Social media influencers who use video blogging, so-called “vloggers,” are highly popular among adolescents. Receiving video updates on a constant basis may not only serve adolescents’ informational or entertainment needs, but also fuel their fear of missing out (FoMO), which can lower their social well-being in the long term. Supportive communication with parents about digital media use might be an important resource in preventing these negative outcomes. This study used a national quota-based two-wave panel survey of early adolescents between 10 and 14 years (N_{T2} = 384) to investigate the influence of adolescents’ perceived quality of communication with their parents on the relation between following vloggers, FoMO, and social well-being. Findings of an autoregressive panel model revealed that supportive communication with parents decreased early adolescents’ FoMO directly and prevented them from experiencing FoMO in response to following vloggers. Higher levels of FoMO in turn resulted in lower social well-being over time.

Keywords: Vloggers, Social Media Influencers, Fear of Missing Out, Well-Being, Early Adolescents, Parental Support, Supportive Communication

doi:10.1093/jcmc/zmab008

Make up-tutorials, life hacks to avoid waste, vegan food recipes, or insights into their private life—these and many other topics have led so-called social media influencers to become significant figures in many adolescents’ lives (Martínez & Olsson, 2019; Smit et al., 2019). Following social media, influencers offer various gratifications for adolescents such as information (Martínez & Olsson, 2019),
entertainment (Jerslev, 2016), or relational gratifications (García-Rapp, 2017). Additionally, the content provided by social media influencers fits adolescents’ frame of reference, since they are often close in age to their audience (Marópo et al., 2020). The intensity with which children and adolescents are able to follow social media influencers’ updates has been fueled by the ubiquitous availability of social media on mobile devices such as smartphones (Anderson & Jiang, 2018). As a consequence, watching videos by social media influencers has even become more important than watching traditional television programs for many adolescents (Smit et al., 2019).

Yet, in contrast to traditional television programs, which air at a certain moment in time, content by social media influencers is constantly available on social media sites such as YouTube or Instagram (de Béral et al., 2019; Munnukka et al., 2019). Additionally, algorithms select automatic recommendations, which appear alongside the video viewers are currently watching (Smith et al., 2018). This continuous stream of new information is likely to fuel the feeling of missing out on something important, so-called fear of missing out (FoMO). Early adolescents (i.e., between 10 and 14 years) are particularly prone to experience FoMO for two reasons: First, early adolescents have been found to be more susceptible to immediate rewards than older adolescents or adults (Van Deursen et al., 2015). Influencers provide such rewarding experiences by sharing personal stories and intimate feelings (Berryman & Kavka, 2018), which leave their followers eager to constantly receive updates (Jin, 2018; see also Russell et al., 2006). Second, early adolescents’ time on social media is usually limited due to parental restrictions (Hefner et al., 2019; Khurana et al., 2015; Lee, 2013). Hence, when they are not allowed to constantly check updates of their favorite vloggers, they may be left with the feeling of FoMO.

Experiencing FoMO in early adolescence can be considered problematic, as FoMO has been repeatedly shown to be associated with negative affect (e.g., Przybylski et al., 2013), poorer well-being (e.g., Stead & Bibby, 2017), or social media-related stress (Beyens et al., 2016). Although existing research has enhanced current understandings of the relationship between social media use, FoMO, and well-being, it has insufficiently accounted for the effects of following social media influencers on these outcomes. Additionally, most studies in this area rely on cross-sectional studies (e.g., Beyens et al., 2016; Bloemen & de Coninck, 2020) or have been conducted with student samples (e.g., Burnell et al., 2019; Elhai et al., 2018; but see Smit et al., 2019 for social media influencers and children’s dietary behavior). Thus, longitudinal studies with early adolescents, which allow inferences about the temporal order of these relationships, are warranted.

Furthermore, parental influence is usually still high in early adolescence (Elsaesser et al., 2017) and studies have revealed the protective role of supportive communication with parents in the context of general social media use (e.g., Appel et al., 2012, 2014; Bloemen & de Coninck, 2020). In line with the literature on social support (Cohen & Wills, 1985), the existing empirical studies suggest two potential routes of how perceived supportive communication with parents may influence early adolescents’ FoMO: a direct influence (e.g., Bloemen & de Coninck, 2020) and a buffering (i.e., moderating) effect (e.g., Boniel-Nissim et al., 2015). Yet, in the context of adolescents’ use of social media influencers’ content, the role of supportive parental communication remains unexplored (but see Lin et al., 2019 for parents’ perspective on social media influencers).

The present study addresses these lacunas by investigating, for the first time, how following social media influencers affects early adolescents’ FoMO and social well-being over time using a two-wave panel survey of early adolescents aged 10–14 years in Germany. Germany is a country with a horizontal-individualist culture, which is marked by self-orientation and independence of people’s
social behavior, but engagement in open interpersonal emotional communication (Garcia et al., 2019). Parental mediation in Germany has been found to be marked by individualism (Kirwil, 2009) with dominant restrictive and active mediation rather than technical restriction styles (Hefner et al., 2019). Additionally, early adolescents in Germany are frequent Internet users. Among 10-to 14-year-olds, 90% use the Internet, and watching videos is the most frequent online activity in this age group (Bitkom, 2019). Accordingly, social media influencers are highly popular in Germany with famous examples like the teenage twins Lisa and Lena or BibisBeautyPalace who have millions of young followers. Overall, Germany thus provides a fruitful context to investigate outcomes of following social media influencers on early adolescents’ social well-being.

Characteristics of social media influencers

Social media influencers “have built a sizeable social network of people following them” (de Veirman et al., 2017, p. 798) and “shape their audience’s attitudes through blogs, tweets, and the use of other social media” (Freberg et al., 2011, p. 90). Video bloggers, so-called “vloggers,” can be considered a special kind of social media influencers who express their thoughts, ideas, and opinions by recording videos and uploading them on YouTube or Instagram (de Béraïl et al., 2019; Munnukka et al., 2019). Vloggers post product reviews, tutorials, personal stories, or motivational content (e.g., self-help guides; García-Rapp, 2017) about topics, which range from gaming and comedy to lifestyle and beauty (Jerslev, 2016). Apart from the content they provide, vloggers are characterized by sharing private aspects of their lives and personal interests with a largely anonymous audience (Berryman & Kavka, 2018; de Béraïl et al., 2019). In contrast to traditional TV programs, which often tell fictitious stories (e.g., soap operas), vloggers disclose intimate information about themselves and therefore seem approachable and trustworthy, which leads their followers to perceive their recommendations and advices as honest (Djafarova & Rushworth, 2017; Marôpo et al., 2020). By subscribing to specific channels or profiles, viewers cannot only regularly watch videos of these vloggers, but they are also kept informed of the latest uploaded videos (de Béraïl et al., 2019). For adolescents, social media influencers such as vloggers can be considered an important source of age-related information (Martínez & Olsson, 2019) and advice (Marôpo et al., 2020). An important characteristic of vloggers’ content is also that it is self-made, not professionally produced like traditional media. Precisely this intimacy increases adolescents’ perceptions of vloggers as similar to themselves (Marôpo et al., 2020), while TV personalities, even in reality shows, might appear more distant in comparison. Additionally, vloggers address their audience directly, which has been found to increase viewers’ involvement (Auter, 1992).

As so-called “digital opinion leaders” (de Veirman et al., 2017, p. 801), social media influencers may exert a disproportionate amount of influence on their followers. The concept of opinion leadership was originally conceptualized for a personal relationship between two communication partners (Katz & Lazarsfeld, 1955). This condition is usually not met for social media influencers who have a large network of followers (de Veirman et al., 2017) and therefore cannot engage in interpersonal relationships with each follower. Although not referring to opinion leaders in the digital context, Stehr et al. (2015) suggest that mass-mediated opinion leaders exert influence within so-called parasocial relationships, which is an asymmetrical relationship with someone whom one does not actually know in real life, but only by consuming media about that person (Horton & Wohl, 1956). These illusioned intimate, personal relationships can be developed not only with fictional characters but also with real people like celebrities (de Béraïl et al., 2019) or social media influencers (Boerman, 2020; de Béraïl et al., 2019; Jin, 2018).
Social media influencers, fear of missing out, and social well-being

Following social media influencers regularly enables followers not only to learn about their opinions, but also to interact with that person and experience feelings of intimacy (Boerman, 2020). Ultimately, as in real relationships, followers may want to know what is going on in the lives of social media influencers and may experience FoMO on something important (Russell et al., 2006). FoMO has been defined as “a pervasive apprehension that others might be having rewarding experiences from which one is absent” (Przybylski et al., 2013, p. 1841). By definition, FoMO is not specific to something that occurs online but rather a more general need for staying connected in order to know what others are doing (Przybylski et al., 2013). However, scholars have argued that the permanent availability of social media on mobile devices increases opportunities for getting information and connecting with others, which may trigger an aspect of FoMO that refers specifically to the subjective feeling of missing out on others’ online activities. Wegmann et al. (2017) conceptualize this online-specific FoMO as a state rather than a trait, because it is malleable, and can thus, serve as a potential mediating mechanism between media use and other outcomes.

Following social media influencers may be a critical trigger for an online-specific state of FoMO, as influencer communication is among other things marked by high constancy (i.e., expecting that influencers are always online) and intimacy (i.e., increasingly demanding for more intimate disclosure about the influencer’s life; Abidin, 2013)—both aspects that are highly likely to induce FoMO. It is conceivable that the “desire to stay continually connected with what others are doing” (Przybylski et al., 2013), which is characteristic for FoMO, not only refers to activities of one’s friends, but also to social media influencers, with whom many young people experience close parasocial relationships (Jin, 2018). Like social media use in general (Przybylski et al., 2013), following social media influencers stimulates adolescents’ basic need for social connection. If this need is not met, the experience of FoMO is a likely consequence.

Studies investigating FoMO in response to following social media influencers are still missing, as most research in the area of social media has been conducted in the areas of advertising (e.g., Boerman, 2020; de Veirman et al., 2017; Smit et al., 2019) or marketing (e.g., de Veirman et al., 2019; Djafarova & Rushworth, 2017; Freberg et al., 2011). However, findings from previous research suggest that more frequent social media use (e.g., Bloemen & de Coninck, 2020) and mobile phone use (e.g., Santana-Vega et al., 2019) are related to stronger experiences of FoMO among adolescents. Additionally, de Béral et al. (2019) showed that following vloggers on YouTube has high addictive potential. By using so-called “cliff-hangers” at the end of their videos, such as giving their followers a preview of the next video or using phrases such as “do not miss it,” they can increase their videos’ views, but also—intentionally or not—enhance FoMO among their followers. In particular, children and early adolescents, who might not be allowed to use social media as frequently as their older companions due to parental restrictions (Khurana et al., 2015; Lee, 2013), may be susceptible to the FoMO experience when following influencers. Accumulated over time, following social media influencers might therefore result in heightened levels of FoMO among early adolescents. This might especially apply when influencers use videos, which have been found to exert a high addictive potential (de Béral et al., 2019). Thus, the first hypothesis states as follows:

H1: Following social media influencers who communicate via vlogs increases early adolescents’ FoMO over time.

As a consequence of continued high levels of FoMO, children and early adolescents might experience a state of discomfort in their offline lives. By definition, FoMO is related to negative affect as it
revolves around a lack of need satisfaction (Przybylski et al., 2013). Indeed, researchers have revealed in several empirical studies that FoMO negatively predicts subjective well-being (Stead & Bibby, 2017), general mood (e.g., Przybylski et al., 2013), negative affect (Elhai et al., 2018), and life satisfaction (Przybylski et al., 2013) among young adults as well as positively predicts stress among adolescents (Beyens et al., 2016).

Scholars have also found that FoMO may impair individuals’ social well-being, which refers to one’s relationship with others and perceived societal standing (Keyes, 1998; see also Ravens-Sieberer & Bullinger, 1998). For instance, FoMO has been found to be associated with feelings of not being accepted by others (Burnell et al., 2019), perceptions of not being popular among one’s peers (Beyens et al., 2016), or the loss of important relationships due to intense mobile phone use (Oberst et al., 2017). For children and adolescents, social relationships are an important component of their quality of life (Ravens-Sieberer & Bullinger, 1998; see also Keyes, 1998). Investigating early adolescents’ social well-being is of crucial importance, as the transition from childhood to adolescence is marked by an increasing influence of peers (Elsaesser et al., 2017) and a high susceptibility to peer feedback (Thomaes et al., 2010). Taken together, as FoMO centers around the feeling of not being sufficiently connected with others (Przybylski et al., 2013), we propose that accumulated levels of FoMO will result in negative consequences for adolescents’ social well-being over time.

H2: Higher FoMO decreases early adolescents’ social well-being over time.

**Supportive communication with parents**

The almost ubiquitous use of social media among adolescents (Anderson & Jiang, 2018) is usually not entirely independent of their parents’ influence (Khurana et al., 2015; Lee, 2013). In early adolescence, autonomy increases, while parents’ influence is still high (Elsaesser et al., 2017; Simpkins et al., 2009). With regard to children’s and adolescents’ media use, scholars have distinguished specific parental mediation styles (Hefner et al., 2019; Livings (Livingstone and Helsper, 2008) tone & Helsper, 2008). Active parental mediation is characterized by active parent–child discussions about media use; restrictive parental mediation refers to strategies of parents’ rule-setting or limitation of children’s media use; and co-use is defined by parents’ and children’s joint media use (Livingstone & Helsper, 2008). Investigating children from 8 to 14 years and one of their parents, Hefner et al. (2019) found that active mediation and co-use were related to lower problematic mobile phone use among children, while restrictive mediation was found to be ineffective and even associated with higher problematic use. What differentiates techniques of active parental mediation and co-use from a restrictive style is communication between parents and children about media use (Livingstone & Helsper, 2008). If this media-related communication is perceived as supportive, it can have beneficial consequences for children.

There are two main theoretical approaches, which model the process through which social support influences well-being: First, the main-effect model, which suggests that social support has a direct beneficial effect on well-being and second, the social support buffering hypothesis, which postulates that support protects people from harmful or stressful events (Cohen & Wills, 1985). With regard to digital media use, scholars have found support for both models: Some find a direct beneficial effect of adolescents’ perceptions of supportive parent–adolescent communication (Alt & Boniel-Nissim, 2018; Bloemen & de Coninck, 2020; Van den Eijnden et al., 2010), while others find evidence for a buffering effect of supportive communication with parents (Appel et al., 2012, 2014; Boniel-Nissim et al., 2015).
Regarding FoMO, the existing research evidence suggests that supportive communication with parents reduces FoMO. The reason for this is seen in more open and positive communication with parents, which reduces adolescents’ pervasive apprehension that others might be having more rewarding experiences than they do themselves (Alt & Boniel-Nissim, 2018). More specifically, two recent surveys suggest that supportive parent–adolescent communication is directly related to lower experiences of FoMO among adolescents between 13 and 18 years (Alt & Boniel-Nissim, 2018; Bloemen and De Coninck, 2020). Yet, these findings are based on cross-sectional research, which does not allow conclusions about the direction of the relationship. However, drawing from the main effect model, we assume that perceived supportive communication will also directly reduce early adolescents’ FoMO in a longitudinal context.

H3: Early adolescents’ supportive communication with their parents about digital media use will decrease their FoMO over time.

Yet, the existing research in the area of digital media use and supportive communication with parents also provides support for the social support buffering hypothesis (Appel et al., 2012, 2014). According to this hypothesis, adequate support intervenes between a stressful event and a negative outcome, for instance, by decreasing the perceived importance of the problem or by providing a solution to the problem (Cohen & Wills, 1985). If adolescents are not able to receive constant updates from the social media influencers they follow, their need for immediate reward or feedback is not satisfied, which can be perceived as a stressful event. Experiences of FoMO may be one negative outcome of this event. Parents may alleviate this feeling by talking with their children about the problems associated with digital media use. Specifically, they may help their children redefine the problem or to better cope with their need for instant reward (Cohen & Wills, 1985). In line with this theoretical rationale, existing studies suggest detrimental effects of digital media use to be more likely to occur for adolescents who do not perceive their parents as high-quality communication partners when talking about social media or digital media use in general. For instance, findings from previous studies have revealed that if adolescents perceived the quality of Internet-related parent–adolescent communication as high, they show fewer negative responses to Internet and digital media use such as loneliness (Appel et al., 2012), aggression (Appel et al., 2014), or reduced life satisfaction (Boniel-Nissim et al., 2015).

In the rather new research area of following social media influencers, the role of supportive parent–adolescent communication has not yet been tackled. However, the existing studies focusing on general digital media use (e.g., Appel et al., 2012, 2014; Boniel-Nissim et al., 2015) suggest that supportive parent–adolescent communication can serve as an important resource to protect adolescents from the risks associated with digital media use. In other words, in line with the social support buffering hypothesis (Cohen & Wills, 1985), those early adolescents who have supportive conversations about digital media use with their parents may be better able to cope with the negative consequences associated with following influencers than adolescents who lack this resource (Appel et al., 2012). Therefore, it is conceivable, that adolescents who perceive the communication with parents as supportive, are better able to deal with the addictive potential of influencer content (de Béral et al., 2019). Thus, in addition to the main effect, we also suspect a moderating influence of supportive communication on the relationship between following influencers and FoMO.

H4: Early adolescents’ supportive communication with their parents about digital media use will decrease the influence of following social media influencers on FoMO over time.

Figure 1 displays all hypothesized relationships.
Method

Procedure
This study was part of a large longitudinal national two-wave panel survey of early adolescents between 10 and 14 years in Germany. In addition to the early adolescents, one of their parents was surveyed for other studies, which were part of this large research project (see Matthes et al., 2021 for details). The private, research institute GfK recruited and incentivized participants at two time points between September/October 2018 (Time 1, T1) and 4 months later in January/February 2019 (Time 2, T2). The institute recruited adolescents via their parents and employed a quota-based sampling procedure based on parents’ sociodemographic characteristics (i.e., gender, age). We obtained informed consent from the participating early adolescents as well as from one of their parents in both survey waves. Furthermore, we did not assess or process identifying personal data and the study complied with the EU General Data Protection Regulation.

Our reasons for choosing a 4-month interval were twofold. First, existing research revealed that a 4-month interval is a suitable time frame to detect changes in psychological outcomes such as loneliness and Internet addiction due to intense digital media use (Yao & Zhong, 2014). These outcomes are comparable to the dependent variables in the present study—that is, FoMO and social well-being. Additionally, a time frame of 4 months has been deemed appropriate to study outcomes of digital media use in the age group of early adolescents (Ojeda et al., 2019; van der Schuur et al., 2018). Second, we took into account feasibility considerations by the research institute to ensure the highest possible response rate in the second wave. We included participants in our study if they were between 10 and 14 years old, possessed a smartphone, and had used a social networking site on their smartphone at least once prior to study participation. These requirements were necessary because some questions (e.g., supportive communication with parents) specifically dealt with smartphone and social media.

Figure 1  Hypothesized model.
use. In total, 822 respondents participated at T1 (51.1% girls, $M_{age} = 12.09$ years, $SD_{age} = 1.37$), and 384 respondents at T2 (46.6% girls, $M_{age} = 12.37$ years, $SD_{age} = 1.48$).

In total, 53% of those early adolescents who participated at T1, also participated at T2. Early adolescents who dropped out at T2 did not differ from those who stayed in the sample with regard to their age, $F(1,820) = 0.64, p = .426$, partial $\eta^2 = 0.00$, their FoMO at T1, $F(1,820) = 0.35, p = .555$, partial $\eta^2 = 0.00$, their social well-being at T1, $F(1,820) = 1.74, p = .187$, partial $\eta^2 = 0.00$, or their perceived supportive communication with parents about social media and smartphone use at T1, $F(1,820) = 2.61, p = .107$, partial $\eta^2 = 0.00$. However, girls were significantly more likely to drop out at T2 than boys, $\chi^2 (1, n=822) = 5.79, p = .016$, which resulted in a slight underrepresentation of girls at T2. Additionally, those who dropped out were more likely to follow vloggers, $F(1,820) = 5.87, p = .016$, partial $\eta^2 = 0.01$.

**Measures**

Table 1 shows zero-order correlations of all included variables.

**Following vloggers**

To assess the degree to which early adolescents follow vloggers, we first provided them with a definition and popular examples of vloggers: “Vloggers are people who regularly upload videos of themselves to social media channels like YouTube and Instagram and tell different things about their lives. Usually, you don’t know the vloggers personally (like Lisa and Lena, the Lochis or BibisBeautyPalace). The more famous a vlogger is, the more followers he or she has.” To assess the degree to which early adolescents followed such vloggers, we used three items (“I watch vloggers’ videos or posts on social media (e.g., YouTube, Instagram),” “I know many vloggers, whom I follow on social media (e.g., “YouTube or Instagram”; “I like watching videos by vloggers”). Participants responded on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree; $\alpha = 0.87; M = 2.83; SD = 1.08$, at T1, $\alpha = 0.87, M = 2.71; SD = 1.04$ at T2).

**Fear of missing out**

We used four items based on Wegmann et al. (2017) who adapted the original FoMO items by Przybylski et al. (2013) to the context of social media. We asked adolescents to indicate their agreement on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree): “It bothers me when I miss the latest things on social media,” “I get restless if I don’t know about the latest things on social media,” “I often worry about missing important things on social media,” “I get restless when I am not informed about the latest things on social media” ($\alpha = 0.90; M = 1.54; SD = 0.72$ at T1, $\alpha = 0.90; M = 1.55; SD = 0.75$ at T2).

**Social well-being**

Early adolescents’ social well-being was assessed with three items based on the social life subscale of the KINDL questionnaire (Ravens-Sieberer & Bullinger, 1998). On a 5-point Likert scale from 1 (never) to 5 (always), early adolescents were asked to indicate how often the following statements had applied during the previous week (“...the other kids liked me,” “...I got along well with my friends,” “...I have experienced great moments with my friends,” $\alpha = 0.81; M = 4.05, SD = 0.67$ at T1, $\alpha = 0.79; M = 4.05; SD = 0.62$ at T2).
Lastly, we used three items based on Appel et al. (2014) on a 4-point Likert scale ranging from 1 (“strongly disagree”) to 4 (“strongly agree”) asking how early adolescents feel when communicating with their parents about their social media and smartphone use (“I feel good,” “I feel understood,” “I feel taken seriously,” $a = 0.90; M = 2.91; SD = 0.78$ at T1, $a = 0.90; M = 2.89; SD = 0.80$ at T2).

Covariates
We controlled children’s age ($M_{T1} = 12.09$, $SD_{T1} = 1.37$), gender (51.1% girls), and frequency of social media use at T1 by asking how often they used Facebook ($M = 1.94$, $SD = 1.60$), Instagram ($M = 2.55$, $SD = 1.85$), Snapchat ($M = 2.19$, $SD = 1.67$), and YouTube ($M = 4.34$, $SD = 1.44$) on a 6-point scale from 1 (never) to 6 (several times a day).

Data analysis
The dataset and analysis scripts can be found on the Open Science Framework (OSF; https://osf.io/zpysm/). We conducted path analyses with the R-package lavaan (Rosseel, 2012) using Maximum Likelihood estimation. To test the moderating effect of perceived supportive digital media-related parent–adolescent communication, we computed an interaction term between the predictor following

Table 1  Zero-Order Correlations

|                | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|----------------|----|----|----|----|----|----|----|----|
| 1. Following Social Media Influencers (T1) | 1  |    |    |    |    |    |    |    |
| 2. Following Social Media Influencers (T2) | 0.67*** | 1  |    |    |    |    |    |    |
| 3. Supportive Communication with Parents (T1) | −0.11** | −0.06 | 1  |    |    |    |    |    |
| 4. Supportive Communication with Parents (T2) | −0.16** | −0.17** | 0.59*** | 1  |    |    |    |    |
| 5. Social Well-Being (T1) | −0.07 | 0.02 | 0.30*** | 0.29*** | 1  |    |    |    |
| 6. Social Well-Being (T2) | −0.07 | −0.04 | 0.25*** | 0.36*** | 0.52*** | 1  |    |    |
| 7. FoMO (T1) | 0.32*** | 0.23*** | −0.17*** | −0.22*** | −0.17*** | −0.16*** | 1  |    |
| 8. FoMO (T2) | 0.30*** | 0.35*** | −0.23*** | −0.29*** | −0.07 | −0.18*** | 0.57*** | 1  |

Note: $N_{T1} = 822$, $N_{T2} = 384$; T1 = Time 1; T2 = Time 2.

**$p < .01$, ***$p < .001$.
vloggers and the predictor supportive parent–adolescent communication. The predictors were mean centered before computing the interaction term. To test the hypotheses, we ran an autoregressive model—that is, we controlled for past levels of the outcome, for example, FoMO at T1, in order to predict change in levels of the outcome over time, that is, FoMO at T2. We tested all relations via the time lag between T1 and T2, which reduces problems related to omitted variables and reverse causation and allows the assessment of interindividual differences in change (Adachi & Willoughby, 2015). We also controlled for adolescents’ gender, age, and intensity of social media use. We used the interactions package in R (Long, 2020) to plot and probe the moderation effect.

Results

Table 2 and Figure 2 show the findings of the path analysis (Model Fit: CFI = 1.00; TLI = 1.08, $\chi^2/df = 0.04; p = .959; \text{RMSEA} = 0.00, 90\% \text{CIs} \{0.00; 0.00\})]. The first hypothesis (H1) stated that following vloggers would increase early adolescents’ FoMO over time. We found that following vloggers at T1 positively predicted adolescents’ FoMO at T2, $b = 0.09, SE = 0.04, \beta = 0.12, p = .028$. Thus, H1 was confirmed. The second hypothesis (H2) postulated that FoMO would reduce early adolescents’ social well-being over time. We found that FoMO at T1 had a significant negative influence on social well-being at T2, $b = -0.10, SE = 0.04, \beta = -0.12, p = .020$, which supports H2.

The third hypothesis (H3) stated that adolescents’ supportive communication with their parents at T1 would directly decrease their FoMO at T2. In line with this hypothesis, the findings show a direct negative relation between supportive communication with parents at T1 and adolescents’ FoMO at T2, $b = -0.10, SE = 0.03, \beta = -0.13, p = .002$. Finally, in the fourth hypothesis, we assumed that the influence of following vloggers would be lower for those early adolescents who feel more supported by their parents in communications about digital media use. In line with this assumption, the influence of following vloggers on FoMO at T2 was weaker for those early adolescents who indicated higher levels of supportive communication with their parents, $b = -0.07, SE = 0.03, \beta = -0.09, p = .027$ (Figure 3). A Johnson–Neyman analysis revealed that for values of the moderator (i.e., perceived supportive parent–adolescent communication) below 3.00, there was a significant effect of following vloggers at T1 on FoMO at T2 (Figure 4). For those, who indicated higher scores of perceived supportive parent–adolescent communication, following vloggers at T1 was not related to FoMO at T2. Therefore, H4 was also supported.

Among the covariates, we found a direct positive relationship between perceived supportive communication with parents at T1 and social well-being at T2, $b = 0.06, SE = 0.03, \beta = 0.10, p = .030$. Overall, all predictors in the model explained 37% of the variance in early adolescents’ FoMO at T2 and 30% of the variance of social well-being at T2. It should be noted that the high levels of explained variance are largely attributable to the inclusion of the Time 1 level of the dependent variable as predictor in autoregressive panel models.

Discussion

This study set out to investigate the effects of social media influencers who use video blogs to share their opinions, advices, or personal stories—so-called vloggers—on early adolescents’ social well-being. In doing so, we took into account the role of FoMO and perceived supportive digital media-related communication with parents.
By communicating intimate details about their private lives, social media influencers aim to build a relationship with their viewers, which allows them to increase or maintain a high number of followers (Abidin, 2016, Maropo et al., 2020). This relationship is intensified when communicating via video blogs, so-called vlogs, because audio–visual characteristics create a stronger interconnectedness between communicator and the followers than mere visual characteristics due to a stronger illusion of a face-to-face interaction (Horton & Wohl, 1956). However, the constant stream of updates and the related possibilities of connecting with the vlogger and having reward experiences make it more probable for young people to feel like they miss out on something. Although the permanent availability of the Internet through mobile devices has intensified the opportunities of connecting and having rewarding experiences with others, it may also trigger a particular kind of FoMO, which develops in the context of online communication and refers to others’ activities on social media (Wegmann et al., 2017).

The present study tested the assumption that following vloggers in early adolescence triggers this kind of online-specific FoMO, as receiving constant updates produces more feelings of not being connected when engaging in other (offline) activities. We found support for this assumption, as our findings showed that those early adolescents who followed vloggers on a regularly basis in the

### Table 2 Path Analysis with Autoregressive Effects Based on Maximum Likelihood Estimation

|                      | FoMO (T2)       | Social Well-Being (T2) |
|----------------------|-----------------|------------------------|
| Gender (T1)a         | −0.05 (0.06)    | −0.09 (0.06)           |
| Age (T1)             | 0.01 (0.02)     | 0.01 (0.02)            |
| Facebook Use (T1)    | 0.02 (0.02)     | 0.02 (0.02)            |
| Instagram Use (T1)   | −0.01 (0.02)    | 0.00 (0.02)            |
| Snapchat Use (T1)    | 0.04 (0.03)     | 0.00 (0.02)            |
| YouTube Use (T1)     | −0.00 (0.02)    | −0.00 (0.02)           |
| FoMO (T1)            | 0.49*** (0.05)  | −0.10* (0.04)          |
| Social Well-Being (T1)|               |                       |
| Following Social Media Influencers (T1) |     |                       |
| Supportive Communication with Parents (T1) | −0.10** (0.03) | 0.06* (0.03) |
| Following Social Media Influencers (T1) × Supportive Communication with Parents (T1) | −0.07* (0.03) |                       |
| Observations         | 384             | 384                    |
| Adjusted $R^2$       | 0.37            | 0.30                   |

**Note:** T1 = Time 1. T2 = Time 2.

aFemale is reference category.
bPredictors were mean centered before computing interaction term.

*p < .05;
**p < .01;
***p < .001.
first survey wave indicated higher levels of FoMO related to their social media activities in the second survey wave. Although our study did not specifically focus on parasocial relationships, the findings are in line with previous research showing detrimental consequences of extreme parasocial relationships on well-being (e.g., McCutcheon et al., 2002). Corroborating these studies, we found that FoMO

Figure 2 Findings of path analysis with observed variables (\(N = 384\)). Figure presents unstandardized coefficients. Nonhypothesized, nonsignificant relationships, covariances, and covariates are omitted from the model due to clarity reasons.

Figure 3 Effect of following social media influencers (vloggers; T1) on FoMO (T2) for scores of supportive communication with Parents 1 SD below and 1 SD above the mean (predictors not mean-centered for figure).
was negatively related to social well-being over time. One potential explanation for this finding may be the increased desire to check social media applications on one’s mobile devices due to FoMO, which can be associated with negative consequences in other areas of life, such as time spent with peers or friends (Wegmann et al., 2017). An alternative explanation may be that adolescents develop a preference for online communication, specifically following the vlogs of social media influencers, over face-to-face interaction (Wegmann et al., 2017), which can impair their social well-being over time.

The current study also set out to investigate whether supportive communication with parents about digital media use may mitigate the negative experience of FoMO among early adolescents. Drawing from the literature on social support, we tested two potential routes of influence: The main effect hypothesis suggesting that supportive communication with parents directly reduces feelings of FoMO among adolescents and the social support buffering hypothesis postulating that parent–child communication protects adolescents from negative outcomes of following social media influencers like FoMO. First, in line with existing empirical research (Alt & Boniel-Nissim, 2018; Bloemen & de Coninck, 2020), our findings showed a direct negative effect of supportive parent–child communication on FoMO. A possible explanation for this main effect is that more attentive listening or higher understanding of parents decreases adolescents’ overall feeling that others might have more rewarding experiences than themselves (Alt & Boniel-Nissim, 2018).

**Figure 4** Johnson–Neyman intervals of significance. Shaded regions indicate 95% confidence intervals (predictors not mean-centered for figure).
Second, in support of the existing evidence (Appel et al., 2012, 2014; Boniel-Nissim et al., 2015), we also found that perceived supportive digital media-related communication with parents determined whether or not the intensity of following vloggers resulted in higher FoMO. In other words, the relationship between following social media influencers and FoMO 4 months later was only visible for those early adolescents who reported a poor communication quality with their parents. The explanatory mechanism for this effect can be seen in the protective effect of supportive parent–child communication (Bonieli-Nissim et al., 2015). By explaining the risks of digital media use to their children, parents may help them cope with negative feelings in response to following social media influencers. Possible coping strategies may be redefining the problem or reducing the perceived importance of the stressful event of not being able to view new content by influencers (Cohen & Wills, 1985; see also Oberst et al., 2017; Wegmann et al., 2017).

In line with Appel et al. (2012), we also found that our results were independent from general relationship quality with parents. Thus, it can be concluded that it is specifically the communication about digital media use that protects early adolescents from negative effects not relationship quality in general. Our longitudinal study also shed some light on the question of the direction of the relationship between social media use, in our case following vloggers, and FoMO. Rather than following vloggers being a result of FoMO, our study showed that following vloggers contributed to early adolescents’ FoMO.

Furthermore, it is also important to note that our findings were independent from respondents’ age, gender, or intensity of social media use. This is particularly important given empirical evidence that the intensity of general social media use increases FoMO among adolescents (e.g., Bloemen & de Coninck, 2020). However, activities on social media are manifold and not all activities may fuel FoMO. Our study, therefore, adds to the existing research by showing one specific activity on social media that fosters experiences of FoMO: Following social media influencers using video blogs. Therefore, our results underline the importance of assessing adolescents’ activities on social media in a differentiated way. Future research should investigate additional specific social media activities that are responsible for FoMO experiences.

Finally, we also found that supportive communication was directly and positively related to adolescents’ social well-being. Although the literature on social support suggests such a direct effect on overall well-being (Cohen & Wills, 1985), we had not hypothesized this relationship for two reasons: First, social well-being, as we conceptualized it, refers to how adolescents feel about their relationships with their peers and their friends, not with their parents (Ravens-Sieberer & Bullinger, 1998). Second, we measured supportive communication with parents that specifically addressed the topic digital media use, not supportive communication in general, which is why we did not expect that digital media-related communication would directly affect adolescents’ social well-being. Yet, it is conceivable that feeling supported affects well-being globally and therefore also areas of well-being, which are not directly concerned by the support. However, future research should also explore potential underlying mechanisms of this relationship such as reduced feelings of not belonging or increased self-esteem.

Limitations
Some limitations of this research are noteworthy. First, we only measured adolescents’ self-reported use of vloggers’ content, but we did not differentiate between different types of content (e.g., gaming, nutrition, comedy). Relatedly, we did not assess the exact topic of conversation between parents and children. That is, we do not know whether children mentioned that they follow social media influencers on platforms, which they are by law not allowed to use due to age limits. For example, the legal age limit is 13 years for using Instagram, Facebook, and Snapchat. Future studies should, therefore,
take into account the exact type of content adolescents view and the precise topic of conversation between parents and children, for instance, within in-depth interviews. Second, although we used a longitudinal approach, we only had two-panel waves with a time lag of 4 months. Four months is a commonly used interval to observe changes due to digital media use (e.g., Yao & Zhong, 2014). Yet, it is possible that these effects would not emerge in a longer time period (e.g., 1 year) or that these effects cumulate over time and would not be visible in a shorter time period. Follow-up research should therefore employ a combination of short-term and long-term measurements (e.g., measurement burst designs).

Third, although autoregressive panel models reduce problems related to omitted variables (Adachi & Willoughby, 2015), we cannot rule out that unknown third variables influenced our relationships. However, we could demonstrate that our findings did not depend on adolescents’ gender, age, or the intensity of using social media platforms in general. Finally, the findings need to be interpreted against the background of the geographical context, in which this study was conducted: Germany. Our findings may be first and foremost generalizable to countries with a similar individualistic culture (Garcia et al., 2019) and comparable childrearing styles (Kirwil, 2009). Cross-cultural studies are needed to investigate whether the findings of this study can be translated to countries with other dominant parenting styles.

**Conclusion**

The present study is the first to take a longitudinal approach in investigating FoMO and social well-being as consequences of following social media influencers in early adolescence. It also highlights the important role of parent–adolescent communication quality in this age period suggesting that supportive communication with parents about adolescents’ digital media use is a promising tool for parents to prevent their teenage children from harmful effects on their social well-being in the long term. Overall, our findings not only revealed that digital media-related parent–adolescent communication can buffer negative effects of following influencers but can also directly reduce adolescents’ FoMO and increase their social well-being over time.

**Data availability statement**

The data underlying this article are available in OSF at https://osf.io/zpysm/.

**Notes**

1. The school year in Germany lasts from August/September to June/July. Therefore, both survey waves could be completed within the same school year.
2. Since our dependent variable fear of missing out was skewed and did not pass a test for normal distribution, we also ran our model using the robust maximum likelihood estimator, which corrects for non-normality in continuous scores and provides robust standard errors. Using the robust maximum likelihood estimator also resulted in a good model fit and the results were essentially the same in their significance and directionality as the ones presented here.
We used Facebook, Instagram, YouTube, and Snapchat as covariates as these were the most frequently used platforms on which adolescents may encounter social media influencers’ content in Germany at the time of our study (DAK, 2017).

As scholars have stressed the importance of showing the moderating influence of communication quality independent of general family support (Appel et al., 2012), we also ran a model controlling for a mean index of general relationship quality with parents (“When I’m not well, my parents show me that they love me,” “When I’m sad, my parents cheer me up,” “My parents are always there for me when I need comfort,” ($z = 0.87; M = 3.53, SD = 0.58$ at T1, $z = 0.85; M = 3.52; SD = 0.57$ at T2). When including this index as an additional covariate, the interaction effect of FoMO at T1 and parent-adolescent communication quality is still significant ($b = -0.07, SE = 0.03, p = .032$). Yet, for clarity reasons, we decided to keep the parsimonious model.

Tests for reversed causality revealed no reversed relationships between FoMO at T1 and following vloggers at T2 controlling for following vloggers at T1 ($b = -0.03, SE = 0.05, \beta = -0.03, p = .550$) or social well-being at T1 and following vloggers at T2 controlling for following vloggers at T1 ($b = 0.06, SE = 0.06, \beta = 0.04, p = .278$). We also found no other reversed relationships between the constructs in our model.

Acknowledgements

This work was supported by the Sparkling Science Programme of the Austrian Federal Ministry of Education, Science, and Research under Grant SPA 06/109.

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