body of work investigating the potential benefits of social media use in many aspects of development and well-being (Berryman et al., 2018; Kim, 2014; Nabi et al., 2013). This research is critical to identifying how to promote healthy development in youth. Further, due to the growing prevalence of mental disorders in youth (Polanczyk et al., 2015), it is increasingly important to address the underlying mechanisms that contribute to mental health issues in this population. The purpose of this study is to investigate how perceived online social support is differentially associated with psychopathology and psychological well-being in urban and rural youth.

Literature Review

Psychopathology in Youth

Prevalence of psychopathology among youth aged 13 to 18 in the United States is estimated to be around 50%, of whom over 20% experience severe functional impairment (National Institute of Mental Health, 2021). While there is a wide range of mental disorders, depression and anxiety are two of the most omnipresent conditions across age groups and cultures (National Institute of Mental Health, 2021). The National Institute for Mental Health (2021) estimates about 31% of U.S. children and adolescents have experienced an anxiety disorder, and

about 13% have experienced a major depressive episode before reaching adulthood. Additionally, anxiety disorders and depressive disorders are frequently comorbid, meaning they co-occur or occur sequentially with one another (American Psychiatric Association, 2013).

Despite these rates, it is approximated that only about three-fourths of youth with depression and just over half of those with anxiety tend to receive treatment for their mental health (Centers for Disease Control and Prevention, 2021). This discrepancy indicates that a substantial percentage of children and adolescents are living with mental health conditions without any form of intervention to mitigate negative outcomes. On these grounds, it is critical to uncover how to reduce risk for the development of, or heightened severity of, psychopathology. This daunting task can be accomplished first by identifying protective factors contributing to risk and resiliency over the course of development.

Early Life Stress and Psychopathology in Youth

Adolescence is a vulnerable period of development that is associated with increased risk for the onset of various psychopathologies including depression and anxiety (LeMoult et al., 2020; Rapee et al., 2019). As this life stage is marked by substantial development physically, mentally, and emotionally, individuals in this period, in turn, are more susceptible to sustaining lasting impacts from exposure to adversity (Powers & Casey, 2015). Adverse childhood experiences or exposure to a range of early life stressors may increase one's likelihood of developing a mental health condition or exacerbating existing psychopathological symptoms (Carr et al., 2013; Dube et al., 2001; Felitti et al., 1998; Heim & Binder, 2012). This link between early life stressors and increased risk for depression, anxiety, and other mental health conditions is well-established (Carr et al., 2013; Heim & Binder, 2012). Additionally, the ways in which an individual's genetics and

environment interact may make one more or less susceptible to the effects of early adversity on brain development (Heim & Binder, 2012; VanTieghem & Tottenham, 2018).

An individual's environment during adolescence may have lasting effects on their mental and emotional development (Rapee et al., 2019). Youth from a range of community types (e.g., rural, urban) are vulnerable to various risk factors which may contribute to early life stress and subsequent psychopathology (LeMoult et al., 2020). Urban youth, for instance, may be at increased risk for exposure to traumatic events or community violence as well as increased risk for engagement in substance use (Webb et al., 2021). However, urban youth are also more likely to live closer to health care facilities and live above the poverty line (Rural Health Information Hub; RHIhub, 2021). Alternatively, rural youth, while more likely to report greater connectedness with their community and experience less risk for physical ailments (Goodwin & Taha, 2014), are also at risk for substance use as well as exposure to adversities such as low socioeconomic status (SES) and related challenges like parent unemployment (Curtis et al., 2011).

Furthermore, rural youth are likely to encounter additional barriers to achieving optimal well-being such as limited access to mental health care and increased stigma, which are less common challenges in urban communities (Crumb et al., 2019; Hardin et al., 2018). While there is some research demonstrating that growing up in a rural community can reduce one's risk of psychopathology (Goodwin & Taha, 2014), other studies have found that rural youth may be at increased risk for substance use, mental health conditions, and various physical health conditions including obesity and issues related to sexual health (Curtis et al., 2011). Additionally, rural areas have been found to have a lower overall socioeconomic status and, relatedly, a greater prevalence of individuals living below the poverty line who require government assistance (RHIhub, 2021).

The national poverty rate in 2020 was 11.4%, with households outside of metropolitan areas reporting the lowest median incomes (Shrider et al., 2021). As is well established, poverty is associated with myriad negative outcomes and, in rural areas, may play a dynamic role in community perceptions of mental health conditions and care (Crumb et al., 2019). In a longitudinal study examining rural youth, Costello and colleagues (2016) found a significant negative association between family income and number of psychiatric symptoms. Additionally, they found that when families received an income supplement, which brought their income above the poverty line, symptoms markedly improved over time.

Poverty may further exacerbate barriers to health care treatment which uniquely affect youth from rural communities. In a study by Hardin and colleagues (2018), rural adolescents were found to be less trusting of health care professionals and reported using healthcare services less frequently. In this study, reported levels of trust in health care providers were thought to be related to whether the particular provider was that individual's usual source of care. This may suggest that rural youth, who have consistently limited access to health care and therefore fewer interactions with providers (RHIhub, 2021), may encounter greater difficulty developing a strong sense of trust in the health system overall, leading to less use of health care resources and facilities (Hardin et al., 2018). In general, these barriers contribute to increased stigma of health care, particularly mental health care, among residents of rural communities (Crumb et al., 2019). These issues related to limited access to healthcare may contribute to low treatment-seeking rates over time for both mental and physical ailments. Thus, it is increasingly important to identify what protective factors exist for these communities, and which may aid in buffering against risk for the development of psychopathology in rural adolescents.

Social Support

Defining Social Support

Social support is an essential factor in the subjective well-being of youth from rural communities (Newland et al., 2014). Social support is broadly defined as having access to mental, emotional, and physical resources through a network of friends, family, peers, and community (Cohen & Wills, 1985). It is also frequently associated with terms such as "belongingness" and "connectedness," which describe the degree to which one feels accepted as a part of a group. Two theories exist to address the underlying mechanisms by which social support improves well-being – the general benefits or main-effect model and the stress buffering model (Cohen & Wills, 1985).

Main-Effect Model

The main-effect model posits that social networks provide regular positive and socially rewarding experiences which may be related to general well-being (Cohen & Wills, 1985). The main-effect model is somewhat paralleled by the "belongingness hypothesis," which states the following – "human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships" (Baumeister & Leary, 1995). This inherent drive involves the need for frequent, positive interactions with several meaningful individuals in a person's life. It also requires that there is an underlying foundation of care for one another's welfare. The main-effect hypothesis supports the idea that belongingness is fundamental to human motivation, and people generally avoid breaking or losing attachments (Baumeister & Leary, 1995).

In support of this model, social support has been found to be generally beneficial for individuals who are not under stress, including children and adolescents (Lyell et al., 2020). Research has found that increased peer and parent social support is associated with heightened

self-efficacy and increased physical activity in youth (Duncan et al., 2005). Additionally, in a study examining differences in how youth benefit from various sources of support, they found that support from parents and classmates alike was associated with reduced internalizing problems (Lyell et al., 2020).

Stress Buffering Model

The stress buffering model suggests that social support is related to well-being *only* when an individual is under stress (Cohen & Wills, 1985). This theory relies on the idea that adequate support may interfere with the relationship between stress and poor mental health by reducing or even eliminating the stress reaction (Cohen & Wills, 1985).

Some support does exist in favor of the stress buffering model (Lee et al., 2006; Raffaelli et al., 2013). For instance, Raffaelli and colleagues (2013) investigated the association between social support and depression in a sample of college students in Mexico who were amid a particularly stressful stage of life. The researchers found that family support was especially important in buffering the relationship between stress and depression during this uniquely stressful period. Research such as this may indicate that social support is particularly crucial to psychological health during times of greater stress.

Empirical Support for Social Support Models

Much research has been conducted in an effort to determine which model best describes the true underlying mechanisms through which social support impacts psychological well-being (Boumans & Landeweerd, 1992; Che et al., 2018; Rueger et al., 2016). While both models have garnered at least some support in the past (Cohen & Wills, 1985), over time, the main-effect model has gained relatively more support than the stress buffering model (Cho, 2022; Sherman et al., 2016). Importantly, there is consensus between the models regarding the contribution of social

support to mental well-being; however, where they differ is in their description of the situations in which social support may be most beneficial.

Robust empirical support for the main-effect model in youth is well-established (Rueger et al., 2016). Peer social support has been found to benefit well-being in youth across many contexts (Ciarrochi et al., 2017; Newland et al., 2014). Additionally, a network of social support from multiple sources has been identified as an essential component of adolescent development and well-being (Bi et al., 2021). However, while findings for the main-effect model in youth are strong, evidence for the stress buffering model is less conclusive. A meta-analysis by Rueger and colleagues (2016) reviewed studies examining both models in young populations. While they found substantial support for the main-effect model and its relation to psychopathology in youth, the researchers found less evidence for the stress buffering model. Furthermore, they concluded that some stressful environments may even dampen the positive effects of social support.

Furthermore, there is a considerable amount of research investigating the benefits of social support for youth who are exposed to stressful environments (i.e., peer victimization, racial discrimination). In a study evaluating the benefits of social support for individuals who were victimized by peers, support from parents, teachers, and peers were all found to have little positive effect on the development of anxiety over time (Spence et al., 2022). Additionally, several studies have attempted to garner support for the stress buffering model by investigating the utility of social support for racially and ethnically diverse youth who may be exposed to relatively greater stress than their peers (Wasserman et al., 2021; Wills et al., 2019). Wasserman and colleagues (2021) found mixed support for the model; While peer social support did mitigate the relationship between stress and psychopathology, parent support did not. Conversely, in a study addressing social support and suicidal ideation in adolescent girls, parental social support

was negatively associated with suicidality whereas peer support did not have a strong effect. Specifically, they found that social support from both peers and parents may be helpful in buffering against the effects of stressful interpersonal life events, but not non-interpersonal life events (Mackin et al., 2017). Additionally, several studies investigating perceived social support in LGBTQIA+ youth have found that social support is even more essential to well-being in these populations (Durwood et al., 2021; Watson et al., 2019).

In sum, while the literature base has continued to demonstrate support for the main-effect model, findings highlight a need for more research investigating under what circumstances the stress buffering model is relevant in youth and whether it may be more appropriate in reference to certain sub-populations. Rueger and colleagues (2016) explain that these theoretical models may be more compatible than they are competing. Further research investigating when and how each model is relevant is necessary to better understand the complex relationship between social support and psychopathology or well-being.

Implications of Social Support

Extant research has demonstrated that social support plays an important interdisciplinary role in promoting health and well-being (Bi et al., 2021). Previous research has demonstrated the importance of social support in promoting well-being across ages and demographic backgrounds (Bi et al., 2021; Chu et al., 2010; Harandi et al., 2017; Hefner & Eisenberg, 2009; Kelly et al., 2017; Waldrip et al., 2008). For instance, several studies have demonstrated support for the positive impact of social support on cardiovascular health (Bowen et al., 2014; Lepore et al., 1993), and greater perceived social support has even been found to be associated with reduced risk of mortality (Uhing et al., 2021). In youth, research has shown that social support,

particularly peer support, is positively associated with physical activity (Duncan et al., 2005), which is an essential component of health in children and adolescents.

In addition to physical health, social support has also been found to benefit mental health across the lifespan (Cobb, 1976; Bi et al., 2021). The promotion of social connectedness has been found to reduce the risk of psychopathology, including emotional stress, depression, and anxiety (Dang, 2014; Guntzviller et al., 2020; Kelly et al., 2017; Waldrip et al., 2008; Wang et al., 2018). Conversely, lack of social support has been found to result in poorer social functioning as well as increased psychopathology in youth (Corsano et al., 2006; O'Connor et al., 2011; Waldrip et al., 2008). In a meta-analysis by Chu and colleagues (2010), they found a positive association between social support and well-being in children and adolescents. They also found that different sources of support (e.g., teachers, peers, family, etc.) may impact well-being differently (Chu et al., 2010). Cavanaugh and Buehler (2016) found that parental and peer social support were uniquely associated with various components of psychological well-being (i.e., loneliness and social anxiety, respectively) and that poor social support may be associated with increased loneliness and social anxiety.

In children and adolescents, having a strong sense of connectedness with peers may be associated with greater self-esteem among other psychological health indicators (i.e., depression, anxiety; Chu et al., 2010; Corsano et al., 2006; Eriksson et al., 2012). However, this relationship between social support and psychopathology is inconsistent across countries and regions, suggesting a potential cultural component (Bi et al., 2021).

Implications for Vulnerable Populations

As the literature has expanded, some researchers have been interested in identifying the ways in which members of vulnerable populations uniquely benefit from perceived social support

(Dang, 2014; Detrie & Lease, 2007). Several studies have found that poor social support may have particularly detrimental effects on the psychological well-being of vulnerable groups including individuals with existing mental health diagnoses (Bhatta et al., 2014; Wang et al., 2018). Because some youths are at risk for lower perceptions of social support, they may also be at increased risk for related psychopathology (Standley & Foster-Fishman, 2021).

Regarding challenges faced by diverse youth, prior research has focused on studying poor social support in subpopulations such as LGBTQIA+ youth, homeless youth, and individuals who have been peer victimized (Dang, 2014; Detrie & Lease, 2007; Lin et al., 2020). Few studies have investigated the benefits of perceived social support in youth from rural or geographically isolated communities, in which socialization may be more difficult for some individuals.

Rural Youth as a Vulnerable Population

Youth growing up in rural areas represent a vulnerable population who may be more susceptible to negative effects of poor social support. Rural communities make up about one-fifth of the U.S. population (Douthit et al., 2015; RHIhub, 2021), and about one-fifth of those individuals have a diagnosed mental illness (Substance Abuse and Mental Heath Services Administration, 2013). As has been described, rural youth are at increased risk for poverty, limited access to healthcare, and physical and mental health conditions (RHIhub, 2021). This means that rural youth with developing or established mental health conditions may be at risk for delayed mental health treatment or lack of treatment altogether. Thus, greater perceived social support may be even more critical for these populations, to buffer against the aforementioned disparities which are likely to increase risk of psychopathology.

The mental, physical, and overall well-being of youth from rural areas have been found to be heavily related to social support from peers, family members, and other community members

(Newland et al., 2014). While these youth overall tend to report feeling greater connectedness with their community, the subset of rural youth who feel particularly isolated may experience even greater detriments to their mental and emotional health. Additionally, due to increased stigma surrounding mental health conditions in rural communities, it may be more challenging for individuals suffering from symptoms of mental or emotional distress to confide in other members of their immediate community (Crumb et al., 2019), further exacerbating the severity of their symptoms and potential ostracization. While community connection and social support may be essential for these youth, those who lack validation from their inner circle may feel an even greater sense of segregation from their support system.

Implications of Social Support for Diverse Rural Youth

Rural youth from diverse groups related to sexual orientation, gender identity, race, or ethnicity are also at risk for lower perceptions of social support and increased risk of psychopathology. These youth are more likely to experience peer victimization and harassment, which has been found to be associated with low perceptions of social support and other negative outcomes such as increased psychopathology and engagement in risky health behaviors such as substance use (Durwood et al., 2021; Reisner et al., 2015; Watson et al., 2019). While being a diverse individual in a rural community does not necessitate social isolation, research indicates that it may contribute to a reduced sense of belongingness and community connection, and subsequent psychopathology (Reisner et al., 2015; Watson et al., 2019). The extant literature on how diverse youth in rural America obtain and benefit from perceived social support is limited. It is critical that this research be expanded in order to identify how to improve outcomes for these youth.

Social Media

A tool that, through the past two decades, has vastly improved access to communication and connection is social media. Boyd & Ellison (2007) define social networking as:

Web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. (p. 211)

Social media sites are vehicles through which individuals and communities can network online, exchange ideas, and build connections with others outside of their immediate community (Pew Research Center, 2021). Since the early 2000s, social media use has grown exponentially across age groups, and it is estimated that today, nearly three-fourths of all Americans use some form of social media (Pew Research Center, 2021). Despite their myriad uses, social networking sites have often been associated with negative consequences such as depression and social anxiety (Keles et al., 2020; Meshi & Ellithorpe, 2021).

Previous research has examined the potential harmful effects of social media use on health, both mental and physical. Some studies have identified negative consequences associated with social media use including social media fatigue and Fear of Missing Out (FOMO; Franchina et al., 2018; Przybylski et al., 2013; Bright et al., 2015; Dhir et al., 2018). Social media fatigue refers to withdrawal from social media due to mental and emotional exhaustion experienced by social media users after overloading on information, communication, and interactions over various platforms (Bright et al., 2015; Dhir et al., 2018). FOMO is defined by one's concern that others are having a rewarding experience without them (Franchina et al., 2018; Przybylski et al., 2013). FOMO is not necessarily limited to online interactions; however, the digital social environment can significantly exacerbate these feelings by increasing one's awareness of the

various activities they could potentially be engaging in (Przybylski et al., 2013). Some studies have identified negative health impacts of social media or technological device addiction including psychological distress and cognitive impairments (Clayton et al., 2015). Additionally, problematic social media use, as defined by issues such as over-preoccupation, mood modification due to social media, conflict, and withdrawal, may be associated with psychological issues such as depression and anxiety (Meshi & Ellithorpe, 2021).

Despite the evidence for potentially deleterious effects of social media, some research has found that concerns regarding the negative effects of social media may be displaced (Berryman et al., 2018; Kim, 2014). Within the past decade, some studies have provided evidence that social media may be a valuable source of social support for various populations (Kim, 2014). In fact, one's number of online connections may be associated with greater perceived social support, and thus, improved psychological well-being, particularly in isolated populations and among individuals with similar life experiences (Nabi et al., 2013; Selkie et al., 2020; Sendra et al., 2020). Social media has also been found to provide an additional pathway through which youth can connect with one another and build a digital support system (Reid Chassiakos et al., 2016). Thus, social networking sites may improve perceived social support in vulnerable or isolated groups, as well as the general population, by increasing access to individuals with similar life experiences (Nabi et al., 2013; Selkie et al., 2020; Sendra et al., 2020). Furthermore, the international response to the COVID-19 pandemic may also serve as support for the utility of social media in helping people connect with others online.

Social Media and Isolation Due to COVID-19

During the COVID-19 pandemic, many people around the world faced multiple periods of unprecedented isolation. Relatedly, the COVID-19 pandemic was associated with high rates of

mental health problems (Danzi et al., 2021), and created unique challenges regarding socialization and maintaining connectedness (Orben et al., 2020). Some research on social support during the pandemic found that social media use did not positively impact perceived social support during the pandemic. Lisitsa and colleagues (2020) reported that, despite using social media more, individuals were more passively engaged in social media, and thus, were not seeking social support in the same way that they would face-to-face. However, other investigators found that during the pandemic, social media served as a main pathway through which individuals connected with friends, family, and peers (Dreier et al., 2024). Social networking platforms, video-chatting applications such as Zoom and Facetime, and other online games and forums allowed people and communities to stay in touch, without leaving the safety and comfort of their home. The ways in which social media aided in maintaining connection over the course of such wide-spread isolation, is a promising example of the potential benefits social media may provide.

Perceived Online Social Support in Vulnerable Youth

Social media may provide easy and accessible social support as well as increased opportunities to experience community connectedness (Nabi et al., 2013). Social media use in youth is associated with positive benefits including increased social connection regardless of physical proximity and improved abilities to connect with existing friends (Satheeshkumar & Kumar, 2019). To date, the literature has acknowledged that social media may be a viable option for promoting socialization in populations that may otherwise have difficulty networking in person. To improve mental health outcomes for rural youth, it is important to identify how social media use among these adolescents impacts perceptions of online social support.

Similarly, some studies have investigated individuals with unique life experiences (e.g., individuals with chronic medical conditions, adolescent mothers) and found that social media can

aid in promoting social connection and a sense of belongingness among these populations (Donovan et al., 2021; Nolan et al., 2017). These studies found that sharing one's experiences with friends online may be critical to coping and feeling a greater sense of connection with others (De Nardi et al., 2020).

Additionally, the specific benefits of social media use have been studied in LGBTQIA+ youth. Selkie and colleagues (2020) found that transgender youth benefitted from using social media to obtain social and emotional support from peers. These youth belong to a diverse community which may have fewer opportunities to socialize face-to-face with others going through similar experiences, particularly those who live in rural areas. Social media may serve as a tool for LGBTQIA+ youth to gain validation and support from other members of their community. In another study of gender and sexually diverse youth, the authors highlight concerns of personal safety for LGBTQIA+ youth which may make online connection more desirable. LGBTQIA+ youth reported feeling unsafe at school at much higher rates than those of cis-gender and heterosexual youth. Additionally, sexually diverse youth were more likely than their heterosexual peers to report that their friends online were better able to provide support than their friends in-person (Ybarra et al., 2015). This finding may indicate that despite having access to in-person socialization with peers, some youth may not have others in their immediate social network who can relate to them or sympathize with their life experiences. Social media can help to bridge this gap and provide these individuals with opportunities for safe connections and a greater depth of social support. While there has been some evidence suggesting that social media may provide sufficient emotional and social support, the literature has primarily focused on small subpopulations of youth, and there are relatively few studies assessing this in youth generally.

Additionally, no studies have examined how these effects may differ for youth from varying community types, such as youth from rural and urban areas.

The existing literature has focused on identifying the use of social media in providing social support for individuals from subpopulations with similar life experiences (Baker & Yang, 2018; Selkie et al., 2020; Sendra et al., 2020). While this research has been fruitful in identifying whether youth obtain social support over social media, future research should investigate how perceived online social support can differentially benefit youth who are experiencing various types of social isolation within their community. There are many youths, namely those from rural communities, whose level of perceived social support may be overestimated. It is critical to identify the effects of perceived online social support among youth from rural communities who are also in need of improved access to meaningful connections and perceived social support.

Summary and Purpose of Present Study

Approximately one in seven adolescents between the ages of 10 and 19 have a mental health condition (World Health Organization; WHO, 2021); therefore, it is increasingly important that the underlying mechanisms that contribute to psychopathology in these vulnerable populations are clarified. Social support from peers and family members has been identified as a major factor in the promotion of healthy development for youth globally (Bi et al., 2021; Guntzviller et al., 2020; Holt-Lunstad, 2021; Taylor, 2011). Furthermore, research has shown that social connectedness in youth can reduce the risk of various psychopathologies including depression, and anxiety (Bi et al., 2021; Chu et al., 2010; Dang, 2014; Guntzviller et al., 2020; Rueger et al., 2016). In contrast, lack of perceived social support can greatly increase the risk for mental and emotional problems (Hefner & Eisenberg, 2009; Rueger et al., 2016).

As noted, perceived social support can aid in stress reduction, alleviate symptoms of psychological distress, and has even been found to increase other positive outcomes such as life satisfaction (Bi et al., 2021). Additionally, the benefits of social support are not limited to one population. Previous research has demonstrated the importance of social support for the well-being of individuals from all ages and backgrounds (Bi et al., 2021; Chu et al., 2010; Cobb, 1976; Harandi et al., 2017; Hefner & Eisenberg, 2009; Kelly et al., 2017; Waldrip et al., 2008). Having a strong support system has been found to promote healthy mental and emotional development, as well as reduce the risk of psychological distress across the lifespan (Kelly et al., 2017; Waldrip et al., 2008; Wang et al., 2018). This strong sense of community and perceived social support may be especially important for vulnerable populations such as rural youth (Newland et al., 2014).

Youth from geographically isolated areas may experience unique barriers to social networking opportunities that would otherwise allow them to feel socially connected with, and supported by, their community (Douthit et al., 2015; Gristy, 2012). However, little is known regarding how rural youth differentially benefit from social connection or suffer from lack thereof. Additionally, despite the negative effects that have been largely associated with technology and social media use, there is a growing body of work investigating the potential benefits of social media use, particularly in youth.

Social connection as obtained online may be a highly accessible means for improving perceived social support in rural youth. As social media has been found to promote a higher perception of social support, this may be an essential component in improving mental health in adolescents who are susceptible to social isolation (Nabi et al., 2013; Satheeshkumar & Kumar, 2019).

The purpose of the current study was to: 1) explore the relationship between perceived online social support and psychopathology in adolescents; 2) compare social media use and perceptions of online social support between rural and urban youth; and 3) clarify whether the relationship between perceived online social support and psychopathology differs for rural and urban youth. Due to the growing research on the benefits social media can have in building connections among certain subpopulations, we anticipated that social media use would be associated with greater perceived online social support in rural youth. Furthermore, we expected that rural youth would report greater time spent using social media as well as greater perceived online social support. Finally, we hypothesized that there would be a negative association between perceived online social support and depression as well as anxiety, and that this association would be stronger for youth from rural communities.

Specific Aims and Hypotheses

The present study assessed three primary research questions regarding the relationship between perceived online social support and psychopathology (as measured by depression and anxiety symptom severity) in rural and urban youth. Our first goal was to determine whether social media use frequency was associated with perceived online social support in youth. Secondly, we sought to compare social media use and perceived online social support between rural and urban youth. Finally, we evaluated the relationships between perceived online social support and depression and anxiety in rural versus urban youth.

Aim 1: Determine whether social media use is associated with increased perceived online social support in youth.

H1: Greater frequency of social media use will be associated with increased perceived online social support in youth.

Aim 2: Compare social media use and perceived online social support between rural and urban youth.

H2a: Rural youth will report greater social media use compared to urban youth.

H2b: Rural youth will report greater perceived online social support compared to urban youth.

Aim 3: Evaluate the relationship between perceived online social support and depression and anxiety symptom severity in rural versus urban youth.

H3a: Community type will moderate the relationship between perceived online social support and depression such that there will be a negative association between between online social support and depression, and this relationship will be stronger for rural youth.

H3b: Community type will moderate the relationship between perceived online social support and anxiety such that there will be a negative association between between online social support and anxiety, and this relationship will be stronger for rural youth.

Methods

Participants

Participants were 275 youth recruited from seven high schools (five public, two private) with student body sizes ranging from 51 to 1,478. Specifically, 45% (n =123) of participants were recruited from one of four rural schools and 55% (n = 152) were recruited from one of three urban schools. Participants were between the ages of 13 and 19 (M = 16.39; SD = 1.33). The sample was 66% biologically female. Regarding gender identity, 61% of participants identified as a girl, 33% identified as a boy, 1% identified as transgender, 3% identified as non-binary, and 2% identified as “other”. Additionally, regarding sexual orientation, 79% were straight, 2% were gay or lesbian, 10% were bisexual, and 9% selected “other”. The sample was 8% Hispanic/Latine, 84% White,

5% “other”, 4% Black, 4% multiracial, 2% Asian, less than 1% American Indian/Alaska Native, and less than 1% Pacific Islander. Additional demographic information is provided in Table 1.

Procedure

All study procedures were approved by the University of South Dakota Institutional Review Board. Participants were eligible for the study if they were: 1) youth aged 11 to 19 years; 2) attended a school in a rural or urban county; and 3) had consent from a parent or guardian to participate in the study. If youth were above the legal age of majority, they were able to provide their own consent for participation. Youth were ineligible for the study if they were unable to respond to a questionnaire in English or if they did not have parental permission to participate (if they were below the legal age of majority). Additionally, to ensure students lived in a rural or urban community, only schools located in areas that fell under these delineations were contacted for participation.

There are many existing definitions used to distinguish “rural” from “urban” community types. It is important to note that most definitions utilize counties as communities of interest rather than towns, cities, or even zip codes (Health Resources & Services Administration, 2021). For example, the United States Census Bureau classifies populations in one of two ways – rural or urban. They define rural as any population, housing, or territory, not in an urban area (United States Census Bureau, 2021). Whereas the Office of Management and Budget (OMB) categorizes counties as Metropolitan (50,000 people or more), Micropolitan (10,000-50,000 people), or rural (less than 10,000; The United States Office of Management and Budget, 2021). The differences between these delineations are important to acknowledge, particularly when considering disparities in access to resources between urban and rural communities (Douthit et al., 2015). For the purposes of the present study, we chose to utilize the categorizations provided by the OMB,

where Metropolitan areas were deemed urban and counties with populations under 10,000 were rural.

Participant recruitment and data collection were carried out in-person at each participating school. Schools were selected based on their location and principals were contacted only if their school was located within a rural or urban county. Recruitment began by contacting school administrators to request their permission for study personnel to present the study to their student body. Study personnel contacted approximately 80 schools across three states. For most schools, study personnel were able to contact school principals or front office staff directly, however, for some larger school districts, study personnel were required to submit formal applications requesting permission to conduct research activities within the district. In rare instances, study personnel were required to meet with school board members following applying to the district to explain the details of the study. Of the schools contacted, seven agreed to participate. Participant recruitment was conducted over the course of nine months. Schools were visited approximately five times on average to distribute and collect consent forms and to collect data, with visit frequencies ranging from two visits to more than fourteen visits for each school.

To recruit participants, study personnel spoke to eligible students (English speaking and within the appropriate age range) in their classrooms, auditoriums, and/or cafeterias (method varied based on the preferences of each school principal). Students were provided with a description of the study and were made aware of the study's purpose and procedures, including any potential risks and benefits associated with their participation. They were then provided with a flyer and consent form to bring home to their parent/caregiver. Students were informed that they would need to return a signed consent form on or before the day of data collection if they wished to participate in the study. If consent forms were returned prior to the day of data collection, they

were stored in a secure location and their names were recorded so study personnel could confirm their eligibility at the time of data collection.

On the day of data collection, students were gathered in a private space to complete the survey, per school preferences. If students had a signed consent form and were deemed eligible, they were allowed to proceed. If they did not, they were asked to return to their classroom to complete their typical class schedule. Study staff informed students that their participation was voluntary and that they could cease their participation at any time. They were then presented with an assent form and were asked to provide their written assent if they wished to continue.

Adolescents with a signed consent and assent form then received a physical copy of the survey and were instructed to complete the survey using a pencil or pen, which were provided by study personnel if the students did not bring a writing utensil with them. After completing the survey, participants were given a debriefing form, which contained local and national mental health resources as a safeguard in case any questions caused the participant distress. The entire survey took participants 20-30 minutes to complete. Once completed, study personnel collected the survey and provided the participant with a $10 gift card as compensation.

All data were collected without identifiers and each survey packet was given a unique ID number. Given these safeguards, it was not possible to link data to participants' identifying information. Consent and assent forms were stored separately from survey packets to protect participant confidentiality. All study materials were stored in locked filing cabinets, to which only study personnel had access to.

Measures

Participants completed a survey that included an evaluation of demographic information as well as measures which assess perceived online social support, anxiety symptoms, and depression symptoms.

Online Social Support Scale

Perceived online social support and frequency of social media use was assessed using the Online Social Support Scale (OSSS; Nick et al., 2018). The self-report OSSS was originally developed to assess four dimensions of social support as they are experienced online. These dimensions include esteem/emotional support, social companionship, informational support, and instrumental support. This 40-item questionnaire asked respondents to indicate the frequency with which they use various social networking sites to interact or connect with other people (e.g., Snapchat, YouTube, texting). Then respondents were asked to rate the frequency with which certain situations have occurred while interacting with others online over the previous two months. Respondents rated each item on a 5-point scale (0=*Never,* 1=*Rarely,* 2=*Sometimes,* 3=*Pretty Often,* 4=*A lot).* The OSSS provides a total score (sum of all items; 1-40) in addition to four subscales: Esteem/emotional online social support (sum of items 1-10), Social Companionship online social support (sum of items 11-20), Informational online social support (sum of items 21-30), and Instrumental online social support (sum of items 31-40). The developers did not identify "cutoffs" denoting "low," "medium," or "high" scores. Instead, they suggest evaluating respondent scores relative to the overall sample.

The OSSS has been used in adult populations and has acceptable psychometric properties (Masciantonio et al., 2021; Nick et al., 2018). This scale has been found to have adequate convergent validity with the Perceived Social Support Scale (.38) with subscale correlations

ranging from .23 to .49 (Nick et al., 2018). Additionally, it has demonstrated strong internal consistency (α = .88; Nick et al., 2018). Internal consistency for the present study was excellent (α = .97).

Generalized Anxiety Disorder Screener

To measure anxiety symptoms, the Generalized Anxiety Disorder Screener (GAD-7; Löwe et al., 2008) was utilized. The GAD-7 is a widely used 7-item self-report questionnaire developed to assess the presence of generalized anxiety disorder symptoms. Respondents were asked to rate the frequency with which they had been bothered by various symptoms of anxiety over the past two weeks. Responses were reported on a 4-point scale (0=*Not at all,* 1=*Several days*, 2=*More than half the days,* 3=*Nearly every day)*. Additionally, respondents were asked a final question about how difficult the issues made their day-to-day lives which they ranked on a different 4-point scale (0=*Not difficult at all, 1=Somewhat difficult, 2=Very difficult, 3=Extremely difficult*). Total scores were calculated by summing all the items, resulting in a possible score range of 0 to 21. The GAD-7 has been used in youth aged 11 to 17 (Cantu et al., 2020; Macartney et al., 2021; Mossman et al., 2017; Moyer et al., 2019). It is highly reliable and has strong internal consistency (α = .89-.91; Löwe et al., 2008; Tiirikainen et al., 2019). Internal consistency for the present study was excellent (α = .90).

Center for Epidemiological Studies for Depression

Symptoms of depression were assessed using the Center for Epidemiological Studies for Depression scale (CES-D; Eaton et al., 2004). The CESD is a 20-item self-report originally developed as a screener for clinical depression (Lewinsohn et al., 1997; Radloff, 1977). This questionnaire inquired about respondent's feelings over the past week. Individuals rated their responses on a 4-point scale. Response options included "*Rarely or none of the time (less than 1*

day)," "Some or a little of the time (1-2 days)," "Occasionally or a moderate amount of time (3-4 days)," "Most or all of the time (5-7 days)." Scores were calculated by summing responses where odd items were scored 0-4 (e.g., *Rarely or none of the time (less than 1 day)*=0, *Most or all of the time (5-7 days)*=4) and even items were the reverse (e.g., *Rarely or none of the time (less than 1 day)*=4, *Most or all of the time (5-7 days)*=0). Total possible scores ranged from zero to 60, with higher scores denoting the presence of greater symptomatology. The CES-D has been used in youth aged 11 to 17 (Keles et al., 2020; Piteo & Ward, 2020) and appears to have good internal consistency (α=.87-.90; Garrison et al., 1991; Lu et al., 2017). Internal consistency for the present study was excellent (α = .94).

Statistical Analyses

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS v.29). 283 participants were recruited from seven participating high schools. Frequency of missing data for the primary observed variables was 0.8% for the rural sample and ranged from 1.3% to 2.6% for the urban sample. Missing data was assumed to be missing at random and were handled using mean imputation. Participants who missed one or more measures in their entirety were excluded from the present analyses. Eight students were excluded due to measure missingness, resulting in a total sample size of 275. Prior to analyses, the data were cleaned and checked for outliers, normality, and distribution of variables. The skewness and kurtosis of all primary observed variables were within acceptable ranges (Kline, 2011). However, some evidence of heteroscedasticity was detected among depression (CESD) scores. To account for this, within our regression moderation model, we employed the Davidson-MacKinnon heteroscedasticity-consistent interference alternative estimator (HC3; Mackinnon & White, 1985).

For Hypothesis 1, a Pearson's correlation was used to evaluate the presence of an association between social media use and perceived online social support in youth. To control for differences between the demographic make-ups of the rural and urban samples, partial correlations were also conducted (see Table 1). Analysis of variance was planned for Hypotheses 2a and 2b. However, ANCOVAs were used in place of one-way Analysis of Variances (ANOVAs) to incorporate covariates, which was a necessary step due to the differences between samples. For Hypothesis 2a, a one-way Analysis of Covariance (ANCOVA; Kaufmann & Schering, 2007) was used to compare differences in social media use patterns and behaviors between rural and urban youth, after controlling for for race/ethnicity, age, and financial challenges. Similarly, for Hypothesis 2b, a one-way ANCOVA was used to assess and compare perceived online social support between rural and urban youth, after controlling for race/ethnicity, age, and financial challenges. Hypothesis 3a required two linear regressions with interactions to determine the presence of an interaction effect between location and perceived social support on depression and anxiety. Specifically, these analyses were used to identify whether community type (rural or urban) moderated the strength of the relationship between perceived online social support and psychopathological outcomes. Again, race/ethnicity, age, and financial challenges were all included in the models as covariates. Finally, given the potential gender differences likely to impact the predicted relationships within each hypothesis, all analyses were replicated within three separate gender identity groups which included heterosexual cis-gender boys, heterosexual cis-gender girls, and LGBT+ youth.

Power Analysis

Prior to data collection, a power analysis using G*Power v3.1 (Faul et al., 2007) was conducted to determine the sample sizes needed to achieve appropriate effect sizes. A review of

social support literature, particularly regarding social support obtained online, showed effect sizes ranging from low to medium (Benoit & DiTommaso, 2020; Bi et al., 2021; Chu et al., 2010). From the power analysis, Hypothesis 1 was expected to require a sample size of 64 participants to detect an association between perceived online social support and social media use. This sample size was found by estimating a low to medium effect size, a power of 80%, and a significance level of 5%. For Hypothesis 2a, a sample size of 309 participants was expected to be sufficient. This sample size was found after predicting a low effect size, a power of 80%, and a significance level of 5%. For Hypothesis 2b, a sample size of 200 participants was predicted to be sufficient, assuming a low to medium effect size, a power of 80%, and a significance level of 5. Furthermore, a sample size of 199 participants was expected to suffice for Hypothesis 3a in which we aimed to detect an interaction effect between location and perceived online social support on depression. Finally, for Hypothesis 3b, a sample size of 199 was deemed necessary to detect an interaction effect between location and perceived online social support on anxiety. These sample sizes were both found by estimating low to medium effect sizes, 80% power, and significance levels of 5%. Despite our Hypothesis 2a analysis being underpowered according to a priori power analyses, our sample size of 275 had 75% power to detect findings, which is considered sufficient for the present analyses.

Results

Preliminary Analyses

Rural versus Urban Group Differences

Independent samples t statistics and chi-square statistics were used to evaluate group equivalence (Table 1). The urban and rural samples were found to differ on several study variables. Although sex, gender identity, and sexual orientation were similar between samples, the

rural sample was more diverse in both race and ethnicity. Specifically, 14% of rural participants were reported to be of Hispanic/Latine ethnicity while only 2% of urban participants reported being of this ethnic background. Additionally, 23% of rural youth reported belonging to at least one non-White race, while only 11% of urban participants were racially diverse. Additionally, the rural sample was significantly younger than the urban sample. On average, urban youth were around 16-17 years of age (M = 16.71, SD = 1.24) while rural youth were 15-16 years old (M = 15.98, SD = 1.33). Finally, the sample differed economically as 27% of rural participants reported needing free or reduced lunch (referred to as financial challenges below) while 8% of urban youth reported needing this financial support.

Descriptive Statistics

Descriptive statistics including means, standard deviations, and bivariate correlations between all primary observed variables are reported in Table 2. Total depressive symptoms scores ranged 0-52, and on average, participants scored just below the clinical cutoff of 16 (M = 15.28, SD = 13.10; Radloff, 1977). Within the full sample, 38% of participants scored above the clinical cutoff suggesting heightened risk for a depressive disorder. Urban youth were found to score at or above the clinical cutoff for depressive symptoms at a higher rate than rural youth, ($\chi^2(1) = 4.91$, $p = .027$; Table 3). Additionally, total scores for anxiety ranged 0-21 and average scores fell in the moderate range (M = 7.23, SD = 5.42; Spitzer et al., 2006), with 44% of the full sample scoring above the clinical cutoff, suggesting heightened risk for an anxiety disorder. Similar to depression, urban youth scored at or above the clinical cutoff for anxiety at a higher rate than rural youth ($\chi^2(1) = 4.11$, $p = .043$). When comparing identity groups (heterosexual cis-gender boys, heterosexual cis-gender girls, and LGBT+ youth), youth from the LGBT+ community were found to report significantly higher depression and anxiety symptom severity, compared to their

heterosexual cis-gender peers (*p*s < .001). Additionally, no mental health differences emerged between youth from different developmental stage groups (10th grade and younger versus 11th grade and older; all *p*s > .05).

Scores for total online social support in the present sample ranged 0-156 and average scores were in the middle of the measure, suggesting moderate levels of perceived online social support (*M* = 68.11, *SD* = 33.47). Overall online social support scores were not found to differ significantly between youth from various identity groups or between younger and older age groups (all *p*s>.05). Within the online social support scale, four subscale scores were also calculated. Total scores ranged 0-40 for all online social support subscales. Average scores were similar across esteem/emotional support (*M* = 18.99, *SD* = 9.92), social companionship (*M* = 19.72, *SD* = 10.69), and informational support (*M* = 19.34, *SD* = 9.81). However, average scores for instrumental support were found to be lower than those of all other subscales (*M* = 10.06, *SD* = 8.93). Paired samples t-tests were used to investigate whether average scores among online social support subscales differed. These analyses revealed that only average scores for instrumental support were significantly lower than those of esteem/emotional support (*t*(274) = 15.19, *p* < .001), social companionship (*t*(274) = 17.56, *p* < .001), and informational support (*t*(274) = 20.15, *p* < .001). Average scores between other scales were not found to differ significantly (all *p*s > .05). Nearly all social support subscale scores did not differ between identity groups, however, social companionship was found to be significantly lower for heterosexual cis-gender girls compared to heterosexual cis-gender boys and youth from the LBGT+ community, *F*(2,268) = 8.44, *p* < .001. No differences in subscale scores emerged between age groups (all *p*s > .05).

Associations between all primary study variables were investigated to better understand the relationships between each outcome of interest. Online social support was not significantly associated with depression or anxiety (*p*s > .05), despite expectations that the variables would be negatively correlated. Similarly, social media use was also not found to be associated with depression or anxiety in youth generally (*p*s > .05). However, social media use was found to have a weak positive association with anxiety in youth from the LGBT+ community ($r = .26$, $p = .048$), whereas this association was not observed in heterosexual and cis-gender boys and girls (*p*s>.05). Furthermore, across the sample, a strong positive correlation was found between depression and anxiety ($r = .78$, $p < .001$), as predicted.

Furthermore, partial correlations were completed to identify associations between study variables after controlling for participant race/ethnicity, age, and financial challenges. There were no significant partial correlations between online social support and depression or anxiety (*p*s > .05). Additionally, social media use was not partially correlated with depression or anxiety (*p*s > .05). Finally, after controlling for all covariates, there was a strong positive partial correlation between depression and anxiety ($r = .77$, $p < .001$). Thus, these variables were not observed to confound any associations between the primary variables of interest.

Social Media Use Frequencies

Using the OSSS, we also examined overall social media use frequency as well as use frequency of various platforms across the sample. Total social media use was not found to differ significantly between youth from various identity groups or between younger and older age groups (all *p*s > .05). Adolescents reported use of a wide range of online social networking platforms. The top three most frequently used social connection platforms were texting, Snapchat, and Tik Tok ("frequently" was defined as percent of students who responded "sometimes",

"pretty often", or "a lot"). Texting was reported as being frequently used by 92% of participants. Snapchat was the second most used platform with 84% of adolescents reporting frequent use. Tik Tok was the third most used platform with 70% of adolescents reporting frequent use. These three platforms were followed by Instagram (64%), YouTube (60%), video games (47%), Facebook (24%), chatting services (23%), Twitter (19%), Yik Yak (3%), and Tumblr (2%). Additionally, 14% of adolescents reported frequently using some "other" social media platform that was not listed in the measure. Details regarding the use frequency of each social media platform are provided in Table 4.

Several one-way ANOVAs were used to evaluate differences in platform use between heterosexual cis-gender boys, heterosexual cis-gender girls, and youth from the LGBT+ community. Heterosexual cis-gender girls reported significantly greater use of Facebook, Instagram, Snapchat, Tik Tok, and Texting compared to their peers (all *p*s < .05), while heterosexual cis-gender boys reported significantly greater use of YouTube and video games (all *p*s < .001). Furthermore, LGBT+ youth reported significantly greater use of "other" platforms compared to their heterosexual cis-gender peers ($p < .001$).

To further investigate potential developmental differences in platform use, we also utilized several one-way ANOVAs to compare youth in the early and late stages of high school. Older adolescents reported significantly greater use of Instagram ($F(1, 273) = 8.78$, $p = .003$) while their younger peers used video games more frequently ($F(1, 273) = 6.59$, $p = .011$). Use frequency by younger and older adolescents was not found to differ for any other platforms.

Aim 1: Associations between social media use and online social support.

In support of Hypothesis 1, online social support was found to have a weak positive correlation with social media use ($r = .37$, $p < .001$). Additionally, a partial correlation revealed a

weak positive association between social media use and online social support ($r = .36$, $p < .001$) after controlling for all covariates. Thus, Hypothesis 1 was found to be supported.

Furthermore, the strength of the association between online social support and social media use was found to be in the moderate range for heterosexual cis-gender males ($r = .48$, $p < .001$) and LGBT+ youth ($r = .43$, $p < .001$), whereas in heterosexual cis-gender females, the strength of this association was weak ($r = .26$, $p = .003$).

Overall Online Social Support and Social Media Platforms

We also examined the associations between online social support and use frequency for each social media platform assessed in the current study. We analyzed both the bivariate correlations between online social support and platform use frequency as well as the partial correlations controlling for race/ethnicity, age, and financial challenges. These covariates were not found to have confounding effects on the correlations, thus, only the bivariate correlations are reported below.

Overall online social support was found to be weakly, positively associated with the use frequency of several social media platforms (All Pearson's correlations reported in Table 5). Overall online social support was regarded as having a very weak, albeit positive, association with frequent use of Tik Tok ($r = .18$, $p = .003$), Instagram ($r = .19$, $p = .001$), YouTube ($r = .12$, $p = .041$), Facebook ($r = .16$, $p = .009$), and other platforms that were not listed in the measure ($r = .18$, $p = .003$). Additionally, overall online social support was found to have a somewhat stronger, although still weak, positive correlation with use of Snapchat ($r = .20$, $p < .001$), chatting services ($r = .24$, $p < .001$), and Twitter ($r = .26$, $p < .001$). In contrast, overall online social support was not significantly correlated with texting or video games (all ps $> .05$), despite these platforms being frequently used by the present sample of adolescents. Furthermore, online

social support was also not found to be significantly associated with less commonly used platforms, Tumblr and Yik Yak (all *p*s > .05).

In heterosexual cis-gender boys, overall online social support had weak positive correlations with Instagram (r = .23, p = .039), chat services (r = .29, p = .008), and Yik Yak (r = .24, p = .024). Additionally, moderate positive correlations were found between online social support and Twitter (r = .50, p < .001), Snapchat (r = .33, p = .002), Tik Tok (r = .32, p = .003), and "other" (r = .31, p = .003) within this subsample. In heterosexual cis-gender girls, overall online social support was found to have weak positive correlations with Facebook (r = .19, p = .032), Instagram (r = .24, p = .006), Snapchat (r = .26, p = .002), and Tik Tok (r = .18, p = .040). Finally, among LGTQ+ youth, online social support was found to be weakly associated with Facebook use (r = .27, p = .038) and moderately associated with use of chat services (r = .35, p = .008).

Associations Between Subscales of Online Social Support and Social Media Platforms

Next, we investigated potential associations between the four online social support subscales and use frequency for all social media platforms assessed (See Table 5). Across platforms, total frequency of social media use had weak positive associations with esteem/emotional support (r=.34, p<.001), social companionship (r=.33, p<.001), informational support (r=.25, p<.001), and instrumental support (r=.32, p<.001). Additionally, among all subscales, online social support was correlated with use frequency of some social media platforms, but not others.

In heterosexual cis-gender boys, total frequency of social media use was moderately associated with all subscales of online social support (all *p*s < .05). In heterosexual cis-gender girls, these significant associations remained present, although the strength of these associations

were in the very weak to weak range (all *p*s < .05). Finally, among LGBT+ youth, social media use was weakly associated with informational (r = .28, p = .034) and instrumental support (r = .28, p = .030), whereas moderate associations were found between social media use and esteem/emotional support (r = .48, p < .001) as well as social companionship (r = .47, p < .001).

Esteem/Emotional Support. Across the full sample, esteem/emotional support was found to have very weak positive associations with use of chat services (r = .16, p = .009) and other platforms not listed (r = .13, p = .030). Esteem/emotional support had slightly stronger, although still regarded as weak, associations with Snapchat (r = .30, p < .001), Tik Tok (r = .26, p < .001), Instagram (r = .27, p < .001), Facebook (r = .20, p < .001), and Twitter (r = .25, p < .001). In contrast, esteem/emotional support had no significant associations with texting, YouTube, video games, Tumblr, or Yik Yak (all *p*s > .05).

Within heterosexual cis-gender boys, esteem/emotional support had weak associations with Facebook (r = .23, p = .036), Instagram (r = .29, p = .007), chat services (r = .23, p = .036), "other" (r = .25, p = .022), and Yik Yak (r = .24, p = .025). Within these boys, moderate associations were found between esteem/emotional support and Twitter (r = .51, p < .001), Snapchat (r = .37, p < .001), and Tik Tok (r = .33, p = .002). Within heterosexual cis-gender girls, esteem/emotional support was weakly associated with Instagram (r = .25, p = .004) and Tik Tok (r = .23, p = .009), and moderately associated with Snapchat (r = .31, p < .001). Finally, among LGBT+ youth, esteem/emotional support was weakly associated with Snapchat (r = .27, p = .041) and chat services (r = .27, p = .039), and moderately associated with Facebook (r = .34, p = .009).

Social Companionship. The second subscale, social companionship, was found to be very weakly positively associated with use of other platforms not listed in the measure (r = .16, p = .006). Additionally, slightly stronger yet still weak associations were found between social

companionship and use of platforms including YouTube (r = .24, p < .001), video games (r = .26, p < .001), chat services (r = .24, p < .001), and Twitter (r = .24, p < .001). However, social companionship was not associated with texting, Snapchat, Tik Tok, Instagram, Facebook, Tumblr, or Yik Yak (all ps > .05).

Within heterosexual cis-gender boys, social companionship was weakly associated with Tik Tok (r = .25, p = .021), video games (r = .22, p = .041), and "other" (r = .22, p = .045), and moderately associated with Twitter (r = .38, p < .001). Among heterosexual cis-gender girls, social companionship was weakly associated with Instagram (r = .17, p = .049), but no other platforms (all ps > .05). Finally, within LGBT+ youth, social companionship was moderately associated with video games (r = .32, p = .014) and chat services (r = .43, p < .001).

Informational Support. The third subscale, informational support, was found to only have very weak positive associations with a handful of platforms. Specifically, informational support was very weakly associated with the use of Snapchat (r = .12, p = .048), Instagram (r = .14, p = .023), chat services (r = .18, p = .002), Twitter (r = .18, p = .002), and other platforms not listed (r = .13, p = .028). Informational support was not correlated with texting, Tik Tok, YouTube, video games, Facebook, Tumblr, or Yik Yak (all ps > .05).

Among heterosexual cis-gender boys, informational support was weakly associated with Snapchat (r = .26, p = .016), chat services (r = .26, p = .018), and Yik Yak (r = .24, p = .031). Additionally, within this group, informational support was moderately associated with Twitter (r = .41, p < .001). In comparison, within heterosexual cis-gender girls, informational support was weakly associated with Instagram (r = .18, p = .042) and Snapchat (r = .20, p = .023). Finally, among LGBT+ youth, informational support was not associated with use of any social media platforms (all ps > .05).

Instrumental Support. Finally, the fourth subscale, instrumental support was positively associated with the use of several platforms. Instrumental support was found to have very weak positive associations with Snapchat (r = .16, p = .007), Tik Tok (r = .19, p = .002), Instagram (r = .15, p = .011), Facebook (r = .19, p = .002), and other platforms not listed (r = .19, p = .001). Additionally, instrumental support was found to have slightly stronger, yet still weak, associations with chat services (r = .24, p < .001) and Twitter (r = .20, p < .001). However, instrumental support was not correlated with use frequency of texting, YouTube, video games, Tumblr, or Yik Yak (all ps > .05).

Among heterosexual cis-gender boys, instrumental support was weakly associated with Snapchat (r = .27, p = .012), chat services (r = .28, p = .010), and Yik Yak (r = .22, p = .042). Additionally, this subscale was moderately associated with Twitter (r = .39, p < .001), Tik Tok (r = .35, p = .001), and "other" (r = .40, p < .001) within this subsample. Among heterosexual cis-gender girls, instrumental support was found to be weakly associated with Facebook (r = .28, p = .002), Instagram (r = .23, p = .010), Snapchat (r = .19, p = .010), and chat services (r = .22, p = .012). Finally, among LGBT+ youth, instrumental support was moderately associated with chat services (r = .33, p = .012).

Given these findings, Hypothesis 1 which posited that frequency of social media use would be positively associated with online social support was found to be supported such that there was a weak positive association between overall frequency of social media use and overall online social support across the whole sample. Additionally, the positive correlations found between social media use and the four subscales of online social support provide further evidence in support of this hypothesis. That is, these relationships demonstrate a pervasive association

between social media use and experiencing various dimensions of support from one's online community.

Aim 2: Compare social media use and perceived online social support between rural and urban youth.

Disparate Social Media Use Frequency Between Groups

Next, we sought to investigate whether frequency of social media use and perceptions of online social support were signficantly different between youth from rural and urban communities. A one-way ANCOVA (Analysis of Covariance) was conducted to determine whether there was a statistically significant difference between rural and urban youth on social media use, after controlling for race/ethnicity, age, and financial challenges. This ANCOVA revealed that there was a statistically significant effect of community type on frequency of social media use after controlling for race/ethnicity, age, and financial challenges, $F(1, 273) = 7.26$, $p = .007$. That is, average frequency of social media use in rural youth ($M = 18.07$*;* $SD = 6.59$) was significantly higher than average frequency of social media use among their urban peers ($M = 15.97$*;* $SD = 5.38$). Thus Hypothesis 2a, which predicted that social media use would be higher among rural youth, was supported.

We investigated group differences further by evaluating these relationships within each gender identity group using one-way ANOVAs. In doing so, social media use was identified as being higher among rural youth who identified as heterosexual cis-gender boys ($F(1,83)=6.05$, $p=.016$) and LGBT+ ($F(1, 57) = 10.96$, $p = .002$), compared to their urban peers, but there were no differences between rural and urban youth who identified as heterosexual cis-gender girls ($F(1, 129) = .005$, $p = .946$).

Differences in Use Frequency of Each Social Media Platform

We then broke down these comparisons further and used several one-way ANCOVAs to evaluate whether there were group differences in the use frequency of each social media platform between rural and urban youth. When evaluating differential use of each platform, rural youth and urban youth were not found to differ in the frequency with which they used most platforms (See Table 6). Use of texting, Tik Tok, Instagram, YouTube, video games, chat services, Twitter, Tumblr, and other platforms not listed were all non-discrepant between rural and urban youth (all *p*s > .05). However, rural youth did report using Snapchat ($F(1, 273) = 6.00$, $p = .009$), Facebook ($F(1, 273) = 8.20$, $p = .005$), and Yik Yak ($F(1, 273) = 8.91$, $p = .003$) significantly more frequently than their urban peers. Although the magnitudes of these relationships were small (all ηp2's = .03), indicating community type had a small, albeit significant effect on platform use.

Within heterosexual cis-gender boys, only Yik Yak use was reportedly higher among rural youth compared to urban youth ($F(1, 83) = 5.22$, $p = .025$), whereas no differences emerged when examining rural and urban heterosexual cis-gender girls. In contast, LGBT+ rural youth, rural youth reported greater use of Snapchat ($F(1, 57) = 4.44$, $p = .040$), chat services ($F(1, 57) = 12.89$, $p < .001$), and "other" ($F(1, 57) = 12.35$, $p < .001$) compared to LGBT+ urban youth.

Disparate Perceptions of Online Social Support

Next, we investigated whether there were differences in perceived online social support between rural and urban youth. A one-way ANCOVA was conducted to determine whether there was a statistically significant difference between rural and urban youth on online social support. Online social support was found to differ between rural and urban youth over after controlling for race/ethnicity, age, and financial challenges. That is, a one-way ANCOVA revealed a statistically significant difference in perceived online social support between rural and urban youth ($F(1, 273)$

= 9.65, p = .002), such that rural youth reported significantly higher perceptions of overall online social support (M = 75.83*; SD* = 33.98) compared to urban youth on average (M = 61.86; SD = 31.81). The effect of community type on online social support was small (ηp2 = .04). Thus, Hypothesis 2b, which predicted that online social support would be higher among rural youth, was supported.

When examining identity groups individually, heterosexual cis-gender boys from rural communities reported greater overall online social support compared to their urban peers, F(1, 83) = 4.44, p = .038. This same relationship was observed within LGBT+ youth, such that LGBT+ rural youth reported greater online social support compared to LGBT+ urban youth F(1, 57) = 12.42, p < .001). However, no differences emerged between rural and urban heterosexual cis-gender girls, F(1, 128) = 1.70, p = .194.

Furthermore, differences in perceived online social support were observed among all four subscales of online social support. For instance, a one-way ANCOVA revealed a significant difference in perceptions of esteem/emotional support support between rural and urban youth, F(1, 273) = 11.00, p = .001, ηp2 = .04. Between these two groups, esteem/emotional support was found to be significantly higher for rural youth (M = 21.18*; SD* = 9.92) compared to urban youth (M = 17.22; SD = 9.60). Additionally, for the second subscale, a one-way ANCOVA revealed disparate perceptions of social companionship between the two groups (F(1, 273) = 5.93, p = .016, ηp2 = .02), such that social companionship was rated higher among rural youth (M = 21.91, SD = 10.70) compared to urban youth, (M = 17.96; SD = 10.39). This pattern remained true for the third subscale, informational support, as well. A one-way ANCOVA demonstrated a significant difference in informational support between rural and urban youth (F(1, 273) = 6.38, p = .012, ηp2 = .02), such that informational support was higher for youth from rural communities

(*M* = 21.15; *SD* = 10.06) compared to those from urban communities (*M* = 17.87; *SD* = 9.38). Finally, this same discrepancy was found to be true when assessing instrumental support. A one-way ANCOVA showed a significant difference in instrumental support between the two groups, $F(1, 273) = 4.86$, $p = .028$, $\eta p2 = .02$. Like other measures of online social support, instrumental support was reported to be higher among rural youth (*M* = 18.07; *SD* = 6.59) compared to urban youth (*M* = 15.97; *SD* = 5.38). The effects of community type on all subscales of online social support were small.

When evaluating differences between rural and ubran youth from different identity groups, several differences emerged. Among heterosexual cis-gender boys, rural youth reported greater esteem/emotional support compared to urban youth, $F(1, 83) = 7.67$, $p = .007$. No other subscale score discrepancies were identified between rural and urbal youth within this subpopulation. There were no differences between rural and urban youth who identified as heterosexual cis-gender girls (all *p*s > .05). Among rural and urban LGBT+ youth, however, several differences were observed. Rural LGBT+ youth reported greater esteem/emotional support ($F(1, 57) = 11.40$, $p = .001$), social companionship ($F(1, 57) = 15.27$, $p < .001$), and instrumental support ($F(1, 57) = 12.12$, $p < .001$) compared to urban LGBT+ youth.

In sum, given the findings which demonstrate that, across the full sample, rural youth reported greater social media use and online social support compared to urban youth, Hypothesis 2a and Hypothesis 2b were supported. All comparisons of social media use and online social support between rural and urban youth can be found in Table 7.

Aim 3: Evaluate the relationship between perceived online social support and psychopathology in rural versus urban youth.

Community Type, Online Support, and Depression

To evaluate the moderating effect of community type on the relation of perceived online social support and depression symptom severity while controlling for race/ethnicity, age, and financial challenges, a linear regression moderation model was used. In this first model, we examined whether community type moderated the effect of online social support on depression. In this model, online social support did not have a significant main effect on depressive symptom severity (β = .004, SE = .03, p = .901), indicating that depressive symptom severity did not differ for youth depending on the level of their online social support perceptions. However, there was a significant main effect for community type on depressive symptom severity (β = -5.45, SE = 1.63, p = .001), such that depressive symptom severity was higher in urban youth compared to their rural counterparts. Furthermore, within this model community type did not moderate the strength of the effect of online social support on depressive symptoms (β = .02, SE = .05, p = .614), meaning the relationship between online social support and depressive symptoms did not differ between youth from rural and urban communities. Thus, Hypothesis 3a which predicted that community type would moderate the effect of online social support on depression, was not supported.

Among heterosexual cis-gender boys, online social support did not have a significant main effect on depressive symptom severity (β = -0.11, SE = 0.11, p = .301), nor did community type (β = -4.11, SE = 2.57, p = .114), indicating depressive symptoms were not predicted by one's level of online social support or belonging to a rural or urban community. Furthermore, community type did not moderate the strength of the effect of online social support on depressive

symptoms (β = 0.11, SE = 0.11, *p* = .332) within this subpopulation. Among the subsample of heterosexual cis-gender girls, online social support was not found to have a significant main effect on depressive symptom severity (β = 0.05, SE = 0.04, *p* = .253). However, community type did have a significant negative effect on depressive symptom severity, indicating that belonging to a rural community predicted lower depression scores (β = -6.01, SE = 2.45, *p* = .015) for these girls. However, community type did not moderate the strength of the effect of online social support on depressive symptoms (β = -0.003, SE = 0.06, *p* = .961). Finally, among LGBT+ youth, neither online social support (β = 0.05, SE = 0.08, *p* = .505) nor community type (β = -2.69, SE = 4.33, *p* = .537) had significant main effects on depressive symptom severity. Additionally, like the other subsamples of youth, community type did not moderate the strength of the association between online social support and depression (β = -0.04, SE = 0.11, *p* = .744).

Community Type, Online Support, and Anxiety

Finally, an ordinary least squares regression moderation model was used to investigate the effect of community type on the relation between online social support and anxiety symptom severity after controlling for race/ethnicity, age, and financial challenges. The moderation regression model demonstrated there was not a significant main effect of online social support on anxiety symptom severity (β = 0.01, SE = 0.01, *p* = .513), indicating that anxiety symptom severity did not differ for youth depending on the level of their online social support. In contrast, there was a significant main effect for community type on anxiety symptom severity (β = -1.98, SE = 0.72, *p* = .007), indicating that anxiety symptom severity was higher for urban youth than it was for rural youth. Similarly to the first model, there was not a significant moderating effect of community type on the association between online social support and anxiety (β = 0.002, SE = 0.02, *p* = .904), suggesting that community type did not moderate the effect of online social

support on anxiety symptoms. Thus, Hypothesis 3b which predicted that community type would moderate the effect of online social support on anxiety, was not supported. See Table 8 for all linear regression results.

Among heterosexual cis-gender boys, online social support did not have a significant main effect on anxiety symptom severity (β = 0.02, SE = 0.03, p = .576), nor did community type (β = -0.09, SE = 1.20, p = .904) indicating anxiety symptoms were not predicted by one's level of online social support or belonging to a rural or urban community. Furthermore, among this subsample, community type did not moderate the strength of the effect of online social support on anxiety (β = -0.02, SE = 0.03, p = .649). Within the subsample of heterosexual cis-gender girls, online social support was not found to have a significant main effect on anxiety symptom severity (β = -0.003, SE = 0.02, p = .886), indicating anxiety symptoms were not predicted by one's level of online social support. However, community type did have a significant negative effect on anxiety symptom severity, indicating that belonging to a rural community predicted lower anxiety scores (β = -2.30, SE = 0.99, p = .023) in youth from this identity group. However, community type did not moderate the strength of the effect of online social support on depressive symptoms (β = 0.01, SE = 0.03, p = .772). Finally, among LGBT+ youth, neither online social support (β = 0.05, SE = 0.03, p = .076) nor community type (β = -2.78, SE = 1.75, p = .118) had significant main effects on anxiety symptom severity, indicating anxiety severity was not predicted by one's level of online social support or the type of community they were from. Additionally, community type did not moderate the strength of the association between online social support and anxiety (β = -0.02, SE = 0.04, p = .679).

Discussion

Adolescence is a critical stage of development during which young individuals are faced with a range of stressors (Orben et al., 2020; Corsano et al., 2006). Given the steep increase in pressure to understand one's identity and role during this developmental stage, adolescence is also a period during which individuals may be vulnerable to experiencing mental and emotional concerns including depression and anxiety (National Institute of Mental Health, 2021). Social support has been identified as a key factor in bolstering well-being among youth, including buffering against negative consequences of early life stress (Smirnova et al., 2021). The benefits of social support may be particularly important for youth from isolated communities, including rural youth. Furthermore, over the past several decades, and particularly since the COVID-19 pandemic, the ways in which adolescents engage in face-to-face interactions and use social media to interact with peers has continued to evolve (Kannan & Veazie, 2023; Pew Resaerch Center, 2024). With the present study, we investigated the role of social media in providing a source of online social support for adolescents from rural and urban communities. We also assessed whether social media and online social support were associated with reduced risk for depression and anxiety in adolescents from different community types.

Overview of Study Outcomes

Overall, the results revealed a prominent positive association between social media use and perceptions of online social support among adolescents from rural and urban communities, as was expected. Specifically, frequent use of a variety of social media platforms was associated not only with greater overall online social support, but also with greater emotional support, social companionship, informational support and instrumental support independently. Furthermore, rural

youth reported greater use of their online social network as well as greater perceptions of social support from their digital community, compared to their urban counterparts.

However, the association between perceived online social support and psychopathology did not differ between rural and urban youth. While community type was found to be directly associated with both depression and anxiety such that urban youth reported greater symptom severity for both measures of distress, community type did not strengthen nor mitigate the relationship between perceived online social support and psychopathology in youth. These findings help clarify the role of social media in promoting perceptions of online social support among rural and urban youth. Additionally, these findings contibute to an improved understanding of how rural and urban youth differentially interact with their online communities and how that use is associated with their perceptions of online social support.

Mental Health and Social Media Use

Across the present sample, adolescents reported higher rates of depression and anxiety than what is estimated in the general population. While recent studies have found evidence for increasing prevalence rates of depression and anxiety among adolescents in the United States, particularly following the COVID-19 pandemic (Racine et al., 2021; Wilson & Dumornay, 2022), the rates reported in the present sample appear to be higher than those estimated for the general population of youth. However, psychopathology was not found to be associated with social media use in the present sample, which may suggest that additional factors, such as individual characteristics of the sample or external protective factors, may have been present. Additional research is needed to further clarify the ways in which social media interacts with and influences psychological well-being in adolescents from various community types.

Social media use has been identified as undoubtedly high among youth, with most adolescents reporting daily use, and nearly half reporting almost constant engagement with social media (Pew Research Center, 2024). Among the present sample, adolescents reported frequently interacting with peers online through a variety of social media platforms and means of digital communication. Texting, Snapchat, and Tik Tok were the three most commonly used means of communicating or connecting with peers. These are in line with previous findings which have also identified Snapchat and Tik Tok as among the most used social media platforms (Pew Research Center, 2024). Additionally the current study was in agreement with previous research which has demonstrated that texting appears to remain a distinct and highly preferred method of digitial communication for adolescents (Rideout & Robb, 2018). Of note, it was not specified in the current study whether texting referred to phone-to-phone texting or texting within apps, so it is possible that the frequency of this use was not exlcusive to typical stand alone texting.

Youth from different identity- and age-groups were found to report differential social media use. This may suggest that the type of platform is important in considering how youth differentially connect with others, depending on their in-person community. Additionally, these findings indicate it may be important to consider developmental stage, even within adolescents, when evaluating frequency of social media use and subsequent outcomes. While previous studies have identified girls as being more frequent digital media users overall (Twenge & Martin, 2020), we found that girls were not the only subgroup to report greater use of some platfroms; boys reported greater use of platforms like YouTube and video games compared to girls and LGBT+ youth. Furthermore, LGBT+ youth reported using unlisted platforms more frequently than their heterosexual and cis-gender peers. This finding may suggest that youth from this community are engaging frequently with platforms that are not mainstream or well-known by adults. As social

media use has been identified as a popular tool used by the LGBT+ community to connect with peers (Berger et al., 2022), identifying these platforms is critical to clarifying how youth from these communities are interacting with and supporting others. However, further research is needed to parse apart what other individual factors contribute to frequent use of each platform, and how that use may improve or impede the development of social support networks for a diverse range of adolescents.

Recent literature has categorized social media platforms into different "social media types" based on their intended purpose (Voorveld et al, 2018; i.e., relationship, self-media, creative outlet, and collaboration). In the present sample, Tik Tok, Snapchat, and Youtube, which are all classified as creative outlets, were frequently used by at least 60% of adolescents, while those platforms classified as relationship building and self-media platforms (i.e., Facebook, Twitter) were used far less frequently with less than a quarter of participants reporting frequent use. Additionally, video games, which are believed to be commonly used for entertainment and joint interaction in youth (Adachi & Willoughby, 2017), and may share similarities to creative outlets, were frequently used by nearly half of adolescents. These findings may suggest that adolescents are more inclined to use social media platforms geared toward creativity, joint interaction, and entertainment, rather than those designed to promote the exchange of information and ideas. Understanding why adolescents are attracted to certain social media platforms more than others is a helpful step in clarifying the nature of their online interactions and the subsequent consequences, both positive and negative. These findings aid in this effort by further clarifying which platforms appear to be most popular across adolescents from a range of community types.

Aim 1: Social Media Use and Online Social Support

As is well-established, peer interactions play an important role in the development of an individual's identity and interpersonal skills during adolescence (Guntzviller et al., 2020; Holt-Lunstad, 2021; Orben et al., 2020; Taylor, 2011). Modern socialization among youth often involves the use of interacting through social media or other means of online interactions (Pew Research Center, 2024). In the present sample, consistent with Hypothesis 1, greater social media use frequency was found to be broadly correlated with higher perceptions of online social support overall. These findings are in line with other recent studies (Satheeshkumar & Kumar, 2019) which have demonstrated the positive relationship between social media use and well-being, and constrast previous research which homed in on the potentially deleterious effects (Bright et al., 2015; Clayton et al., 2015; Dhir et al., 2018; Keles et al., 2019; Kim, 2014). Thus, the present study expands upon the extant literature by illuminating social media as a means for providing social and emotional benefits for youth and promoting increased social connectedness among users.

Furthermore, while previous studies have identified benefits of social media use among populations with highly unique life experiences (Baker & Yang, 2018; Selkie et al., 2020; Sendra et al., 2020), the present study builds upon these findings by demonstrating the potential benefits for youth generally. These findings further the literature base on the impacts of social media use by demonstrating that social media may be a useful tool for deepening one's social connections and strengthening adolescents' sense of support from their interpersonal relationships. Importantly, the present findings indicated that this association between social media use and online social support was stronger for boys and LGBT+ youth than it was for girls. Further research is necessary to better understand why the power of these benefits differ between youth

from various identity groups and what underlying factors impact the level of benefits one might obtain through social media use.

Types of Platforms and Support

Furthermore, subsequent analyses provided additional evidence for the positive relationships between social media use and various subscales of online social support. To our knowledge, this is the first study to compare how use of various platforms is differntially associated with the four subtypes of online social support in youth.

Esteem/Emotional Support. In the current study, we found that esteem/emotional support was associated with engagement in creative outlets such as Snapchat, Tik Tok, and Instagram as well as relational media like chatting services, and self-media such as Facebook and Twitter. These findings are consistent with previous studies which have posited that engagement with social networking sites in general may be associated with increased perceptions of emotional support and social capita (Mazzoni & Iannone, 2014), two constructs which are closely tied to self-esteem and self-concept. These findings suggest that engaging in outlets that promote self-expression and creativity may help to boost one's sense of self as well as their social and emotional well-being. As identity discovery is a marker of adolescent development, these are essential components to promoting healthy individual and interpersonal growth in youth.

Social Companionship. Additionally, we found social companionship to be positively associated with engagement in video games and creative outlets such as YouTube. These findings are consistent with previous research which has demonstrated that engagement with certain digital platforms, such as video games, can improve intergroup relations and bolster perceptions of online social support (Adachi & Willoughby, 2017). Social companionship was also associated with chatting services, which are relationship building platforms, and Twitter, which is a form of

self media. Social companionship is not unlike esteem/emotional support in that the platforms associated with these types of support are marked by direct interaction with others. However, the difference is that platforms such as video games or YouTube, which were associated with social companionship but not esteem/emotional support, may offer anonymity in a way that other platforms do not, such as Snapchat and Tik Tok, which *were* associated with esteem/emotional support. Anonymity is an important feature of some platforms and has been identified as one of the most attractive components of online communication for certain individuals (Walther & Boyd, 2002). However, anonymity may also limit the types of support that can be gained through use of these particular platforms as it hinders opportunities for direct communication with others.

In sum, these findings might suggest that while perceptions of social companionship can be improved without knowing who one is interacting with, anonymity may not lend itself as well to promoting perceptions of esteem/emotional support. By distinguishing these differences, the current study propels forward our understanding of how engagement in different platforms is differentially beneficial. The present findings can help improve caregiver knowledge of the types of online social support benefits their child is most likely to experience, based on which platforms they use most frequently.

Informational Support. Furthermore, informational support was most strongly associated with relational platforms such as chat services and self-media like Twitter followed by Snapchat and Instagram. Like those associated with esteem/emotional support, all of these platforms require some level of direct and private communication. This may indicate that adolescents are most inclined to reach out directly to a friend in order to exchange knowledge or information, rather than use anonymous sites for these purposes. These are in line with previous findings which have found that young individuals are likely to use social media to share information with

their peer groups, particularly during important life transitions such as adolescence (Mazzoni & Iannone, 2014). Like esteem/emotional support, these findings suggest that information sharing occurs most frequently when adolescents know who is on the other end of the conversation.

Instrumental Support. The final subscale, instrumental support, was associated with the same types of platforms as esteem/emotional support. These platforms included creative outlets such as Snapchat and Tik Tok, as well as self-media including Instagram, Facebook, and Twitter, and relational platforms such as chatting services. Instrumental support refers to giving and receving help from others online. Given the overlap between instrumental support and esteem/emotional support, it may be that adolescents are most likely to exchange help with others who they feel have offered them emotional support and with whom they have already established a relationship, either online and/or in-person. Previous studies have found that adolescents tend to use social media to communicate with pre-existing friends (Subrahmanyam & Greenfield, 2008). While we did not inquire about whether adolescents were interacting with friends or people whom they knew in person, future research should investigate the extent to which adolescents know their online social network. The present findings indicate that adolescents may be most likely to seek instrumental support, informational support, and esteem/emotional support from individuals who they already know and interact with directly. Future research should build upon these findings to further clarify who adolescents are interacting with and what types of support they are obtaining from in-person friends and online-only friends.

Interestingly, among the top three most used platforms (Texting, Snapchat, Tik Tok), none were positively associated with all measures of online social support. In fact, frequency of texting, despite being the most frequently used form of social networking, was not found to be associated with any measure of perceived online social support. Previous studies have identified texting as

functionally distinct from other forms of social media use (Rideout & Robb, 2018). Our findings may provide further evidence for this conceptualization and suggest that texting, while frequently used, is seen as a more traditional form of digital communication, perhaps akin to speaking in-person or over the phone, whereas other platforms offer opportunities for engaging with others in novel ways.

On the other hand, despite being less frequently used, chat services, Twitter, and "other" platforms were the only social networking methods found to be associated with overall online social support as well as all subscales of social support. It is unclear what underlying mechanisms promote broad support within these platforms, however, both chat services and Twitter involve direct and private communication, so it is possible this is an essential component for promoting online social support. There is some evidence to suggest that private communication online leads to greater disinhibition which results in increased self-disclosure when interacting with others online (Green et al., 2016). Thus, it may be that this type of interaction facilitates multiple levels of support that cannot be obtained through indirect, anonymous, or public communication.

Furthermore, given the sizeable portion of participants who reported frequently using "other" social media platforms, and given the associations between this category and online social support, it will be important for future research to continue investigating this classification. These findings suggest that youth are engaging with social media platforms that are not commonly known, at least among researchers and adults, and that their engagement with these platforms is particularly beneficial for their social-emotional well-being. Without knowing what these platforms are, it is difficult for researchers to conclude what underlying components of social media platforms contribute to increased perceptions of social support. For instance, it would be important to know if these "other" platforms share similarities with Twitter and chat services or if

they have notable differences. This additional information would help to further our understanding of what features are most crucial in promoting well-being among young social media users. Furthermore, LGBT+ youth reported significantly greater use of these platforms, which may suggest that there is a unique aspect of these platforms that promote safety and self-expression beyond what is provided within mainstream platforms. Future research should provide participants the opportunity to list other platforms that are not included in the measure, in order to identify other commonly used platforms among adolescents, particularly those from the LGBT+ community, and assess how each of these platforms are related to perceptions of support.

Future research should continue to investigate what types of interactions youth prefer to engage in online and how various types of socialization impact perceptions of connectedness and support. Additionally, researchers should seek to uncover the role of intimacy, privacy, and anonymity in likelihood for self-disclosure and relationship building. Finally, further research is needed to clarify the role of texting in adolescent socialization and assess its potential benefits as compared to those of standard social media use.

While some previous research has examined the benefits of using various types of social media platforms within specific populations (De Martino et al., 2017; Moorhead et al., 2013), this study is among the first to assess these relationships in youth generally. The present findings suggest that while social media use does provide general social support benefits, the particular types of benefits may differ depending on the which platforms adolescents frequently use. Important next steps will be to identify what individual factors impact differential use of various platforms and how platform use impacts other measures of psychological and emotional well-being in diverse samples of adolescents.

Aim 2: Differences Between Rural and Urban Youth

While found to be important for all youth, social support may be most critical for youths from vulnerable backgrounds. Adolescents exposed to adversity, such as rural youths, are generally more likely to belong to a low SES household and face greater barriers to establishing relationships with peers who share similar interests or life experiences (Gristy, 2012; RHIhub, 2021). These barriers may be associated with mental health concerns, increased feelings of isolation, and worse outcomes across the lifespan (Crumb et al., 2019; RHIhub, 2021).

Differential Social Media Use Between Urban and Rural Youth

Consistent with Hypothesis 2a, youth from rural communities were found to report greater overall social media use, regardless of platform type, compared to their urban peers. Previous studies have identified social media as a highly accessible tool for engaging in social connection (Reid Chassiakos et al., 2016), particularly for youth from isolated communities (Nabi et al., 2013; Selkie et al., 2020; Sendra et al., 2020). The present study expands upon these findings by suggesting that rural youth may turn to social media at a higher rate compared to individuals from less secluded communities. In addition to rural youth reporting greater *overall* social media use, they also reported higher use frequency for several platforms including Snapchat and Facebook. These platforms may be more popular among rural youth as they offer clear opportunities for youth to communicate directly with peers, share information, and offer support. These components may be more important for youth from isolated communities who are seeking additional avenues to connect with others and maintain positive relationships. Furthermore, Facebook has been previously identified as a means through which individuals can connect with people they already know in the real world (Lenhart & Madden, 2007). Rural communities are generally known to be close-knit and prioritize the maintenance of interpersonal relationships

with other community members (Newland et al., 2014). Thus, it is possible that rural youth use Facebook and Snapchat more than urban youth to stay connected to other members of their in-person community. These findings further clarify the previously suggested notion that youth from isolated communities may seek additional ways to connect with others. Further research is necessary to clarify what underlying mechanisms contribute to higher frequencies of social media use in rural youth, particularly those from diverse subpopulations such as racially and ethnically diverse youth and those from the LGBT+ community. Additionally, future research should continue to investigate which platforms are most used by diverse adolescents and identify what benefits these platforms offer for different groups.

Differential Perceptions of Online Social Support Between Urban and Rural Youth

In addition to reporting greater social media use frequency, rural youth also reported greater online social support overall, consistent with expectations. As has been previously stated, the well-being of youth from rural areas has been found to be heavily reliant on support from their community (Newland et al., 2014). Thus, the present findings may indicate that rural youth engage with social media in a variety of ways to supplement their in-person interactions with others and build a well-rounded network of connections with those who they do and do not know in-person.

Rural youth were also found to report greater perceptions of support across all four subscales of online social support (i.e., esteem/emotional support, social companionship, informational support, instrumental support). These findings are consistent with previous research which has demonstrated that isolated youth not only engage with social media more, but also report feeling greater connectedness with their online community (Selkie et al., 2020; Sendra et al., 2020). They also provide further evidence for the positive benefits of social media use, despite

previous studies which have focused on the potential negative associations with social media use and adolescent health (Keles et al., 2020; Meshi & Ellithorpe, 2021). Of importance, rural youth from the LGBT+ community reported greater online social support across three out of four subscales, compared to their urban peers. Additional research is necessary to understand both in-person an online social support levels for LGBT+ youth in general, and uncover how youth from different community types garner support from their social networks. Generally, future research should continue to investigate how to foster healthy and safe social media use in youth from rural communities in order to continue strengthening their online social connectedness. Additionally, researchers should evaluate how to bolster online social connection among urban youth in order to facilitate similar positive relationships online and increase perceptions of online social support within adolescents from larger communities.

Aim 3: The Relationship Between Online Interactions and Mental Health

Social Media Use and Psychopathology

There is a myriad of research highlighting the negative effects of social media use on mental and emotional well-being (Franchina et al., 2018; Keles et al., 2020; Meshi & Ellithorpe, 2021; Przybylski et al., 2013; Bright et al., 2015; Dhir et al., 2018). In the current study, however, social media use was not found to be associated with anxiety or depression among adolescents from rural or urban community types. A possible explanation for this deviation from the literature base is that much of the previous research has investigated *problematic* social media use, focusing on experiences such as social media fatigue, addiction, and fear of missing out (Franchina et al., 2018; Keles et al., 2020; Meshi & Ellithorpe, 2021; Przybylski et al., 2013; Bright et al., 2015; Dhir et al., 2018), while the current study assessed general social media use frequency. While it is unsurprising that symptoms of problematic social media use would be associated with negative

psychologial outcomes, this study on general social media use did not find a relationship with psychopathology.

Specifically, the lack of an association found presently between social media use and psychopathology is in line with previous studies which have suggested that social media use aids in promoting social connectedness and strengthening relationships, which are essential for mental well-being (Mazzoni & Iannone, 2014; Nabi, 2013; Subrahmanyam & Greenfield, 2008). Therefore, previous studies positing a linkage between social media use and negative mental health outcomes may not be generalizable to all social media users. Rather, it may be that negative psychological outcomes follow unhealthy use, rather than use overall. Furthermore, our findings suggest that, when used appropriately, social media use is is related to higher perceptions of support from others. Further research is necessary to clarify these relationships and better understand the associations between social media use and mental health concerns. Additionally, future studies should continue to investigate potential associations between social media use and online social support among both users who engage in healthy patterns of behavior online and those whose use is more problematic.

Furthermore, the majority of previous research on social media use and well-being was conducted prior to the COVID-19 pandemic. Since the onset of the pandemic, social media use and online social connections have evolved substantially (Kannan & Veazie, 2023; Pew Resaerch Center, 2024). Thus, it may be that the present findings illuminate this shift in how youth are using social media and how they are impacted by their interactions with others online. Future studies on this topic will continue to uncover how social media use has changed in this post-pandemic era, and how these changes affect the relationships between social media use and well-being.

Online Social Support and Psychopathology

Furthermore, in contrast to what was predicted in Hypotheses 3a and 3b, online social support was also not found to be associated with depression or anxiety, positively or negatively. An explanation for this finding may be that, while social support is beneficial under *stress* (Cohen & Wills, 1985), depression and anxiety are fundamentally different from stress, and thus social support may not function in the same way when these pathologies are present. It is important, however, to emphasize that, while distinct, these psychological constructs are not entirely unrelated. In fact, in previous studies, stress has been found to be associated with, and to precipitate, both depression and anxiety in youth (Anyan & Hjemdal, 2016). In other words, depression and anxiety are more severe outcomes associated with chronic or prolonged stress; furthermore, within our sample, rates of clinically elevated depression and anxiety were higher than what would be expected in the general population of adolescents. Thus, our findings might suggest that, despite the positive association between stress and psychopathology, and despite the ways in which social support is beneficial for those experiencing stress, online social support does not provide benefits over and above the deleterious effects of mental health concerns for individuals whose stress has developed into psychopathological symptoms or disorders. Further research is needed to better understand the role of online social support in the psychological well-being of individuals experiencing moderate to high levels of depression and/or anxiety. This work may also help to illuminate which groups are most likely to experience the positive benefits of engaging frequently with others online and which are vulnerable to falling into problematic use.

An alternative explanation may be that, regardless of the protective role social support plays throughout adolescence (Ciarrochi et al., 2017; Newland et al., 2014), social interactions may also serve as a source of stress for youth (Camara et al., 2017), which may dampen the

positive effects of social support (Rueger et al., 2019). This may be particularly true for youth with greater depression or anxiety as they are more prone to experiencing distorted cognitions about their interactions (Caouette & Guyer, 2016; Kuru et al., 2018), and therefore are more likely to perceive positive interactions as neutral and neutral interactions as negative. Furthermore, research shows that youth with depression are susceptible to experiencing blunted responses to social acceptance as well as lower cognitive flexibility (Caouette & Guyer, 2016), meaning individuals with depression are more likely to expect rejection and feel less accepted by peers. These perceptual distortions are likely to impact how these youth interpret their interactions online. Misinterpretation can lead to fewer or worsened interpersonal relationships as well as increased depression or anxiety (Ahmad et al., 2014). Thus, it may be that for youth with moderate to high levels of depression or anxiety, the distress associated with online interactions neutralizes the benefits of online social support, resulting in findings consistent with those established presently.

Further research is necessary to better understand when online social support interferes with psychopathology in adolescents. Additionally, these findings may be grounds for further investigation into whether online social support provides benefits for youth with different severity levels of psychopathology. For instance, it will be important to understand whether social media is a viable tool for reducing cognitive distortions and improving mental health outcomes in youth with low levels of depression and/or anxiety as compared to their peers with more severe symptomatology.

Moderating Effect of Community Type

Finally, we sought to identify whether online social support and psychopathology were differentially associated among rural and urban youth, given that rural youth represent a

vulnerable population. Contrary to hypotheses, we did not find community type to have a moderating effect on the strength of the associations between online social support and depression or anxiety. That is, being from a rural or urban community did not determine the extent to which online social support effected the symptom severity of depression or anxiety. While unexpected, there are several possible explanations for these findings.

First, a potential explanation for the lack of disparities between rural and urban youth may be that rural youth, while vulnerable to psychological distres, are also exposed to greater protective factors compared to urban youth. That is, while rural youth in general do tend to be more susceptible to early life stressors such as poverty and isolation (RHIhub, 2021), it may be that this stress is mitigated by protective factors that are also unique to rural areas such as strong community ties and tight-knit relationships (Newland et al., 2014). While it was hypothesized that online social support would be a necessay supplement for youth from more isolated communities, these findings suggest that for adolescents in general, this is not the case. For instance, community connectedness has been identified as a key component in promoting well-being among rural community members (Newland et al., 2014), thus, it is possible that rural adolescents' in-person relationships are exceptionally beneficial, thereby diminishing the positive potential effects of *online* social support. In future studies researchers should evaluate differences between perceptions of in-person support and online support among rural youth, in order to clarify how these constructs differ in their benefits for youth from rural communities.

Furthermore, the percentage of gender expansive (i.e., transgender, nonbinary, and other gender) and LGB youth in the present sample was substantially higher than what would have been expected, with estimates of LGBT+ youth populations ranging from 2-3% in participating states (Conron, 2020). This unexpectedly high rate of sexually and gender diverse youth suggests that

the present sample is unique from the general population of adolescents. Additionally, within the present sample of LGBT+ youth, social media use was moderately associated with online social support, which was a stronger association than what was observed among some heterosexual cis-gender youth. Given the limited literature on the potential benefits of online social support among these subpopulations (Selkie et al., 2020), future studies should continue to investigate online social support among LGBT+ and identify how online social support and mental health symptoms are associated with one another among rural youth from diverse backgrounds and identity groups. Furthermore, LGBT+ youth reported using unknown platforms more than their non-LGBT+ peers. Future research should continue to uncover what these platforms are in order to better understand how these youth are interacting with others online and how they are influenced by these interactions.

Another possible explanation may be that for all youth, regardless of the size of the community they are from, online social support simply does not provide protective benefits over and above the effects of psychopathology. Despite present hypotheses, we did not find a significant association between online support and psychopathology for adolescents overall, nor did we find differences for youth from different community types. One might conclude that these findings indicate that online social support is not as protective as we initially suspected. However, these researchers are hesitant to accept this explanation as previous studies *have* demonstrated the ways in which online social support can benefit youth (Selkie et al., 2020; Ybarra et al., 2015). Thus, it is more likely there were additional factors at play among the present sample contributing to this discrepancy. Additional research is necessary to clarify the circumstances under which online social support mitigates distress and determine what other factors impact the relationships between social media use, online support, and psychopathology.

Strengths

There were a number of strengths of the current study. First, the current study was among the few studies in the United States which examined differential online interactions among rural and urban youth specifically. Previous studies have identified the benefits of social media generally (Satheeshkumar & Kumar, 2019) and among unique populations (Donovan et al., 2021; Karim et al., 2022; Nolan et al., 2017), however, this was among the first to highlight the general population of rural youth as a vulnerable and important population of interest. The current study was also methodologically strong in that it used paper-and-pencil data collection methodologies across all schools and community types. Recently, various fields of study have increased the use of online data collection techniques. While these methods can improve reach and feasibility, they also create greater opportunity for bot responses or inattentive participation from real participants, both resulting in reduced data quality (Storozuk et al., 2020). Paper-and-pencil data collection methods not only greatly mitigate these risks, but they are also preferable when conducting school-based studies which rely heavily on establishing positive relationships with school personnel and families. Furthermore, this methodology allowed us to avoid biasing the sample towards youth who are more comfortable using online platforms in general, which is a highly relevant consideration given the nature of this study. By using this methodology, we were able to ensure the authenticity and quality of the data collected. Additionally, we built positive lasting relationships with several schools and provided them with helpful resources following their participation, including a report of findings and a presentation to staff and students on social media use and mental health, as a way of giving back. These are essential components to conducting effective and ethical research.

Limitations and Future Directions

The present findings represent an important contribution to the field of child and adolescent psychology by providing insight into how social media use facilitates online social support among youth from diverse communities. However, this study was not without limitations. First, many definitions exist to describe rural and urban delineations. In the present study, county size was used to categorize each school into either a rural, urban, or ineligible school (The United States Office of Management and Budget, 2021). While this method was necessary to appropriately capture the experiences of youths in a largely rural region, it did mean that some schools were included that may not be considered relatively "urban" in more populous states. Thus, given the nature of the communities accessed for data collection, the urban schools used in the present analyses were relatively smaller in population size compared to urban schools from larger metropolitan areas. This might limit generalizability to other "urban" youths who live in communities with population sizes greater than those used in the current study. While these authors acknowledge that youths from larger metropolitan areas likely have different experiences from youths in rural states, it is important to consider that the purpose of the present study was to compare the experiences of relatively rural and urban areas. Thus, the *actual* size of the community may have been less important than its *relative* size compared to others near it, as was the case in the current study. Thus, it is reasonable to interpret the present results as meaningful as they provide insight into the differences reported between youth from realtively rural and urban communities.

Secondly, we did not ask youth to report on the number of hours spent on their phones, texting, and on social media, rather we used categorical items and asked respondents to select the option which best represented the frequency with which they used each platform. However, it is

believed that both forms of measurement provide important insight into the frequency with which youth engage in their online social network. For instance, categorical response options allow youth to report relative frequency between all platforms and provide information about which platforms they use more compared to others. Additionally, if asked to report time spent on each platform, adolescents may have difficulty estimating the exact number of hours spent on social media in a given amount of time. They may also bounce between several platforms in a given sitting, making this estimation even more difficult to calculate. On the other hand, asking adolescents to provide an exact number may result in more information about how much time adolescents spend on screens overall. Additionally, if compared to the screentime data collected through their smartphones, this method could provide useful insight regarding their perceptions of time spent on their phones compared to actual time spent. Future research should continue to investigate social media use frequency using both categorical and open-ended methods to broaden our understanding of actual social media use as well as adolescent perceptions of social media use, and how each of these are associated with perceptions of online social support.

Furthermore, while the racial and ethnic make up of the present sample was largely representative of, if not more diverse than, the respective states from which they were recruited (US Census Bureau, 2022), the sample was majority White and non-Hispanic/Latine. Data were collected from multiple schools in two different states in an effort to recruit a diverse and representative sample and increase generalizability of the findings. While the present findings are believed to be generalizable to groups with similar demographic make ups, it is unclear whether they are generalizable to more racially and ethnically diverse populations. Future research should continue to investigate these topics among diverse individuals and communities.

Finally, due to schools being classified by county size, several small urban schools and relatively large rural schools were included in the present analyses. It is possible that school size may be a variable of interest when considering the factors that contribute to in-person and online social support in youth. Furthermore, the present sample included a combination of both public and private schools, thus, school-type may also be of interest as this has been included in a previous study evaluating social support and psychopathology in youth (Osborn et al., 2020). Future directions would be to investigate the differential associations between school size and type and social media use, online social support, and psychopathology. This work will help clarify what factors most contribute to social well-being for youth from varying communities.

Conclusion and Implications

The present study investigated a novel and important area of research by assessing differential social media use in rural and urban youth as well as the associations between their online social support and their mental health and well-being. Social media use and online social support were both found to be higher in youth from rural comunities. Additionally, social media use was found to be associated with online social support but not psychological distress. Community type was also not found to moderate the associations between online social support and psychopathology. These findings contribute to a more complex understanding of the relationships between social media use and well-being in adolescents.

For rural youth in particular, social media may offer an alternative pathway through which youth can build and maintain connections with peers and bolster their sense of social connectedness. These youth from less heavily populated communities reported both greater social media use frequency and higher online social support. The present findings differ from previous studies which have identified a direct relationship between social media use and mental health

concerns such as depression and anxiety (Meshi & Ellithorpe, 2021). Within the present sample, no such relationship was not found. The present study furthers the continued efforts to clarify the role of social media in adolescents' lives and health. These findings suggest that social media use may be associated with some positive outcomes in youth and add to the notion that associations between social media and psychopathology may be much more complex than they were oce believed to be (Berryman et al., 2018). Future studies should continue to investigate how social media use is associated with well-being and mental health concerns in adolescents. Additionally, further research is needed to identify whether these associations differ for youths from varying communities and backgrounds.

The current study represents an important future direction for research on social media use and online interactions among youth, as it may help inform targeted interventions which address protective factors for the psychological issues experienced by youths from a variety of populations. Additionally, by addressing these issues, community-building opportunities can be improved for isolated areas by identifying the ways in which adolescents obtain social support and how that support impacts their psychological well-being.

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Table 1

Sample Characteristics

Variable	Full Sample *M* (*SD*)	Rural *M* (*SD*)	Urban *M* (*SD*)	Group Equivalence	*p*
N	275	123	152		
Sex					
Female	66%	63%	69%	$\chi^2(1) = 1.19$	.275
Age *M (SD)*	16.39 (1.33)	15.98 (1.33)	16.71 (1.24)	$t(273) = 4.67$	<.001
Gender identity				$\chi^2(3) = 4.38$	.357
Girl	61%	55%	65%		
Boy	33%	36%	30%		
Transgender	1%	3%	1%		
Non-binary	3%	3%	3%		
Other	2%	3%	1%		
Sexual Orientation				$\chi^2(3) = 3.07$	.381
Straight	79%	82%	77%		
Gay or Lesbian	2%	1%	3%		
Bisexual	10%	8%	12%		
Other	9%	9%	8%		
Race				$\chi^2(6) = 14.90$	.021
White	84%	77%	88%		
Black	4%	6%	3%		
Asian	2%	2%	3%		
Pacific Islander	<1%	0%	1%		
American Indian/Alaska Native	<1%	1%	0%		
Multiracial	4%	4%	4%		
Other race not listed	5%	10%	1%		
Ethnicity				$\chi^2(1) = 14.19$	<.001
Hispanic/Latine	7%	14%	2%		
Grade				$\chi^2(3) = 17.17$	.002
9th	16%	23%	11%		
10th	20%	22%	19%		
11th	30%	33%	27%		
12th	34%	22%	43%		
Free/reduced lunch	16%	27%	8%	$\chi^2(1) = 17.81$	<.001

Table 2

Means, Standard Deviations, and Bivariate Correlations Between Primary Observed Variables

Measure[a]	*M*	*SD*	1	2	3
1. Online social support	68.11	33.47	-		
2. Social media use	16.91	6.03	.37**	-	
3. Depression	15.28	13.10	.03	.02	-
4. Anxiety	7.23	5.42	.04	.04	.78**

[a]*N* = 275.

*p <.05; **p <.001.

Table 3

Prevalence of Clinically Elevated Depression and Anxiety Scores

	Full Sample	Rural	Urban	Group Equivalence	*p*
Depression	38%	30%	49%	$\chi^2(1) = 4.91$	.027
Anxiety	44%	37%	44%	$\chi^2(1) = 4.11$	.043

Note. The percentage of individuals whose scores were above the designated clinical cutoff for depression and anxiety.

Table 4

Social Media Platform Use Frequency

Social Media Platform	High frequency
Texting	92%
Snapchat	84%
Tik Tok	70%
Instagram	64%
YouTube	60%
Video Games	47%
Facebook	24%
Chat Services	23%
Twitter	19%
"Other"	14%
Yik Yak	3%
Tumblr	2%

Note. Low frequency defined as responses of "Never" or "Rarely". High frequency defined as responses of "Sometimes," "Pretty often," or "A lot".

Table 5

Correlations Between Platform Use and Measures of Online Social Support

Platform	Social Support Type				
	Overall	Emotional	Companionship	Informational	Instrumental
Texting	.04	.06	.04	.02	.01
Snapchat	.20**	.30**	.10	.12*	.16**
Tik Tok	.18**	.26**	.09	.08	.19**
Instagram	.19**	.27**	.10	.14*	.15*
YouTube	.12*	.01	.24**	.12	.03
Video Games	.10	-.08	.26**	.08	.07
Facebook	.16*	.20**	.06	.10	.19**
Chat Services	.24**	.16**	.24**	.18**	.24**
Twitter	.26**	.25**	.24**	.18**	.20**
Yik Yak	.07	.08	-.02	.09	.11
Tumblr	.001	-.02	.02	.02	-.02
Other	.18**	.13*	.16**	.13*	.19**

Note. All reported values are Pearson's *r* correlations.

*p <.05; **p <.001.

Table 6

Differential Use Frequency of Each Social Media Platform

Platform	Rural		Urban		*F* (1, 273)	*p*
	M	*SD*	*M*	*SD*		
Texting	2.96	0.99	2.82	1.08	1.00	.318
Snapchat	3.10	1.37	2.88	1.44	6.00	.009
Tik Tok	2.53	1.63	2.47	1.65	0.74	.392
Instagram	2.05	1.35	2.07	1.41	2.06	.152
YouTube	2.09	1.48	1.77	1.36	1.07	.303
Video Games	1.57	1.55	1.50	1.46	2.05	.154
Facebook	0.97	1.24	0.78	0.98	8.20	.005
Chat Services	1.02	1.44	0.55	1.07	3.72	.055
Twitter	0.72	1.12	0.53	0.91	3.00	.084
Yik Yak	0.20	0.69	0.04	0.23	8.91	.003
Tumblr	0.09	0.53	0.14	0.61	1.06	.304
Other	0.67	1.26	0.32	0.85	0.55	.461

Table 7

Social Media Use and Online Social Support by Community Type

Measure	Rural		Urban		F (1, 273)	p
	M	*SD*	*M*	*SD*		
Social Media Use Frequency	18.07	6.56	15.97	5.38	7.26	.007
Online Social Support	75.83	33.98	61.86	31.81	9.65	.002
Emotional Support	21.18	9.92	17.22	9.60	11.00	.001
Social Companionship	21.91	10.70	17.96	10.39	5.93	.016
Informational Support	21.15	10.06	17.87	9.38	6.83	.012
Instrumental Support	11.60	9.18	8.81	8.54	4.86	.028

Note. *M* = mean; *SD* = standard deviation.

Table 8

Moderating Effect of Community Type on Online Social Support and Psychopathology

Predictor	*B*	SE	*p*	95% CI	
				LL	*UL*
Depression					
Online social support	.004	0.03	.901	-0.06	0.07
Community type	-5.45	1.63	.001	-8.67	-2.24
Online social support x Community type	0.02	0.05	.614	-0.07	0.11
Anxiety					
Online social support	0.01	0.01	.513	-0.02	0.04
Community type	-1.98	0.72	.007	-3.40	-0.56
Online social support x Community type	0.002	0.02	.904	-0.04	0.04

Note. B = regression coefficient; *SE* = standard error; *CI* = confidence interval. Community type was coded as 0 = urban, 1 = rural. Negative regression coefficients suggest that scores were higher for urban participants than rural participants.